



2022 Annual Groundwater Monitoring and Corrective Action Report and Semi-Annual Remedy Selection and Design Progress Report

for Compliance with the Coal Combustion
Residuals (CCR) Rule

Comanche Station

Public Service Company of Colorado

January 31, 2023





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Table of Abbreviations and Acronyms

Abbreviation	Definition
BTV	Background Threshold Value
CCR	Coal Combustion Residuals
COI	Constituent of Interest
EPA	Environmental Protection Agency
LCS	Laboratory Control Samples
MS/MSD	Matrix Spike/Duplicate
QC	Quality Control
PSCo	Public Service Company of Colorado
RPD	Relative Percent Difference
SOP	Standard Operating Procedure
SSI	Statistically Significant Increase
SSL	Statistically Significant Level
TDS	Total Dissolved Solids
TSS	Total Suspended Solids

Certification

2022 Groundwater Monitoring Annual Report for Comanche Station

I hereby certify to the best of my knowledge that this groundwater monitoring annual report is designed to meet the performance standard in 40 CFR Part 257 of the Federal Coal Combustion Residuals (CCR) Rule.

I am duly licensed Professional Engineer under the laws of the State of Colorado.



Signed January 31, 2023
Matthew Rohr, PE
Colorado PE License 0053467
License renewal date October 31, 2023

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Quinn V. Kilty Digitally signed by Quinn V. Kilty
Date: 2023.01.31 15:31:03 -07'00'

Quinn V. Kilty
Manager, Environmental Services



Summary of 40 CFR Section § 257.90(e)(6) Groundwater Monitoring System Requirements and Site-Specific Compliance at Comanche Station			
§ 257.90(e)(6) A section at the beginning of the annual report that provides an overview of the current status of groundwater monitoring and corrective action programs for the CCR unit. At a minimum, the summary must specify all of the following:		Bottom Ash Impoundment (Ceased Waste Disposal on June 18, 2021)	Landfill (Active)
§257.90(e)(6)(i)	At the start of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in § 257.94 or the assessment monitoring program in § 257.95.	Detection Monitoring Program	Detection Monitoring Program
§257.90(e)(6)(ii)	At the end of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in § 257.94 or the assessment monitoring program in § 257.95.	Assessment Monitoring Program	Detection Monitoring Program
§257.90(e)(6)(iii)	If it was determined that there was a statistically significant increase over background for one or more constituents listed in appendix III to this part pursuant to § 257.94(e):	Yes	Yes
§257.90(e)(6)(iii)(A)	Identify those constituents listed in appendix III to this part and the names of the monitoring wells associated with such an increase. (2022 list of SSI wells based on an updated 2022 BTV based on W-2C background well)	- W-5B – pH - W-6B/W-6B1 – chloride, sulfate	- MW-1B – Cl - MW-2B – Cl - MW-5 - Cl
§257.90(e)(6)(iii)(B)	Provide the date when the assessment monitoring program was initiated for the CCR unit.	April 6, 2021	N/A - ASD in progress
§257.90(e)(6)(iv)	If it was determined that there was a statistically significant level above the groundwater protection standard for one or more constituents listed in appendix IV to this part pursuant to § 257.95(g) include all of the following:	Yes	N/A
§257.90(e)(6)(iv) (A)	Identify those constituents listed in appendix IV to this part and the names of the monitoring wells associated with such an increase. (2022 list of SSL wells based on an updated 2022 BTV based on W-2C background well)	- W-3B – cadmium, cobalt, radium 226/228 - W-6B/W-6B1 – cadmium, cobalt, radium 226/228 - W-7 – cobalt - W-12 – cobalt - W-14 – cobalt - W-16 – cobalt	N/A
§257.90(e)(6)(iv) (B)	Provide the date when the assessment of corrective measures was initiated for the CCR unit.	February 13, 2022	N/A
§257.90(e)(6)(iv)(C)	Provide the date when the public meeting was held for the assessment of corrective measures for the CCR unit.	N/A	N/A
§257.90(e)(6)(iv)(D)	Provide the date when the assessment of corrective measures was completed for the CCR unit.	November 16, 2022 (date prescribed in the Consent Agreement)	N/A
§257.90(e)(6)(v)	Whether a remedy was selected pursuant to § 257.97 during the current annual reporting period, and if so, the date of remedy selection.	N/A	N/A
§257.90(e)(6)(vi)	(vi) Whether remedial activities were initiated or are ongoing pursuant to § 257.98 during the current annual reporting period.	N/A	N/A

1.0 Introduction

The U.S. Environmental Protection Agency's (EPA's) final Coal Combustion Residuals (CCR) Rule establishes comprehensive a set of requirements for the management and disposal of CCR (or coal ash) in landfills and surface impoundments by electric utilities. Comanche Station, located in Pueblo, Colorado (**Figure 1**) is owned and operated by Public Service Company of Colorado (PSCo), an Xcel Energy Company. Comanche Station has two CCR units, an impoundment (Bottom Ash Pond or BAP) and an ash disposal facility (Landfill) (**Figure 2**) that are subject to certain requirements of the CCR Rule. The impoundment is no longer in use (ceased waste disposal in June 2021); the landfill is active.

PSCo entered into a Consent Agreement (Agreement) with EPA that has an Effective Date of May 20, 2022. Pursuant to Paragraph 93 of the Agreement, PSCo submitted an annual groundwater monitoring and corrective action report (Annual Report) to EPA in July 2022. The July 2022 Annual Report provided a comprehensive review of monitoring between January 2020 and June 2022. As discussed in that report, the certified monitoring well systems for both CCR units have been expanded since they were initially implemented in 2015. These expansions reflect a phased development with significant additional site hydrogeological investigation/characterization work that was conducted between 2020 and 2022 and incorporated into an updated conceptual site model (CSM).

Prior to 2020, the understanding for the hydrogeologic CSM was that the shallow unconsolidated colluvial deposits beneath Comanche Station were unsaturated with isolated areas of perched water, and that the colluvium overlies 1,450 feet Pierre Shale bedrock that is effectively impermeable. Underlying the Pierre Shale is the Dakota Sandstone Formation, which is recognized as a regional aquifer in this area. Based on this CSM, the monitoring well system prior to 2020 was established to monitor the colluvium, with screened intervals in the colluvium and well bottoms at the colluvium/shale contact or with sumps to capture water at the contact.

Data from subsequent site investigations conducted between 2020 and 2022 was incorporated into an updated CSM that reflects that the uppermost aquifer is present in the unconfined and fractured weathered shale, which is the uppermost portion of the Pierre Shale bedrock. Based on the updated CSM, the updated well system monitors groundwater in the weathered shale but retains some of the wells from the original system for water level measurement and to continue to monitor water quality in the perched water in the colluvium adjacent to the BAP. The certified monitoring well system was updated most recently in July 2022 and submitted to EPA. Once approval is received, the report will be posted to the CCR website (HDR, 2022).

As the phased site characterization was implemented, some of the newly installed wells are considered perimeter/characterization wells. These wells have served to help define groundwater flow and gradient further downgradient of the CCR Units. These wells are also being sampled to evaluate groundwater quality down-gradient from the waste boundary wells at the landfill. At the BAP, this data is used to evaluate the nature and extent of groundwater protection standard exceedances.

This Annual Groundwater Monitoring Report presents the sampling and analysis completed in 2022:

- The status of the groundwater monitoring program for the Bottom Ash Pond as of December 31, 2022 is in assessment monitoring and assessment of corrective measures.
- The status of the groundwater monitoring program for the landfill as of December 31, 2022 is in detection monitoring.

In 2023 PSCo intends to continue the sampling and analysis program following the CCR Rule groundwater monitoring program requirements in 40 CFR 257.93-95 as well as performing an assessment of corrective measures and begin the process of Remedy Selection at the Bottom Ash Pond.

2.0 Facility Description

Comanche Station is a coal-fired plant consisting of three units (Units 1, 2, 3) that burn Powder River Basin coal. Unit 1 was built in 1973, Unit 2 was built in 1975, and Unit 3 was built in 2010 (Tetra Tech, 2012). Unit 1 permanently went offline at the end of 2022 while the other two units are currently planned to cease operating by the end of 2030. Comanche Station currently has two CCR units subject to the CCR Rule: a landfill and an impoundment (**Figure 2**). The sections that follow provide a brief description of the CCR units.

Additional ponds at the facility include process water, settling, polishing, and raw water storage ponds. These units do not hold CCR, and therefore are not CCR units per the CCR Rule:

“CCR surface impoundments do not include units generally referred to as cooling water ponds, process water ponds, wastewater treatment ponds, storm water holding ponds, or aeration ponds. These units are not designed to hold an accumulation of CCR, and in fact, do not generally contain significant amounts of CCR.”

2.1 CCR Landfill

The CCR landfill, also known as the CCR Ash Disposal Facility (**Figure 2**), was originally permitted as an approximately 280-acre engineered ash monofill consisting of eight disposal cells. With the currently planned early retirement dates of the remaining two units, the updated landfill configuration will consist of only three disposal cells encompassing 94-acres. Currently, disposal is occurring in two cells in the southeast corner of the permitted landfill. Cell 1 was constructed with a compacted clay liner (Xcel Energy, 2005), and Cell 2E was constructed with CCR Rule compliant liner and leachate collection systems. The additional disposal cells will be constructed in phases as needed to contain ash and other approved wastes from power generating activities. Fly ash from all three units is collected in silos for either beneficial use off-site or disposal in the landfill. Bottom ash, water treatment sludge (lime from the on-site raw water treatment system), process water pond sediment, coal impurities, and excavation soils are also permitted for disposal at the landfill (Tetra Tech, 2015).

2.2 CCR Impoundment

Bottom ash generated from Units 1 and 2 was sluiced to the Bottom Ash Pond for dewatering and temporary storage until June 2021. Bottom ash solids were routinely excavated from the impoundment and either beneficially used off-site or transported to the landfill for disposal. Bottom ash is removed from Unit 3 dry via a submerged flight conveyor and does not go into the Bottom Ash Pond; it is transported dry either to off-site beneficial use or to the landfill for disposal. According to historic documents, the impoundment was constructed in 1972 with a three-foot thick clay liner. The impoundment is approximately 513 feet long by 138 feet wide and 26 feet deep with a surface area of 1.6 acres. The primary influent to the CCR impoundment was sluiced bottom ash. Additional influent sources included continuous deionization softeners waste, brine and rinse, and activated carbon filter backwash and brine (Tetra Tech, 2013). During operations, the CCR impoundment effluent discharged to the polishing pond immediately east of the Bottom Ash Pond (**Figure 2**). The Bottom Ash Pond ceased receiving non-CCR waste in January 2021 when non-CCR waste streams were re-routed to the Wastewater Ponds. The Bottom Ash Pond ceased receiving CCR wastes by June 2021 when construction of a new treatment system for bottom ash sluice water was completed. The treatment system collects bottom ash solids for beneficial use or disposal and discharges treated effluent to the existing polishing pond. The Bottom Ash Pond is scheduled to be closed through source removal in 2023.

2.3 Hydrogeology

Comanche Station is underlain by unconsolidated colluvium consisting of stiff clays and silts. Typical colluvium thickness is approximately 20 feet but ranges between 5 and 75 feet (Woodward-Clyde, 1987; URS, 2005). At the southern property boundary and west and south of the CCR landfill, alluvial sand and gravels are interbedded with the colluvium in some locations. The colluvium overlies the 1,450 feet thick Pierre Shale bedrock. Underlying the shale deposits is the Dakota Sandstone Formation, which is recognized as a regional aquifer in this area. Prior to 2020, the understanding for the hydrogeologic Conceptual Site Model (CSM) was that the shallow unconsolidated colluvium deposits beneath Comanche Station were unsaturated, with isolated areas of perched water, including beneath the BAP, and that the shale deposit beneath the site was effectively impermeable. Based on this conceptual site model, the monitoring well system prior to 2020 was established to monitor the colluvium, with screened intervals in the colluvium and well bottoms at the colluvium/shale contact. Data from subsequent site investigations conducted between 2020 and 2022 was incorporated into an updated CSM that reflects that groundwater is present in the uppermost portion of the shale, which is a weathered shale; and that the uppermost aquifer beneath the site is an unconfined aquifer in the weathered shale unit. Groundwater observed in the colluvial screened wells around the ponds appeared to be mounded, shallow, and perched groundwater of limited aerial extent. The uppermost shale beneath the colluvium is fractured and weathered and is between 0 and 20 feet thick. Beneath the weathered shale, fractures cease. Core drilling extended 25 to 41 feet further into unfractured, consolidated shale which confirms the consolidated (unfractured) shale as a lower confining unit. The thickness of the groundwater above the consolidated shale ranges from less than one foot (0.85 foot) to 25 feet.

Appendix A displays groundwater contour maps developed for sampling events in 2022. Evaluating the groundwater elevations in wells screened in the weathered shale, a groundwater surface appears to flow south and southeast under the Bottom Ash Pond and Landfill, respectively.

Additional detail on the hydrogeologic investigations is in the Groundwater Monitoring System (GMS) Certification (HDR, 2022).

2.4 Monitoring Well System

The updated certified monitoring well system included changes to the background well(s) and downgradient compliance wells at each of the CCR Units as described in the following sections.

2.4.1 Landfill/ Ash Disposal Facility

For monitoring between January and June 2022 the certified monitoring system for the landfill was (**Figure 2**):

- Background wells: MW-3, MW-5
- Downgradient compliance wells: MW-1B, MW-2B, MW-4B, MW-6, and MW-7
- Water level wells: MW-1, MW-2, MW-4

Through June 2022 the background wells were MW-3 and MW-5, and the primary downgradient wells were MW-1B, MW-2B, and MW-7. In addition, wells MW-4B and MW-6 were considered cross-gradient in the monitoring network and were defined as downgradient wells. However, groundwater flow directions indicate these two wells are more upgradient of the landfill and were reclassified as background wells in the updated system. Well MW-5 is no longer a background well due to insufficient groundwater flow resolution at this specific corner of the landfill. Additionally, in the July 2022 GMS wells MW-1, MW-2, and MW-4 were removed from the certified system because they have not contained water since installation in 1987 and have been replaced by deeper wells MW-1B, MW-2B, and MW-4B. These wells are screened to collect the uppermost groundwater around the landfill waste boundary and further downgradient. The background statistical update that reflects these changes to the monitoring network was completed in October 2022, and an updated Background Water Quality Statistical Certification report is being prepared.

For monitoring between July and December 2022 the certified monitoring system for the landfill includes the following wells (**Figure 2**):

- Background wells: MW-3, MW-4B, MW-6
- Downgradient compliance wells: MW-1B, MW-2B, and MW-7
- Water level well: MW-5

Monitoring wells MW-8 and MW-9 were installed November 7-8, 2022. These wells are not currently part of the certified monitoring system for the landfill but were installed to collect water quality upgradient of wells MW-2B and MW-5, respectively, to complete the alternate source

demonstration (ASD) for the statistically significant increases (SSIs) of chloride observed at the landfill. The findings of the ASD will be documented in a separate document in early 2023.

2.4.2 Bottom Ash Pond

For monitoring between January 2022 and June 2022, the certified monitoring system for the Bottom Ash Pond included the following wells (**Figure 2**):

- Background wells: W-2, W-2A, W-2C
- Downgradient compliance wells: W-1, W-3, W-3B, W-4, W-5, W-5B, W-6, W-6B
- Perimeter/characterization wells (wells to evaluate the potential for groundwater moving offsite): W-7, W-8A, W-9, W-11, W-12, W-13, W-14, W-15, and W-16
- Water level monitoring: W-10A and W-10B

Well W-2 is primarily a dry well screened in the colluvium and original to the Bottom Ash Pond area. Well W-2A is screened in and monitors groundwater in the weathered shale upgradient of the ponds and therefore has been the background well for the Bottom Ash Pond. Well W-2C is adjacent to W-2A, also screened in the weathered shale. Well W-2C was installed in November 2021 in response to observations that the W-2A filter pack extends into the shale-derived clay above the weathered shale. Therefore, in the July 2022 GMS, wells W-2 and W-2A were removed from the system and W-2C was classified as the only background well. The background statistical update to reflect this monitoring network change was completed in October 2022 after eight rounds of background samples were collected from W-2C.

Wells W-3, W-4, W-5, and W-6 are screened in the colluvium and wells W-3B, W-5B, and W-6B are adjacent to W-3, W-5, and W-6, respectively, but deeper and screened in the weathered shale. Therefore, three of the colluvial wells were revised to water level wells in the July 2022 GMS, and W-4 was removed because water in this well is consistently limited to the sump.

For monitoring between July and December 2022, the certified monitoring system for the Bottom Ash Pond includes the following wells (**Figure 2**):

- Background wells: W-2C
- Downgradient compliance wells: W-3B, W-5B, W-6B/W-6B1
- Water level monitoring: W-3, W-5, W-6

Piezometer PZ-1 was installed August 9, 2022 north of the Bottom Ash Pond to further demonstrate that W-2C is upgradient of the BAP and that groundwater flow from the BAP is not flowing northward towards the background well.

Monitoring well W-6B1 was installed August 8, 2022. Well W-6B was damaged and well W-6B1 was installed adjacent to it to replace the damaged well.

2.4.3 Additional Wells

The certified groundwater monitoring system includes additional wells installed to evaluate groundwater further downgradient of the Bottom Ash Pond in response to identification of concentrations of Appendix IV constituents at statistically significant levels (SSLs) over groundwater protection standards in the pond compliance wells:

- Wells to evaluate extent of SSLs: W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-17, and W-18
- Wells W-8A, W-13 and W-15: monitor only for presence of water

Two wells located north of well W-2C:

- Wells W-10A and W-10B: monitor only for water levels, except as discussed below

Wells W-10A and W-10B were drilled to evaluate depth to groundwater as a geotechnical design input for the new sluiced bottom ash treatment system constructed in 2021 and were not intended to be included in the monitoring system. Well W-10A is screened in the colluvium and is dry, and well W-10B is screened in weathered shale and has groundwater. The location provides valuable data for the groundwater potentiometric mapping; and wells W-10A and W-10B will be monitored for water level only as part of the CCR certified groundwater monitoring system. Additionally, well W-10B will be sampled for a limited period to evaluate against W-2C background concentrations.

Monitoring well W-17 was installed August 10, 2022 on the southern Comanche Station property south of W-14. The well location was chosen to confirm the groundwater flow direction is east-southeast in this southern project area.

Monitoring well W-18 was installed December 13, 2022 off-site southeast of the Comanche Station boundary to evaluate the potential extent of groundwater protection standard exceedances from the W-14 area.

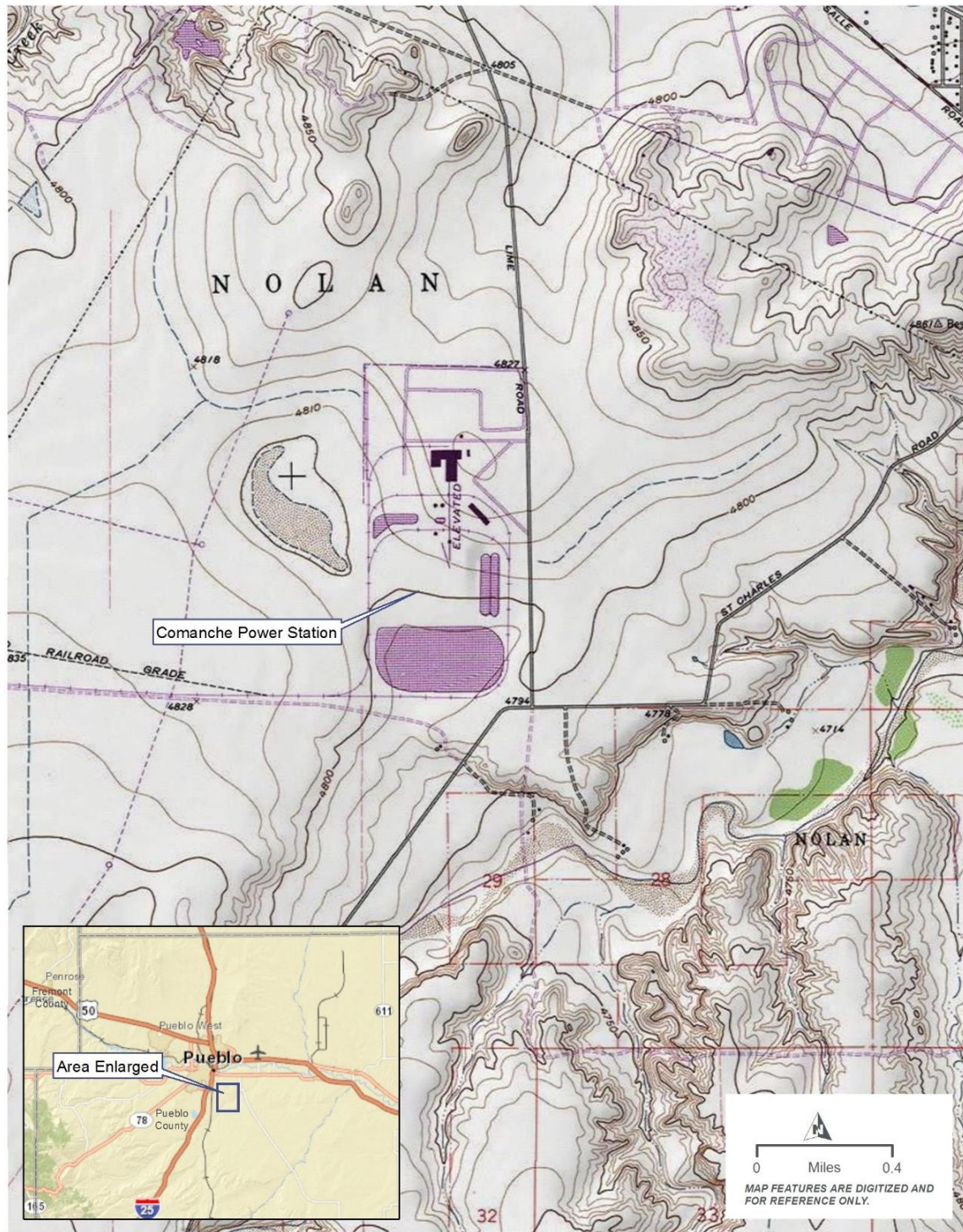


Figure 1. Vicinity Map for Comanche Station

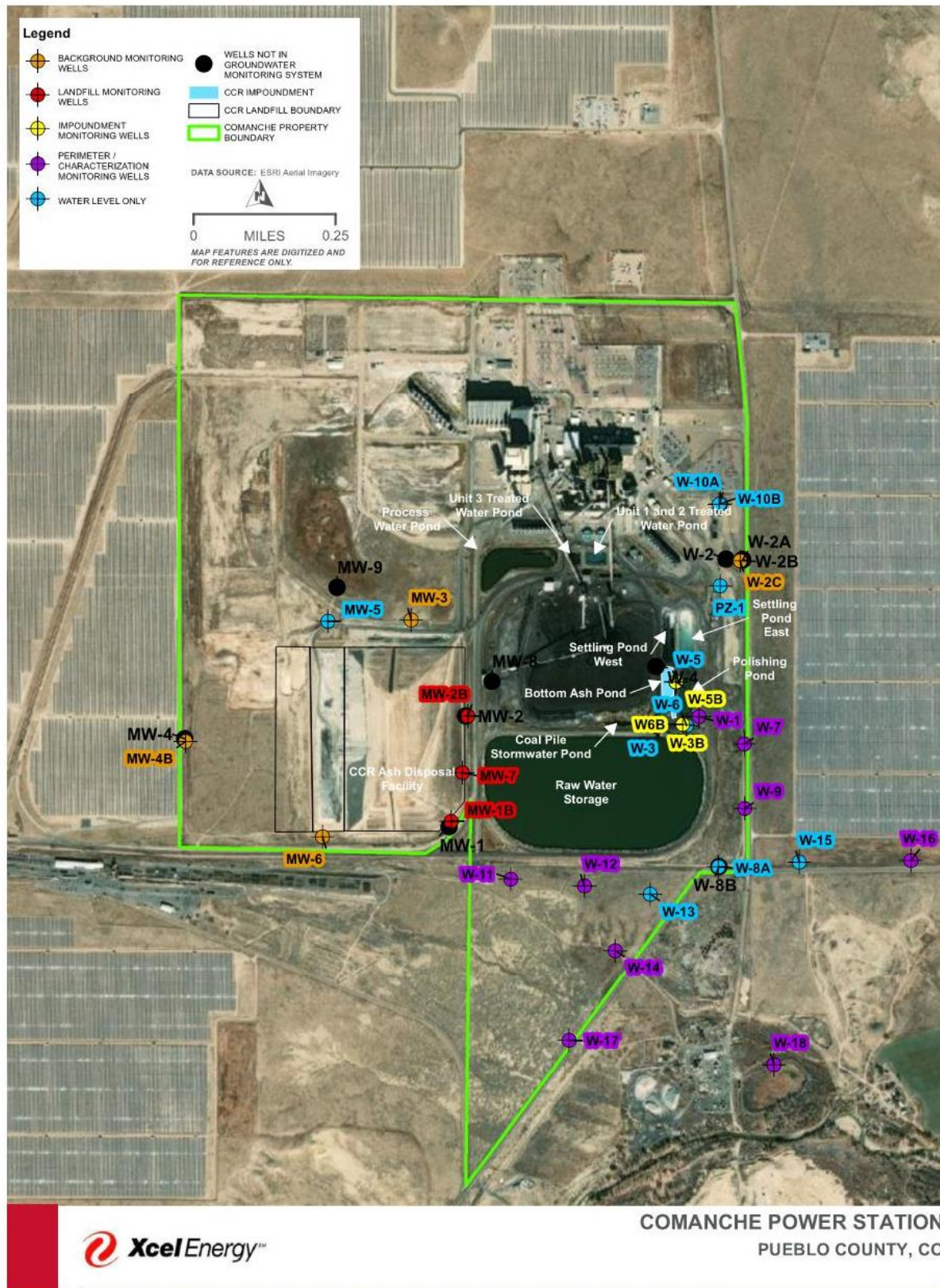


Figure 2. Comanche Station – CCR units and monitoring well location map.



3.0 Monitoring

3.1 Frequency

3.1.1 Landfill/ Ash Disposal Facility

Detection monitoring continues semi-annually to sample all of the monitoring wells around the landfill for Appendix III constituents (**Table 1**). **Table 2** provides the well identification, number of samples collected, dates samples were collected in 2022, and the CCR Rule monitoring purpose.

As new wells are added to the monitoring system they are initially sampled on a 5-week frequency for a total of eight rounds to establish background in each well per 257.94(b). This expedited frequency develops the statistical strength recommended before using the data in the semiannual sampling events, provided the evaluation of the data for autocorrelation is acceptable. Well MW-7 was added to the monitoring system in November 2021 and was therefore sampled on a 5-week frequency for background monitoring until eight sample events were collected. After the initial eight sample events are completed, sampling aligns with the detection monitoring schedule. To gather data concurrently with the new wells, the existing wells in the landfill monitoring system were also sampled in March/April 2022 and referred to as background monitoring in **Table 2**. The official detection monitoring sample events in 2022 were in May and November for which concentrations are compared to background.

Table 1. Groundwater quality parameters	
Appendix III Constituents	Appendix IV Constituents
Boron	Antimony
Calcium	Arsenic
Chloride	Barium
Fluoride	Beryllium
pH	Cadmium
Sulfate	Chromium
Total Dissolved Solids (TDS)	Cobalt
Additional Parameters	Fluoride
Total Suspended Solids (TSS)	Lead
	Lithium
	Mercury
	Molybdenum
	Selenium
	Thallium
	Radium 226 and 228 combined



Table 2. Number and dates of groundwater samples collected for each well and the required monitoring programs for the Comanche Landfill/ Ash Disposal Facility (257.90(e)(3))			
Monitoring Well I.D. ¹	Well Location	Dates Monitored	CCR Rule Monitoring Purpose
MW-1B	Downgradient	April 4, 2022	Background Monitoring
		May 3, 2022	Detection Monitoring
		September 27, 2022	Water Level
		November 1, 2022	Detection Monitoring
MW-2B	Downgradient	April 5, 2022	Background Monitoring
		May 3, 2022	Detection Monitoring
		September 27, 2022	Water Level
		November 1, 2022	Detection Monitoring
MW-3	Upgradient / Background	March 29, 2022	Background Monitoring
		May 2, 2022	Detection Monitoring
		September 27, 2022	Water Level
		November 29, 2022	Detection Monitoring
MW-4B	Upgradient/ Background	April 4, 2022	Background Monitoring
		May 4, 2022	Detection Monitoring
		September 27, 2022	Water Level
		November 2, 2022	Detection Monitoring
MW-5	Upgradient / Water Level Only	March 31, 2022	Background Monitoring
		May 5, 2022	Detection Monitoring
		September 27, 2022	Water Level
		November 29, 2022	Detection Monitoring
MW-6	Upgradient/ Background	April 4, 2022	Background Monitoring
		May 4, 2022	Detection Monitoring
		September 27, 2022	Water Level
		November 8, 2022	Detection Monitoring
MW-7	Downgradient	January 14, 2022	Background Sampling
		March 2, 2022	Background Sampling
		April 5, 2022	Background Monitoring
		May 3, 2022	Detection Monitoring
		June 10, 2022	Background Sampling
		July 14, 2022	Background Sampling



Table 2. Number and dates of groundwater samples collected for each well and the required monitoring programs for the Comanche Landfill/ Ash Disposal Facility (257.90(e)(3))			
Monitoring Well I.D. ¹	Well Location	Dates Monitored	CCR Rule Monitoring Purpose
		August 24, 2022	Background Sampling
		September 27, 2022	Water Level
		November 1, 2022	Detection Monitoring
MW-8 (installed November 7, 2022)	Upgradient/ASD	December 8, 2022	ASD Sampling
MW-9 (installed November 8, 2022)	Upgradient / ASD	December 9, 2022	ASD Sampling

¹MW-1B, MW-2B, and MW-4B were installed adjacent to MW-1, MW-2, and MW-4, respectively, in August 2020. The wells were drilled deeper because the original wells were historically dry. The water levels of the original wells were measured if water was present, but they were not sampled and remained dry.

*Well was monitored and found to be dry, no sample could be collected

3.1.2 Bottom Ash Pond

In the May 26, 2021 PSCo memorandum, *Determination of Statistically Significant Increases over Background per 257.93(h)(2)*, concentrations of Appendix III COIs from downgradient monitoring wells at the Bottom Ash Impoundment were compared against the background threshold values (BTVs) and shown to have SSIs over BTVs (upper prediction limit). The SSIs triggered the assessment monitoring program for the Bottom Ash Pond. The initial assessment monitoring event for the Bottom Ash Pond was completed in April 2021 to sample monitoring wells for Appendix IV constituents (**Table 1**). In May 2021, the second assessment monitoring samples were collected from Bottom Ash Pond wells. Background and semiannual assessment monitoring samples are analyzed for Appendix III and IV COIs plus TSS. **Table 2** provides the well identification, number of samples collected, dates samples were collected in 2022, and the CCR Rule monitoring purpose. The official assessment monitoring sample events in 2022 were in May and October/November for which concentrations are compared to groundwater protection standards (GPS).



Table 3. Number and dates of groundwater samples collected for each well and the required monitoring programs for the Comanche Bottom Ash Impoundment (257.90(e)(3))			
Monitoring Well I.D.	Well Location	Dates Monitored	CCR Rule Monitoring Purpose
W-1	Downgradient	January 14, 2022	Background Monitoring
		February 25, 2022	Background Monitoring
		April 5, 2022	Background Monitoring
		May 11, 2022	Assessment Monitoring
		September 27, 2022	Water Level
		November 30, 2022	Assessment Monitoring
W-2A	Former Upgradient / Background (phased out as of August 2022)	January 12, 2022	Background Monitoring
		February 22, 2022	Background Monitoring
		March 31, 2022	Background Monitoring
		May 4, 2022	Assessment Monitoring
		June 7, 2022	Background Monitoring
		July 13, 2022	Background Monitoring
		August 22, 2022	Background Monitoring
		September 27, 2022	Water Level
		November 30, 2022	Water Level
W-2C	Upgradient / Background	January 12, 2022	Background Monitoring
		February 23, 2022	Background Monitoring
		March 31, 2022	Background Monitoring
		May 5, 2022	Assessment Monitoring
		June 7, 2022	Background Monitoring
		July 13, 2022	Background Monitoring
		August 23, 2022	Background Monitoring
		September 27, 2022	Water Level
		October 27, 2022	Assessment Monitoring
W-3	Water Level	January 13, 2022	Background Monitoring
		February 23, 2022	Background Monitoring
		March 31, 2022	Background Monitoring
		November 30, 2022	Water Level
W-3B	Downgradient	January 13, 2022	Background Monitoring
		February 23, 2022	Background Monitoring

Table 3. Number and dates of groundwater samples collected for each well and the required monitoring programs for the Comanche Bottom Ash Impoundment (257.90(e)(3))			
Monitoring Well I.D.	Well Location	Dates Monitored	CCR Rule Monitoring Purpose
		March 31, 2022	Background Monitoring
		May 5, 2022	Assessment Monitoring
		June 8, 2022	Background Monitoring
		July 14, 2022	Background Monitoring
		August 23, 2022	Background Monitoring
		October 27, 2022	Assessment Monitoring
W-5	Water Level	January 10, 2022	Background Monitoring
		February 24, 2022	Background Monitoring
		March 30, 2022	Background Monitoring
		May 11, 2022	Assessment Monitoring
		November 30, 2022	Water Level
W-5B	Downgradient	January 14, 2022	Background Monitoring
		February 25, 2022	Background Monitoring
		March 30, 2022	Background Monitoring
		May 6, 2022	Assessment Monitoring
		June 7, 2022	Background Monitoring
		July 14, 2022	Background Monitoring
		August 23, 2022	Background Monitoring
		October 27, 2022	Assessment Monitoring
W-6	Water Level	January 11, 2022	Background Monitoring
		February 24, 2022	Background Monitoring
		March 30, 2022	Background Monitoring
		May 11, 2022	Assessment Monitoring
		November 30, 2022	Water Level
W-6B/W-6B1 (W-6B1 installed August 8, 2022 to replace damaged W-6B)	Downgradient	January 11, 2022	Background Monitoring
		February 24, 2022	Background Monitoring
		March 30, 2022	Background Monitoring
		May 6, 2022	Assessment Monitoring
		June 8, 2022	Background Monitoring
		August 23, 2022	Background Monitoring



Table 3. Number and dates of groundwater samples collected for each well and the required monitoring programs for the Comanche Bottom Ash Impoundment (257.90(e)(3))			
Monitoring Well I.D.	Well Location	Dates Monitored	CCR Rule Monitoring Purpose
		September 29, 2022	Background Monitoring
		October 27, 2022	Assessment Monitoring
W-7	Perimeter/ Characterization	January 12, 2022	Background Monitoring
		March 1, 2022	Background Monitoring
		March 31, 2022	Background Monitoring
		May 4, 2022	Assessment Monitoring
		September 27, 2022	Water Level
		October 28, 2022	Assessment Monitoring
W-8A	Water Level	January 10, 2022*	Background Monitoring
		February 21, 2022	Water Level
		March 28, 2022*	Water Level
		May 5, 2022*	Assessment Monitoring
		November 30, 2022*	Water Level
W-9	Perimeter/ Characterization	January 11, 2022	Background Monitoring
		March 1, 2022	Background Monitoring
		March 31, 2022	Background Monitoring
		May 6, 2022	Assessment Monitoring
		September 27, 2022	Water Level
		October 29, 2022	Assessment Monitoring
W-10A	Water Level	January 10, 2022*	Water Level
		February 21, 2022*	Water Level
		March 28, 2022*	Water Level
		November 30, 2022	Water Level
W-10B	Water Level	January 10, 2022	Water Level
		February 21, 2022	Water Level
		March 28, 2022	Water Level
		July 14, 2022	Characterization
		August 24, 2022	Characterization
		September 30, 2022	Characterization
		October 28, 2022	Characterization



Table 3. Number and dates of groundwater samples collected for each well and the required monitoring programs for the Comanche Bottom Ash Impoundment (257.90(e)(3))			
Monitoring Well I.D.	Well Location	Dates Monitored	CCR Rule Monitoring Purpose
W-11	Perimeter/ Characterization	January 13, 2022	Background Monitoring
		February 25, 2022	Background Monitoring
		April 1, 2022	Background Monitoring
		May 4, 2022	Assessment Monitoring
		September 27, 2022	Water Level
		October 29, 2022	Assessment Monitoring
W-12	Perimeter/ Characterization	January 13, 2022	Background Monitoring
		March 1, 2022	Background Monitoring
		April 1, 2022	Background Monitoring
		May 5, 2022	Assessment Monitoring
		September 27, 2022	Water Level
		October 29, 2022	Assessment Monitoring
W-13	Water Level	January 10, 2022*	Background Monitoring
		February 21, 2022	Water Level
		March 28, 2022*	Background Monitoring
		May 11, 2022 ²	Background Monitoring
		September 27, 2022*	Water Level
		November 30, 2022	Water Level
W-14 (installed February 28, 2022)	Perimeter/ Characterization	April 1, 2022	Background Monitoring
		May 6, 2022	Assessment Monitoring
		June 6, 2022	Background Monitoring
		July 15, 2022	Background Monitoring
		August 24, 2022	Background Monitoring
		September 28, 2022	Background Monitoring
		October 31, 2022	Assessment Monitoring
W-15 (installed March 1, 2022)	Offsite Water Level	March 28, 2022*	Background Monitoring
		May 2, 2022*	Assessment Monitoring
		June 6, 2022*	Background Monitoring
		July 15, 2022*	Background Monitoring
		August 25, 2022*	Background Monitoring

Table 3. Number and dates of groundwater samples collected for each well and the required monitoring programs for the Comanche Bottom Ash Impoundment (257.90(e)(3))			
Monitoring Well I.D.	Well Location	Dates Monitored	CCR Rule Monitoring Purpose
		September 27, 2022*	Background Monitoring
		November 30, 2022*	Assessment Monitoring
W-16 (installed March 2, 2022)	Offsite Perimeter/ Characterization	April 1, 2022	Background Monitoring
		May 5, 2022	Assessment Monitoring
		June 8, 2022	Background Monitoring
		July 15, 2022	Background Monitoring
		August 25, 2022	Background Monitoring
		September 29, 2022	Background Monitoring
		October 31, 2022	Assessment Monitoring
PZ-1 (installed August 9, 2022)	Water Level	September 27, 2022	Water Level
		December 20, 2022	Water Level
W-17 (installed August 10, 2022)	Perimeter/ Characterization	September 27, 2022	Water Level
		November 2, 2022	Background Monitoring
		December 20, 2022	Background Monitoring
W-18 (installed December 13, 2022)	Offsite Perimeter/ Characterization	Not sampled in 2022	N/A

¹W-2A was installed adjacent to W-2 in August 2020. The new well was drilled deeper because W-2 was historically dry. W-2C installed to replace W-2A due to the W-2A filter pack.

²Insufficient sample volume for TDS, TSS, or radium.

*Well was monitored and found to be dry, no sample could be collected.

3.2 Water Levels and Sample Collection

Water levels were collected in each well prior to sample collection. Groundwater sample collection protocols follow the Groundwater Sample Collection Standard Operating Procedure (SOP) (HDR, 2015). The water samples were collected using a bladder pump or bailer (only when water levels were too low in the well), and the equipment was decontaminated between wells following protocols outlined in the Sampling SOP. Each well was purged until field parameters stabilized in accordance with the sampling SOP. In accordance with the CCR Rule, groundwater samples were not field filtered. The field parameters of turbidity, pH, and temperature were measured using a YSI Professional Plus (or an equivalent) portable water quality instrument that was calibrated prior to use each day of sampling. The results of field measurements were recorded on a field data form, which is maintained as part of the field sampling records. If the turbidity of the groundwater during purging and stabilization remained above 10 NTU, a sample was collected for lab filtering and dissolved metals analysis. For quality control, one field duplicate sample and one field equipment blank sample was collected during each sample event. Water samples were delivered under Chain of Custody to Eurofins Test America in Denver, Colorado.

3.3 Analytical Testing

Groundwater samples for each type of monitoring were analyzed for the constituents of interest (COIs) shown in **Table 1**. Background monitoring analyses include all the parameters in Appendices III and IV of CCR Rule Part 257, plus TSS. The laboratory analyzed matrix spike/matrix spike duplicates at a rate of 5 percent, per laboratory quality control procedures.

3.4 Data Validation and Data Management

Data validation and data management tasks were performed per the Comanche Groundwater Sampling and Analysis Plan (HDR, 2022). Data validation was conducted to eliminate data that did not meet validation criteria and designate a data qualifier for any data quality limitation identified.

All samples and quality control (QC) data for the reporting period were reviewed and evaluated, and no samples were rejected. Most QC analyses were within reportable limits; however, when QC was outside control limits, samples were reported as estimated. Data analyses required minimal qualifications, and all data were usable, even when qualified. A summary of instances in which QC was outside control limits and samples required qualification is provided in **Table 4**. Data validation reports 2022 are in **Appendix B**.

Table 4. Data Validation Summary for 2022	
QC Type	2022
Field duplicate RPD	January – fluoride (2), TSS (2) February – arsenic (2), cobalt (2), lead (2), molybdenum (2), TDS (2), TSS (2) March/April – arsenic (2), sulfate (2), TSS (2), Rad-228 (2) May – antimony (2), beryllium (2), fluoride (4), sulfate (2), TSS (4) June – antimony (2), arsenic (2), cobalt (2), selenium (2) July – lead (2), molybdenum (2) August – beryllium (2), selenium (2), Rad-228 (2) September – TSS (2) October/November – antimony (2), arsenic (2), beryllium (2), TSS (2)
Lab duplicate RPD	January – selenium (1) February – TSS (1) May – pH (1) October/November – TSS (2)
LCS recoveries	None
LCS/LCSD RPD	February – TSS (1)
MS recoveries*	January – arsenic (1), chromium (1), mercury (1) February – calcium (2), lithium (2), selenium (2) March/April – barium (1), beryllium (2), calcium (1), cadmium (1), chromium (1), cobalt (1), lead (1), lithium (1), molybdenum (1), sulfate (1) August – lithium (1) September – beryllium (1), calcium (1), lead (1), selenium (1), thallium (1) October/November – beryllium (1), calcium (4), magnesium (2), potassium (2), selenium (1), sodium (2), chloride (2), sulfate (1)
MS/MSD RPD	None

*In several instances, MS/MSD results for barium, calcium, lithium, magnesium, potassium, selenium, and sodium could not be verified and were qualified as estimated due to analyte concentration in the unspiked sample greater than 4x the spike amount.

4.0 Monitoring Results

4.1 Water Levels and Groundwater Flow Direction

The water levels at monitoring wells were recorded during monitoring events and are shown in **Table 5**. Potentiometric contour maps were created for water level measurements collected from the wells in the existing monitoring network in January, February, March, May, June, July, August, September, October/November and December 2022 (**Appendix A**). Based upon the potentiometric contours the groundwater flow direction under the landfill is generally southeast, though upgradient flow appears to be coming from east, west, and north towards the landfill and flowing away from the landfill to the southeast. The groundwater flow direction under the Bottom Ash Pond is generally south. Maps were made only using wells screened in the weathered shale.



Table 5. Groundwater Elevations Measured in 2022

Well ID	TOC Elevation (ft amsl)	CCR Unit	Groundwater Elevations (ft amsl)									
			Week of 1/10/2022	Week of 2/22/2022	Week of 3/28/2022	Week of 5/2/2022	Week of 6/10/2022	Week of 7/15/2022	Week of 8/22/2022	Week of 9/27/2022	Week of 10/27/2022	Dec 2022
MW-1	4806.73	Water Level	NM	NM	Dry	Dry	NM	NM	NM	NM	Dry	NM
MW-1B	4807.72	Landfill	NM	NM	4776.65	4776.42	NM	NM	NM	4776.3	4776.36	NM
MW-2	4800.45	Water Level	NM	NM	Dry	Dry	NM	NM	NM	NM	Dry	NM
MW-2B	4801.72	Landfill	NM	NM	4783.60	4783.37	NM	NM	NM	4783.25	4783.37	NM
MW-3	4798.45	Landfill	NM	NM	4789.69	4789.66	NM	NM	NM	4790.05	4789.56	NM
MW-4	4826.47	Water Level	NM	NM	Dry	Dry	NM	NM	NM	NM	Dry	NM
MW-4B	4826.41	Landfill	NM	NM	4788.61	4788.40	NM	NM	NM	4788.05	4788.36	NM
MW-5	4806.97	Landfill	NM	NM	4780.07	4779.98	NM	NM	NM	4779.67	4779.82	NM
MW-6	4823.08	Landfill	NM	NM	4791.92	4797.75	NM	NM	NM	4791.33	4791.34	NM
MW-7	4803.2	Landfill	4782.40	4782.53	4782.90	4782.60	4782.60	4782.58	4782.59	4782.67	4783.00	NM
MW-8	4781.48	Landfill	NM	NM	NM	NM	NM	NM	NM	NM	NM	4781.48
MW-9	4791.32	Landfill	NM	NM	NM	NM	NM	NM	NM	NM	NM	4791.32
W-1	4801.37	Perimeter/ Characterization	4790.30	4790.85	4790.96	4791.57	NM	NM	NM	4789.97	4786.41	NM
W-2	4829.09	Bottom Ash Pond	Dry	NM	Dry	Dry	NM	NM	NM	NM	Dry	NM
W-2A	4827.86	Bottom Ash Pond	4800.76	4801.39	4801.14	4800.85	4800.81	4800.03	4800.66	4800.67	4800.61	NM
W-2C	4827.78	Bottom Ash Pond	4799.86	4799.95	4799.70	4799.60	4799.62	4799.88	4799.84	4799.84	4799.87	NM
W-3	4807.41	Water Level	4793.01	4795.64	4793.78	NM	NM	NM	NM	NM	4792.49	NM
W-3B	4810.29	Bottom Ash Pond	4793.23	4794.35	4794.00	4793.85	4792.97	4793.26	4793.02	4792.91	4793.32	NM
W-5	4811.89	Water Level	4801.70	4801.03	4799.54	4799.19	NM	NM	NM	NM	4799.96	NM
W-5B	4810.62	Bottom Ash Pond	4799.30	4799.08	4800.24	4799.89	4799.98	4799.34	4797.45	4798.38	4799.09	NM
W-6	4807.46	Water Level	4792.44	4798.31	4797.50	4797.32	NM	NM	NM	NM	4796.94	NM
W-6B/W-6B1	4807.47	Bottom Ash Pond	4794.95	4793.25	4792.77	4792.41	4792.16	NM	4791.93	4792.04	4792.12	NM
W-7	4797.54	Perimeter/ Characterization	4789.64	4789.32	4789.51	4789.29	NM	NM	NM	4790.04	4790.06	NM
W-8A	4804.26	Water Level	Dry	NM	Dry	Dry	NM	NM	NM	NM	Dry	NM
W-9	4801.78	Perimeter/ Characterization	4765.82	4765.97	4765.89	4765.88	NM	NM	NM	4766.03	4766.04	NM
W-10A	4835.21	Water Level	Dry	NM	Dry	NM	NM	NM	NM	NM	Dry	NM



Table 5. Groundwater Elevations Measured in 2022

Well ID	TOC Elevation (ft amsl)	CCR Unit	Groundwater Elevations (ft amsl)									
			Week of 1/10/2022	Week of 2/22/2022	Week of 3/28/2022	Week of 5/2/2022	Week of 6/10/2022	Week of 7/15/2022	Week of 8/22/2022	Week of 9/27/2022	Week of 10/27/2022	Dec 2022
W-10B	4835.22	Water Level	4807.31	NM	4807.37	NM	NM	4807.16	4807.20	4807.21	4807.43	NM
W-11	4795.99	Perimeter/ Characterization	4772.20	4772.87	4772.63	4772.34	NM	NM	NM	4772.16	4772.1	NM
W-12	4791.65	Perimeter/ Characterization	4769.63	4769.73	4769.82	4770.71	NM	NM	NM	4769.43	4769.34	NM
W-13	4801.96	Water Level	Dry	NM	4772.54	4771.28	NM	NM	NM	4771.29	4771.39	NM
W-14	4773.86	Perimeter/ Characterization	--	--	4737.85	4737.46	4737.51	4737.45	4737.28	4737.25	4737.29	NM
W-15	4791.27	Water Level	--	--	Dry	Dry	Dry	Dry	Dry	Dry	Dry	NM
W-16	4788.90	Perimeter/ Characterization	--	--	4751.77	4751.59	4751.47	4751.63	4751.48	4751.49	4751.62	NM
PZ-1	4825.44	Water Level	--	--	--	--	--	--	4800.62	4800.64	NM	NM
W-17	4762.57	Perimeter/ Characterization	--	--	--	--	--	--	--	4736.82	4736.9	4737.22

NM – not measured

4.2 Water Quality

In December 2021, PSCo began sampling new background well W-2C on a 5-week frequency for Appendix III and IV constituents to collect the eight samples necessary to develop updated BTVs. The eighth background monitoring sample event was complete in late August 2022, necessitating an update to the BTVs for the impoundment. In addition, the background wells for the landfill were reclassified in the July 2022 groundwater monitoring system certification in cooperation with the EPA, also necessitating an update to the BTVs for the landfill. Therefore, in October 2022, PSCo completed the most updated statistical evaluation of background values for the impoundment and the landfill. This update to the BTVs at the impoundment resulted in updated GPS values as well. In some cases, the updated BTVs has resulted in identification of new SSIs or SSLs. These updated BTVs and statistical comparison results are discussed below for the landfill and the impoundment. Both the Spring and Fall detection and assessment monitoring events described below have been compared to the newer BTVs (developed in October 2022). Therefore, while there may be SSIs or SSL for the May 2022 sample event described below, the triggering event for the SSI observation was the update to the background statistics completed in October 2022.

All water quality laboratory reports for 2022 are included in **Appendix B**. Water quality graphs for wells for all constituents in Appendix III are provided in **Appendix C**, per Paragraph 93(c)(iii) of the Consent Agreement.

4.2.1 Landfill/ Ash Disposal Facility

As described in the May 26, 2021 PSCo memorandum, *Determination of Statistically Significant Increases over Background per 257.93(h)(2)*, calcium was shown to have a SSI over the BTV (upper prediction limit) (HDR, 2021a). The SSI triggered the requirement to either initiate assessment monitoring program or complete an Alternative Source Demonstration (ASD). An ASD was completed that showed the calcium SSI was naturally occurring and not from the landfill, and EPA approved the ASD on June 29, 2022.

Following the GMS update, the background values for the landfill were updated in October 2022. The upper prediction limits (UPLs), which represent the BTVs for detection monitoring are provided in **Table 6**.

Table 6. Background threshold values for detection monitoring at the Landfill (October 2022)							
Constituent	Unit	n	No. BDL	% BDL	Recommended distribution	No. of verification samples	BTV
Appendix III							
Boron	mg/l	68	1	1%	Nonparametric	1	4.90
Calcium	mg/l	68	0	0%	Nonparametric	1	590
Chloride (as Cl)	mg/l	68	0	0%	Nonparametric	1	390
Fluoride	mg/l	68	23	34%	Nonparametric	1	76.0
pH (field), LPL	su	66	0	0%	Nonparametric	1	6.56
pH (field), UPL	su	66	0	0%	Nonparametric	1	7.55
Sulfate (as SO ₄)	mg/l	68	0	0%	Nonparametric	1	48,000

Table 6. Background threshold values for detection monitoring at the Landfill (October 2022)							
Constituent	Unit	n	No. BDL	% BDL	Recommended distribution	No. of verification samples	BTv
Total Dissolved Solids	mg/l	68	0	0%	Nonparametric	1	77,000

2022 Background Monitoring Events - January, February/March, March/April, June, July, and August

In accordance with 257.94(b), newly installed downgradient well MW-7 was sampled for all Appendix III and IV COIs in background monitoring events in January, February/March, March/April, June, July and August 2022. Laboratory reports are included in Appendix B. Well MW-7 did not have any concentrations of Appendix III COIs greater than background during these background sample events. All of the landfill wells were sampled in the March/April 2022 background monitoring event and Appendix III parameters were below the BTVs in downgradient wells, with the exception of chloride at MW-1B, MW-2B, and MW-5, when compared to the updated BTVs that were calculated in October 2022. Since these were background sampling events and BTVs were not updated until the fall, these concentrations over BTVs were not considered SSIs.

May 2022 Detection Monitoring

The May 2-5, 2022 detection monitoring event Appendix III parameters at the landfill were compared to updated BTVs and all concentrations of Appendix III COIs were below the BTVs, with the exception of chloride at MW-1B, MW-2B, and MW-5 (**Table 7**). Laboratory reports are included in **Appendix B**. Although SSIs are based on May compliance sampling data, the triggering event for the SSI determination was the update to background statistics completed in October. The discussion regarding ASD for these SSIs is described below.

Table 7. Appendix III COIs with SSIs over Background for Landfill Detection Monitoring Event May 2022		
Appendix III Constituent		Chloride (mg/L)
BTv (UPL)*		390
Monitoring Well May 2022 Detection Monitoring Event	MW-1B	400
	MW-2B	560
	MW-5	1200

*Background Statistics completed October 2022.

November 2022 Detection Monitoring

The Appendix III parameters from the November 1-30, 2022 detection monitoring event at the landfill were compared to updated BTVs and all concentrations of Appendix III COIs were below the BTVs, with the exception of chloride at MW-2B and MW-5 (**Table 8**). Laboratory reports are included in Appendix B. The SSI triggers the requirement to either initiate an assessment monitoring program or complete an ASD.

Table 8. Appendix III COIs with SSIs over Background for Landfill Detection Monitoring Event May 2022		
Appendix III Constituent		Chloride (mg/L)
BTV (UPL)*		390
Monitoring Well May 2022 Detection Monitoring Event	MW-2B	600
	MW-5	1700

*Background Statistics completed October 2022.

At the end of 2022, PSCo initiated an ASD pursuant to 40 C.F.R. § 257.93(e)(2). The ASD is evaluating the potential for sources other than the landfill for the elevated chloride. There is potential for an alternate source of chloride at MW-5 from the north that could be contributing to concentrations at both MW-5 and MW-1B; and there is potential for an alternate source of chloride at MW-2B from the northeast that could be contributing to concentrations at both MW-2B and MW-1B. As shown on the attached potentiometric surface maps, the groundwater flow direction beneath the landfill is generally southeast and if the source of elevated chloride concentrations in groundwater was the landfill, the highest concentrations would be expected at downgradient waste boundary wells MW-1B and MW-7. However, the chloride concentration in MW-5 is consistently higher than the downgradient landfill wells. The proximity of MW-5 to the topographic low to the north that accumulates stormwater runoff is a possible source of the chloride concentrations at MW-5, unrelated to the landfill. Evaporative salts may be present in shallow deposits in this area resulting from long-term evaporation of shallow perched water and intermittent stormwater. Subsequent stormwater infiltration may dissolve and transport these surface salts and naturally occurring salts in the colluvial deposits towards MW-5 downgradient. Since the majority of the groundwater beneath the landfill flows towards MW-1B, an alternative upgradient source could account for the concentrations observed at MW-1B which are lower than MW-5 but also higher than the background wells. MW-2B has concentrations of chloride that are very similar to background well MW-3, and on several dates the chloride concentrations in MW-2B are the same as or lower than in MW-3. In addition, the location of MW-2B appears to receive groundwater flow from the northeast and the coal pile, and that influence has not yet been evaluated.

Monitoring wells MW-8 and MW-9 were installed November 7-8, 2022 (**Figure 2**). These wells were installed upgradient of wells MW-2B and MW-5, respectively to evaluate groundwater elevations and chloride concentrations. These wells were sampled December 8-9, 2022 and analyzed for all Appendix III and IV parameters plus TSS, alkalinity, magnesium, sodium, and potassium. The laboratory report from this sample event was not received by end of 2022; therefore, the results are not included in this report. The findings of the ASD will be documented in a separate document by February 17, 2023, the extended date approved by EPA.

4.2.2 Impoundment

The background sampling and statistical evaluation for the impoundment monitoring wells is described in detail in the Background Water Quality Statistical Certification from June 9, 2021.



As documented in the May 26, 2021 PSCo memorandum, *Determination of Statistically Significant Increases over Background per 257.93(h)(2)*, concentrations of Appendix III COIs from each downgradient monitoring well at the impoundment were compared against the BTVs and several COIs were found to have an SSI over the BTV. At wells W-1 and W-6 there were SSIs for boron and pH and at W-3, W-4, W-5, and W-5B there was an SSI for pH. These SSIs triggered the assessment monitoring program for the Bottom Ash Pond. While in assessment monitoring in 2021, PSCo identified SSLs of molybdenum in well W-6 (colluvial well no longer in GMS) and cobalt in perimeter/characterization well W-7 that exceeded the GPS. Based upon the SSLs exceedances, within 90 days of determination of SSLs over GPS, PSCo initiated the assessment of corrective measures (January 31, 2022) at the Bottom Ash Pond. In addition, and in consultation with EPA, PSCo installed additional monitoring wells screened in the weathered shale further downgradient and offsite to characterize the nature and extent of the GPS exceedances. Well W-14, on-site to the south, and wells W-15 and W-16 off-site to the southeast, were installed in late February/early March 2022 (**Figure 2**). Since the initiation of assessment monitoring, the certified monitoring network for the Bottom Ash Pond has been updated including installation of new wells, reclassification of the background well and new BTVs developed PSCo has maintained the status of assessment monitoring and assessment of corrective measures for the Bottom Ash Pond during these system updates.

Well W-2C is the current background well for the Bottom Ash Pond, and background monitoring was completed between December 2021 and late August 2022. Background statistics for the Bottom Ash Pond were calculated in October 2022. The updated detection monitoring UPLs are provided in **Table 9** and the updated upper tolerance limit (UTL) values for assessment monitoring are provided in **Table 10**. CCR Rule 257.95(h) describes that GPS must be established for each constituent in Appendix IV detected in the groundwater for assessment monitoring programs. EPA's Unified Guidance "Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities" has recommended that the UTL be used as a fixed value similar to a groundwater protection standard where a Maximum Contaminant Level (MCL) does not exist for the constituent (USEPA, 2009). The UTL was established based on the eight background sample events at the upgradient monitoring well (W-2C). **Table 10** lists the EPA established MCL from 40 CFR 141.62 and 141.66, the updated UTL BTV for the Comanche Bottom Ash Pond, and the GPS determination. The GPS for each COI is the higher of the two: MCL or BTV, per 257.95(h)(3).

Table 9. Background threshold values for detection monitoring at the Bottom Ash Pond							
Constituent	Unit	n	No. BDL	% BDL	Recommended distribution	No. of verification samples	BTV
Appendix III							
Boron	mg/l	8	1	13%	Gamma	2	4.3
Calcium	mg/l	8	0	0%	Normal	2	600
Chloride (as Cl)	mg/l	8	0	0%	Normal	2	1,000
Fluoride	mg/l	8	3	38%	Normal*	2	75



Table 9. Background threshold values for detection monitoring at the Bottom Ash Pond							
Constituent	Unit	n	No. BDL	% BDL	Recommended distribution	No. of verification samples	BTv
pH (field), LPL	su	8	0	0%	Nonparametric	5	4.59
pH (field), UPL	su	8	0	0%	Nonparametric	5	6.77
Sulfate (as SO ₄)	mg/l	8	0	0%	Normal	2	76,000
Total Dissolved Solids	mg/l	8	0	0%	Normal	2	86,000

*For fluoride, the normal was selected instead of the gamma as method to estimate the UPL using a gamma underlying distribution produced an unrealistic estimate given the existing range of sampled values.

Table 10. Groundwater Protection Standards for Appendix IV COIs at the Bottom Ash Pond				
Constituent	Unit	Maximum Contaminant Level	Background Concentrations (W-2C UTL) [^]	Groundwater Protection Standards
Antimony	mg/l	0.006	0.00052	0.006
Arsenic	mg/l	0.01	0.014	0.014
Barium	mg/l	2	0.020	2
Beryllium	mg/l	0.004	0.00014	0.004
Cadmium	mg/l	0.005	0.0063	0.0063
Chromium, Total	mg/l	0.1	0.0029	0.1
Cobalt	mg/l	0.006*	0.0092	0.0092
Fluoride	mg/l	4	570	570
Lead	mg/l	0.015	0.00063	0.015
Lithium	mg/l	0.04*	7.2	7.2
Mercury	mg/l	0.002	0.00015	0.002
Molybdenum	mg/l	0.1*	0.0097	0.1
Radium-226+228	pCi/l	5	8.15	8.15
Selenium	mg/l	0.05	4.0	4.0
Thallium	mg/l	0.002	0.0062	0.0062

*EPA adopted health-based value in place of MCL. [^]Background Statistics completed October 2022.

2022 Background Monitoring Events - January, February/March, March/April, June, July, August, September, November, and December

In 2022, there were background sample events for newer wells at the Bottom Ash Pond in January, February/March, March/April, June, July, August, September, November, and December. These sample events are conducted after a new well is installed at 5 week frequencies to expedite collection of eight sample events to be able to perform statistical comparisons with the data. Laboratory reports are included in **Appendix B**. During these background monitoring events, concentrations of antimony, beryllium, cadmium, cobalt, and radium were observed over the GPS in some wells, as summarized in **Table 10**. EPA is routinely notified of concentration exceedances, per Paragraph 95(d)(i) of the Consent Agreement.



Table 11. Bottom Ash Pond Wells with Concentrations over Groundwater Protection Standards During 2022 Background Monitoring Events						
Appendix IV Parameters with Concentration Exceedances	Sample Date	Antimony	Beryllium	Cadmium	Cobalt	Radium (pCi/L)
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	
GPS (Based on Well W-2C)*		0.006	0.004	0.0063	0.0092	8.15
W-3B	Jan-22	--	--	0.021	0.14	8.39
	Feb-22	--	--	0.023	0.083	12.5
	Mar/Apr 2022	--	0.0091	0.027	0.13	12.7
	Jun-22	--	--	0.015	--	--
	Jul-22	--	--	0.017	0.11	11.5
	Aug-22	--	--	0.017	0.11	13.4
W-6B/W-6B1	Jan-22	--	--	0.0085	0.095	8.5
	Feb-22	0.0073	--	0.012	0.1	9.84
	Mar/Apr 2022	--	--	0.0082	0.087	10.4
	Jun-22	--	--	0.0089	0.013	--
	Jul-22	--	--	no sample	no sample	--
	Aug-22	--	--	0.024	0.11	12.2
	Sep-22	--	--	0.027	0.13	11.5
W-7	Jan-22	--	--	0.0067	0.023	--
	Feb-22	--	--	0.0084	0.014	--
	Mar/Apr 2022	--	--	0.0069	0.026	--
W-9	Feb-22	0.0076	--	--	--	--
W-11	Jan-22	--	--	--	0.017	--
	Feb-22	--	--	--	0.023	--
	Mar/Apr 2022	--	--	--	0.017	--
W-12	Jan-22	--	--	--	0.033	--
	Feb-22	--	--	--	0.022	--
	Mar/Apr 2022	--	--	--	0.013	--
W-14	Mar/Apr 2022	--	--	--	0.013	--
	Jun-22	--	--	--	0.011	--
	Jul-22	--	--	--	0.011	--
	Aug-22	--	--	--	0.012	--
	Sep-22	--	--	--	0.011	--
W-16	Mar/Apr 2022	--	--	--	--	--
	Jun-22	--	--	--	0.013	--
	Jul-22	--	--	--	0.013	--
	Aug-22	--	--	--	0.016	--
	Sep-22	--	--	--	0.018	--

*Background statistics completed October 2022. Background sample events for W-17 in November did not have any exceedances.

The laboratory data from the December 2022 sample events was not available at the time of this report.

2022 Assessment Monitoring

In addition to the background sample events, PSCo sampled in May and October/November for assessment monitoring, which included both Appendix III and Appendix IV constituents pursuant to 257.95. Laboratory reports are included in **Appendix B**.

During assessment monitoring downgradient well concentrations are compared against background threshold values, and if concentrations of any Appendix IV constituents are found to be above BTVs, in accordance with CCR Rule 257.95(f), downgradient well concentrations are then compared against GPS. If concentrations are found to exceed GPS, then following CCR Rule 257.95(g), downgradient well concentrations are then compared against GPS to determine “if one or more constituents in Appendix IV to this part are detected at statistically significant levels above the groundwater protection standard.” To determine if an exceedance of a GPS is statistically significant, the 95 percent lower confidence limit (95LCL) is calculated for each of the downgradient wells for each of the detected Appendix IV COIs. Where an LCL is greater than the GPS the concentration is at a SSL over GPS.

However, because some of the monitoring wells were more recently installed, not all wells had the minimum number of sample events (8 events) for statistical comparison to GPS. **Table 12** provides the installation date and initial sampling date to demonstrate at what time enough sample events were completed at each well in the Bottom Ash Pond monitoring network to be statistically compared to GPS.

Table 12. Bottom Ash Pond Monitoring Network Status of Wells for Statistical Analysis				
Monitoring Wells in Bottom Ash Pond Monitoring System	Installation Dates	First 8 Sample Events Date Range	8 or more samples collected as of May 2022 Assessment Monitoring Event? (Yes or No)	8 or more samples collected as of October 2022 Assessment Monitoring Event? (Yes or No)
W-1	May 20, 1997	March – December 2020	Yes	Yes
W-2C	November 2021	December 2021 - August 2022	No	Yes
W-3B				
W-5B	December 2020	January – May 2022	Yes	Yes
W-6B/W-6B1	November 2021	December 2021 – September 2022	No	Yes
W-7	August 2020	August – December 2020	Yes	Yes

Table 12. Bottom Ash Pond Monitoring Network Status of Wells for Statistical Analysis				
Monitoring Wells in Bottom Ash Pond Monitoring System	Installation Dates	First 8 Sample Events Date Range	8 or more samples collected as of May 2022 Assessment Monitoring Event? (Yes or No)	8 or more samples collected as of October 2022 Assessment Monitoring Event? (Yes or No)
W-9	December 2020	January – May 2022	Yes	Yes
W-11				
W-12				
W-13				
W-14	February – March 2022	7 events March - September 2022	No	No
W-15				
W-16				
W-17	August 10, 2022	2 events Nov-Dec 2022	No	No
W-18	December 13, 2022	No samples in 2022	No	No

2022 Assessment Monitoring – May event

During the May 2022 assessment monitoring event, groundwater samples from all of the Bottom Ash Pond wells and the perimeter/characterization wells were analyzed for Appendix III and IV COIs plus TSS. For Appendix III parameters, well W-6B had an SSI for chloride and sulfate that exceeded background and well W-5B had an SSIs for pH. (**Table 13**). EPA was notified of these SSIs, per Paragraph 95(e) of the Consent Agreement.

Table 13. Bottom Ash Pond May 2022 Groundwater Sampling Event			
Wells with SSIs over Detection Monitoring BTVs			
Appendix III Parameters with SSIs	Chloride (mg/l)	Field pH (standard units)	Sulfate (mg/l)
BTV (Based on Well W-2C)	1,000	4.59-6.77	76,000
Monitoring Wells with SSIs			
W-5B	--	6.98	--
W-6B	1,300 ¹	--	80,000

*Background statistics completed October 2022. ¹ W-6B was installed in late 2021 and had not been sampled the minimum 8 background samples.

In accordance with CCR Rule 257.95(e), downgradient well concentrations of Appendix IV parameters were compared against BTVs and some were found to be above BTVs. In accordance with CCR Rule 257.95(f-g), downgradient well concentrations were compared against GPS and some wells had GPS exceedances for the May 2022 sample event (**Table 14**). EPA was notified of these concentration exceedances, per Paragraphs 95(d)(i) of the Consent

Agreement. The results of the LCL comparison against GPS are provided in **Table 15**. Perimeter/characterization wells W-7 and W-12 had SSLs of cobalt over GPS. Monitoring wells W-14 and W-16 were installed further downgradient than W-7 and W-12 to monitor for GPS exceedance potential migration.

Table 14. Bottom Ash Pond May 2022 Groundwater Sampling Event Wells with Concentrations over Groundwater Protection Standards			
Appendix IV Parameters with Concentration Exceedances	Cadmium (mg/L)	Cobalt (mg/L)	Radium (pCi/L)
GPS (Based on Well W-2C)	0.0063	0.0092	8.15
Monitoring Wells with Concentration Exceedances			
W-3B	0.017	0.11	10.7
W-6B	0.009	0.078	--
W-7	0.0063	0.019	--
W-11	--	0.017	--
W-12	--	0.030	--
W-14	--	0.011	--
W-16	--	0.011	--

*Background statistics completed October 2022.

Table 15. Lower Confidence Limit from Bottom Ash Pond May 2022 Sample Event Compared to Groundwater Protection Standard for the only Detected Appendix IV COI that Exceeds GPS		
Monitoring Well	Appendix IV Constituent	Cobalt
	Unit	mg/l
	GPS	0.0092
W-7	LCL	0.0160
W-12	LCL	0.0218

*Background statistics completed October 2022.

2022 Assessment Monitoring – October/November event

During the October/November 2022 assessment monitoring event, groundwater samples from all of the Bottom Ash Pond wells and the perimeter/characterization wells were analyzed for all Appendix III and IV COIs plus TSS. Laboratory reports are included in **Appendix B**. In accordance with CCR Rule 257.95(e), downgradient well concentrations were compared against BTVs and some were found to be above BTVs. In accordance with CCR Rule 257.95(f-g), downgradient well concentrations were compared against GPS and some wells had GPS exceedances for the October/November 2022 sample event (**Table 16**). EPA was notified of these concentration exceedances, per Paragraphs 95(d)(i) of the Consent Agreement. These constituents and well locations with GPS exceedances were consistent with prior sample events. LCLs were calculated for comparison against GPS. The results of the LCL comparison against GPS are provided in **Table 17**. Waste boundary wells W-3B and W-6B/W-6B1 have

SSLs over GPS for cadmium, cobalt, and Radium 226/228. Perimeter/characterization wells W-7, W-11, and W-12 had SSLs of cobalt over GPS.

Table 16. Bottom Ash Pond October/November 2022 Groundwater Sampling Event Wells with Concentrations over Groundwater Protection Standards			
Appendix IV Parameters with Concentration Exceedances	Cadmium (mg/L)	Cobalt (mg/L)	Radium (pCi/L)
GPS (Based on Well W-2C)	0.0063	0.0092	8.15
Monitoring Wells with Concentration Exceedances			
W-3B	0.017	0.12	10.9
W-6B/W-6B1	0.026	0.14	--
W-7	0.0063	0.024	--
W-11	--	0.021	--
W-12	--	0.028	--
W-14	--	0.011	--
W-16	Not analyzed	0.017	Not analyzed

Table 17. Lower Confidence Limit from Bottom Ash Pond October/November 2022 Sample Event Compared to Groundwater Protection Standard for wells with SSLs				
Monitoring Wells with SSLs	Appendix IV Constituent	Cadmium	Cobalt	Radium 226/228
	Unit	mg/l	mg/l	pCi/l
	GPS	0.0063	0.0092	8.15
W-3B	LCL	0.017	0.077	10
W-6B/W-6B1	LCL	0.012	0.074	8.4
W-7	LCL	--	0.016	--
W-11	LCL	--	0.0095	--
W-12	LCL	--	0.023	--

PSCo prepared an Assessment of Corrective Measures (ACM) on November 16, 2022. Cobalt has SSLs at the south end of the BAP and perimeter/characterization wells W-7 and W-12. It appears the cobalt concentrations, which are highest at the south end of the BAP, could have migrated to the eastern property boundary at W-7 and further downgradient to off-site well W-16. The cobalt concentrations from the south end of the BAP could have migrated south to on-site characterization wells W-12 and W-14. The concentrations of cobalt in the perimeter/characterization wells with SSLs, on-site well W-14, and off-site well W-16 are close in value to the BAP background value and lower in concentration on average than one of the landfill upgradient/background wells; thus PSCo is continuing to evaluate the representativeness of the current BAP cobalt background concentration. The SSLs for cadmium and radium 226/228 are limited to the waste boundary wells W-3B and W-6B/W-6B1 at the



south end of the BAP. No property boundary or southern characterization wells have SSLs of cadmium or radium 226/228. Installation of additional wells will continue as an iterative process until the extent of the cobalt plume has been defined. Well W-18 was installed in December 2022 offsite and southeast of W-14 to step out and define the extent of the cobalt plume from the W-14 area. As described in the ACM, installation of additional off-site wells is planned to the south of W-15 and to the east and southeast of W-16 in 2023, pending permission from adjacent landowners for access. Private wells on these properties are located in the alluvium associated with the St. Charles River, which based on the conceptual site model, is separate and disconnected from the groundwater under Comanche Station, and the potential for impact to these wells is considered to be very low.

The vertical extent of the plumes is limited at depth by the consolidated, unfractured shale that serves as a confining unit below the groundwater in the fractured, weathered shale. Beneath the weathered shale, fractures ceased in the shale. Core drilling extended 25 to 41 feet further into unfractured, consolidated shale in seven borings to confirm the extent and of the consolidated (unfractured) shale.

40 C.F.R §257.95(g)(2) requires that all persons who own the land or reside on the land that directly overlies any part of the plume of contamination be notified if CCR constituents have migrated offsite. Based upon the cobalt concentration exceedance in offsite well W-16, the adjacent landowner to the east was notified, as was the County for the Lime Road right-of-way. The notifications were placed in the facility's operating record and posted on its CCR website. Additionally, in communications with other landowners regarding access to install wells on their properties, PSCo has discussed the observed cobalt concentrations upgradient of their properties and the need for the additional wells to evaluate the potential for cobalt plume to extend to their properties.

5.0 Remedy Selection Progress Update

The section below provides the semi-annual progress towards remedy selection and design for the ash impoundment in accordance with 257.97(a). Semiannual progress reports will be prepared and posted to the CCR website until a remedy is selected and documented in a final report, following a public meeting.

Over the past six months, July through December 2022, PSCo has made significant progress towards closure planning for the Bottom Ash Impoundment, groundwater corrective measures assessment, development of background values and evaluation of statistically significant exceedances, and plume delineation. The following bullets outline the progress made by PSCo:

- PSCo completed eight rounds of background sampling for the new background well, W-2C, and calculated new BTVs and new GPS for the impoundment.
- Assessment monitoring continued, and concentrations of Appendix IV constituents were compared against updated BTVs and GPS.

- When the GPS exceedance was identified at wells W-14 and W-16, PSCo notified the adjacent landowner that owns the property on which W-16 is located and also drilled well W-17, located south of W-14 on PSCo property, in August 2022. Additionally, PSCo has requested access agreements for a step-out phase of well drilling to evaluate the plume boundaries and confirm the lack of hydraulic connection between the weathered shale on the terrace where the Comanche station is located and the alluvium associated with the St. Charles River where the nearest off-site supply wells are completed. PSCo worked towards landowner agreements July through December 2022 to install proposed monitoring wells south and east of the wells with existing exceedances. As part of this step out phase of proposed four wells, one well, W-18, was drilled in December 2022. The other three wells are pending landowner agreements.
- PSCo completed the *Assessment of Corrective Measures Plan for CCR Impoundment* on November 16, 2022, in accordance with CCR Rule 257.96. The completion date of the ACM was specified in the Consent Agreement. The ACM evaluated five corrective measures for the impoundment: monitored natural attenuation (MNA), in-situ treatment, hydraulic containment and treatment, slurry wall, and soil flushing. PSCo has selected source removal to close the impoundment, and all of the groundwater measures evaluated in the ACM assumed the impoundment would be excavated and all source removed prior to implementation of any groundwater measures. As discussed in the ACM, to select a groundwater remedy, additional data collection and analyses is ongoing to understand off-site cobalt plume transport and potential human or ecological receptors. Potential receptors were evaluated and, at this time, the risk to private wells is considered very low due to their location in a separate and disconnected groundwater system than the groundwater under Comanche Station. The additional wells required to delineate the plume boundaries require private landowner agreements, and these discussions are ongoing. Once selected, the remedy will be designed, implemented, and continually evaluated in accordance with an adaptive management strategy. The adaptive management will allow for additional site characterization needs that may be identified and remedy implementation adjustments as necessary, leading to continuous improvement and optimal remedy performance.
- In July 2022, per the Consent Agreement, PSCo completed an Annual Groundwater Monitoring and Corrective Action Report that reported on all of the activities for CCR Rule groundwater program compliance between 2020 and June 2022.
- PSCo has initiated closure of the impoundment and the majority of liquid has been removed. PSCo initiated the engineering design for the closure of the BAP. This included slope stability analyses on the berms separating the adjacent impoundments, initial civil grading plans for the excavation, and initial planning for post-closure conditions for the pond bottom and side slopes.

6.0 Summary

As summarized in Section 1.0, and discussed in more detail throughout this report, the CSM for Comanche Station and the certified monitoring well systems for both CCR units have been

significantly updated between 2020 and 2022 based upon results from a multi-phased hydrogeologic site investigation. The updated CSM has identified an unconfined aquifer in the weathered shale unit as the uppermost aquifer beneath the site and the well systems for both CCR Units have been updated to monitor this water in the weathered shale. Some of the additional monitoring wells are used for characterization of groundwater conditions downgradient of the waste unit boundary wells. The certified monitoring well system was updated most recently in July 2022 and will be posted to the CCR website after EPA approval.

The phased nature of the site investigations and associated updates to the monitoring well system resulted in wells of different ‘vintages’ and with different and/or overlapping stages of monitoring under the CCR Rule; especially at the BAP. As of the end of 2022, the monitoring status at the landfill is detection monitoring and at the BAP is assessment monitoring and assessment of corrective measures.

The following observations are based on CCR Rule compliance monitoring data collected in 2022:

Landfill

- Sampling was conducted in January, March, April, May, June, July, August, and November 2022. Detection monitoring events were in May and November. Additional dates were for background monitoring associated with a newer well.
- In 2022 the background water quality for the landfill was recalculated by pooling results from the updated background wells MW-3, MW-4B, and MW-6, all of which are upgradient of the landfill.
- SSIs of chloride were observed at MW-1B, MW-2B, and MW-5 for the landfill. PSCo is in the process of completing an ASD.
- Two new wells, MW-8 and MW-9, were installed at the landfill as part of the ASD study and sampled in December 2022.
- In 2023, PSCo will continue detection monitoring at the landfill, depending upon the outcome of the ASD study.

Bottom Ash Pond

- The Groundwater Monitoring System Certification was updated July 5, 2022 to reflect the new wells and updates to the monitoring system.
- Sampling was conducted in January, February, March, April, May June, July, August, September, October/November, and December 2022. Assessment monitoring was completed in May and October/November 2022. Additional dates were for background monitoring associated with newer wells.
- PSCo installed well W-6B1 adjacent to damaged W-6B to replace the abandoned W-6B well.
- Two perimeter characterization wells (W-17 and W-18) were also installed in response to the SSLs over GPS.
- In 2022 the background water quality for the Bottom Ash Pond was updated after eight samples were collected from upgradient well W-2C.

- Assessment monitoring completed in May 2022 resulted in SSLs of cobalt at on-site perimeter wells W-7 and W-12. Additional single event concentration exceedances of GPS were observed in several wells that do not yet have enough sample events for statistical evaluation; for example on-site wells W-3B and W-6B/W-6B1 have GPS concentration exceedances of cadmium, cobalt, and radium. Antimony and beryllium have one-time exceedances of GPS that appear anomalous and are not anticipated to continue.
- Assessment monitoring completed in October/November 2022 resulted in SSLs of cadmium, cobalt, and Radium 22/228 at on-site wells W-3B and W-6B/W-6B1, and SSLs of cobalt at W-7, W-12, W-14, and off-site well W-16. PSCo installed W-18, as described above, notified landowners, and is discussing access agreements with landowners to install additional monitoring wells south and east of W-15 and W-16 to evaluate the extent of GPS exceedances.
- PSCo completed the ACM November 16, 2022.
- In 2023, PSCo will complete the eight rounds of monitoring at new monitoring wells and will continue assessment monitoring at the Bottom Ash Pond.

7.0 References

HDR, 2015. Groundwater Sample Collection Standard Operating Procedure. October 28, 2015.

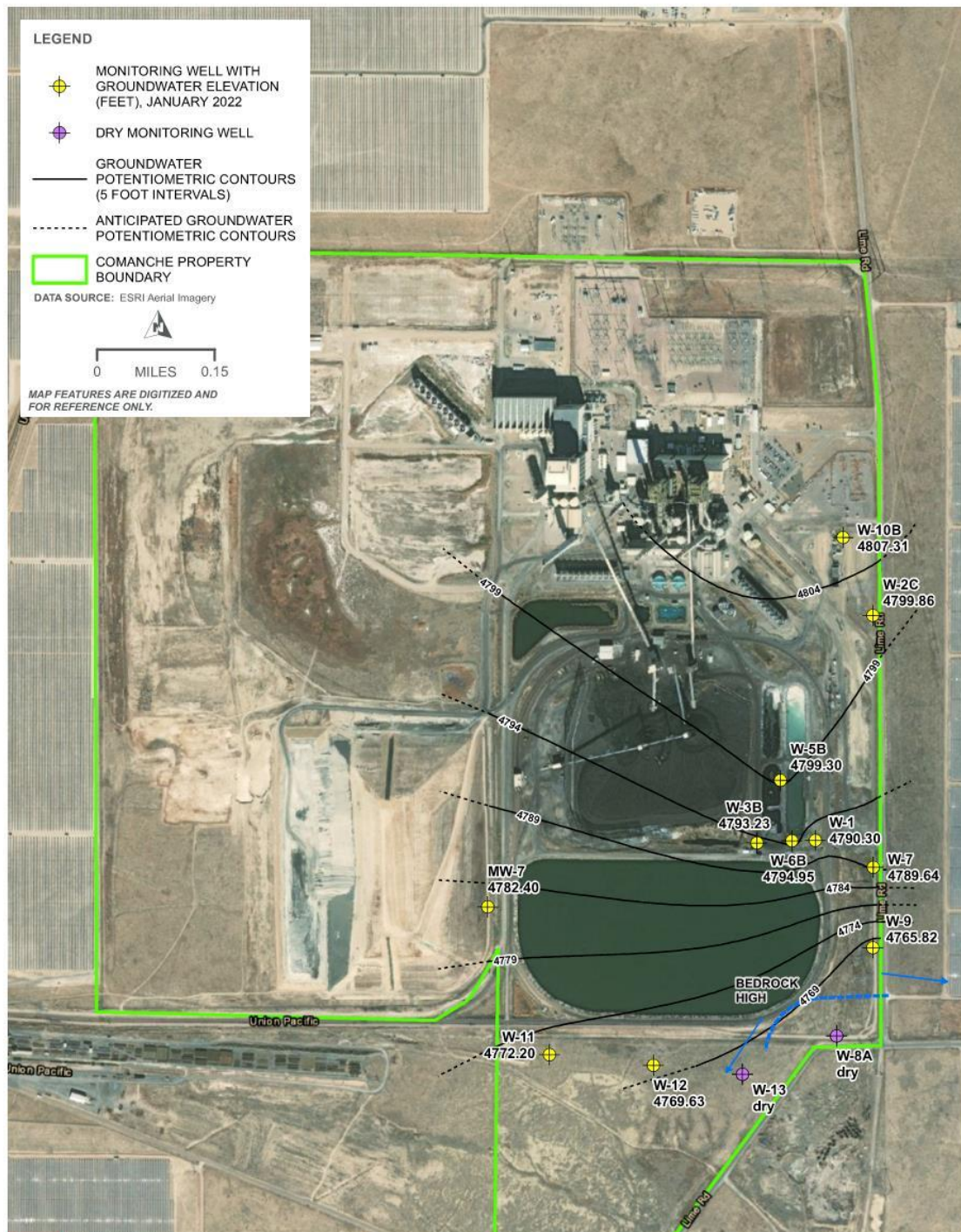
HDR, 2022. Groundwater Monitoring System Certification - Compliance with the Coal Combustion Residuals Rule Comanche Station. July 5, 2022.

HDR, 2021b. 2021 Annual Groundwater Monitoring and Corrective Action Report. January 29, 2021.

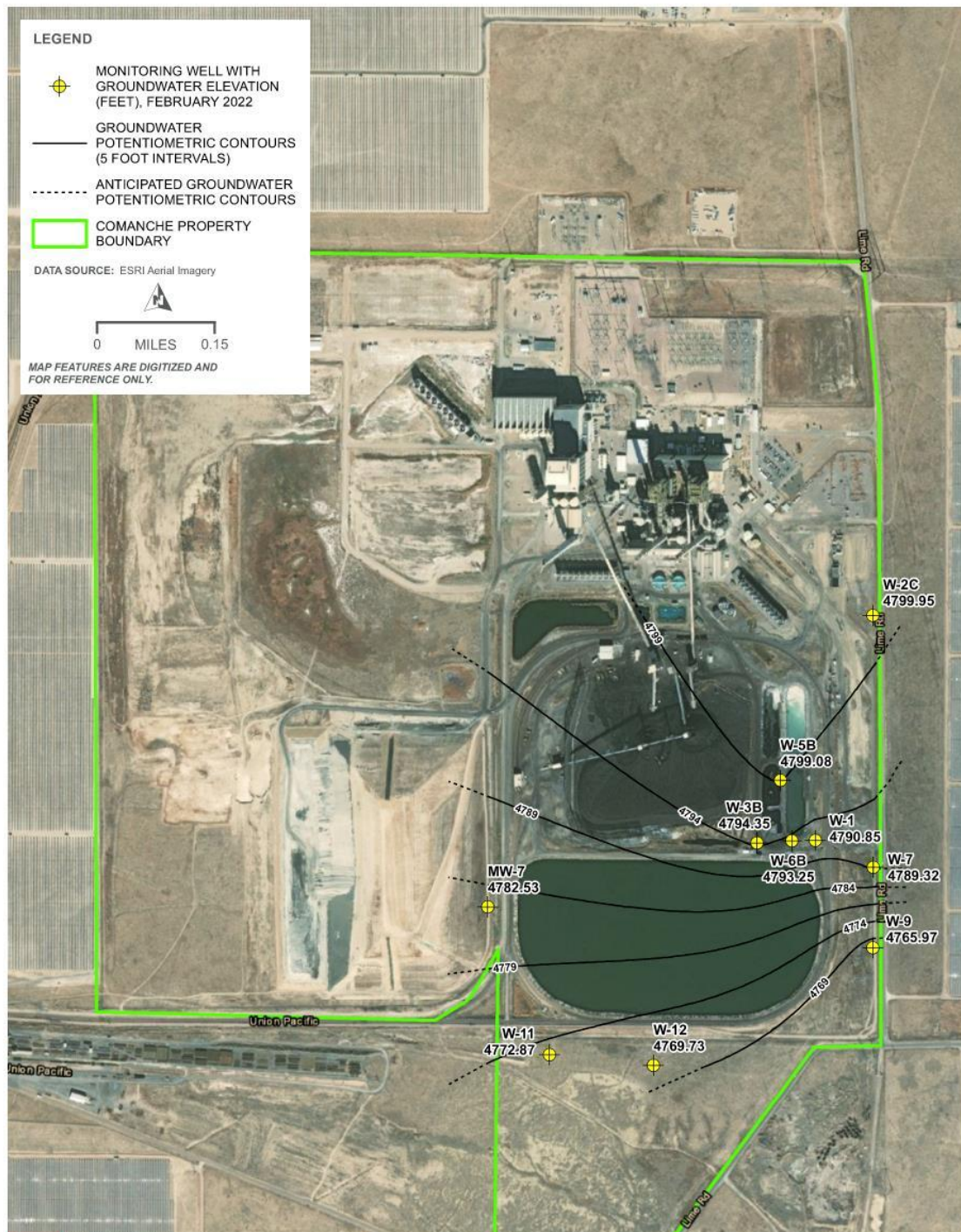
HDR, 2019a. Data Management and Statistical Procedures Plan for Compliance with the Coal Combustion Residuals Rule. Updated July 7, 2019.

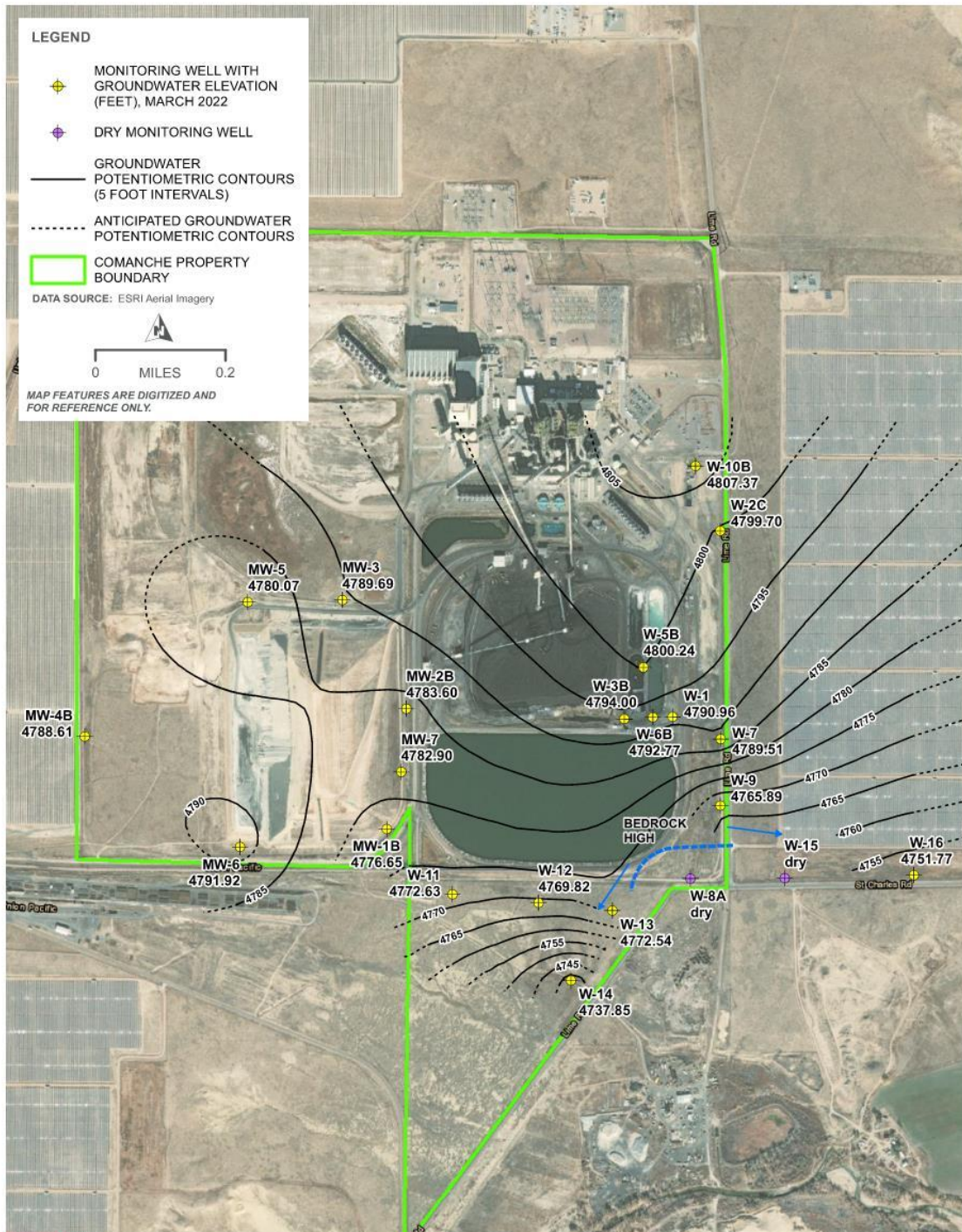
Appendix A

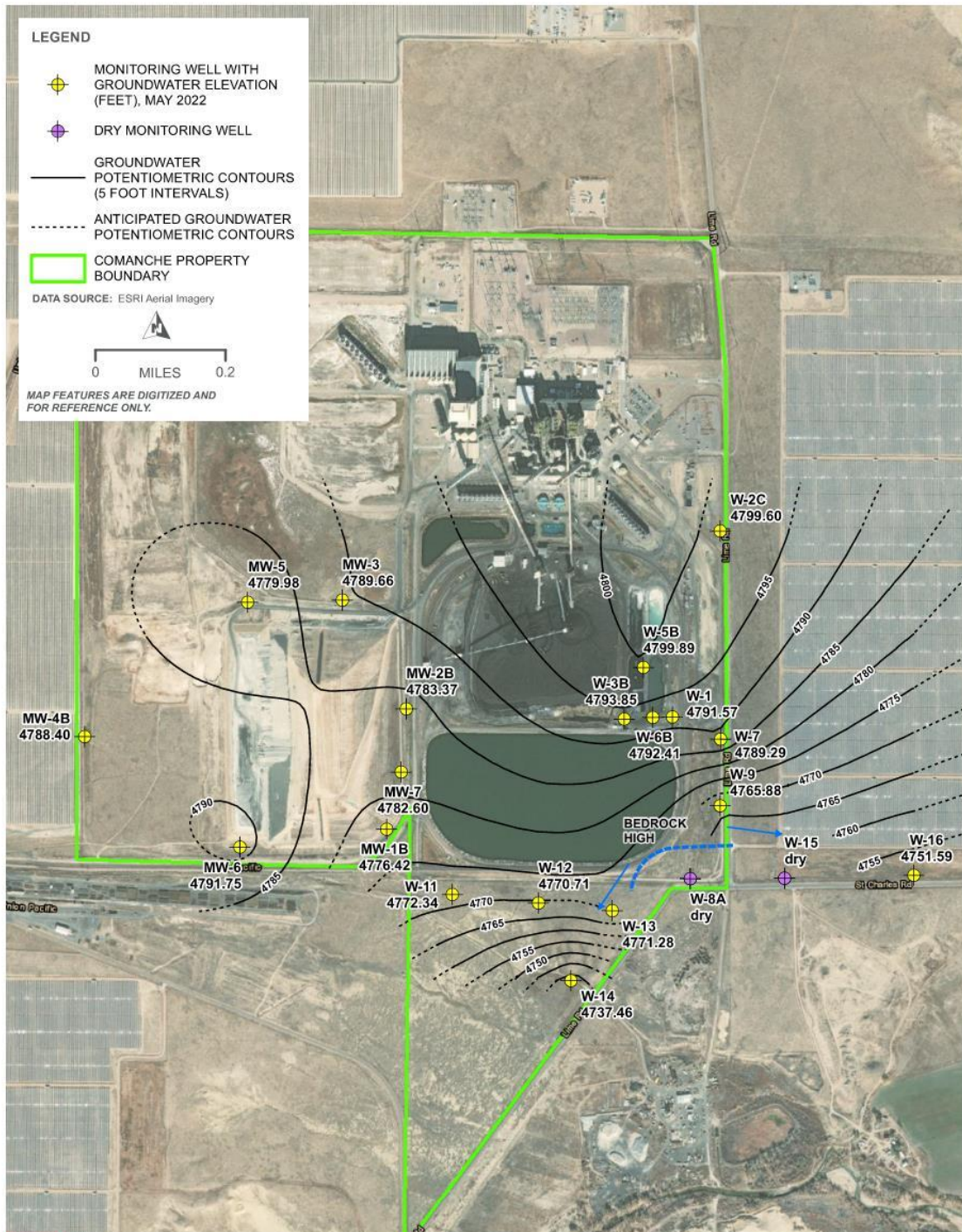
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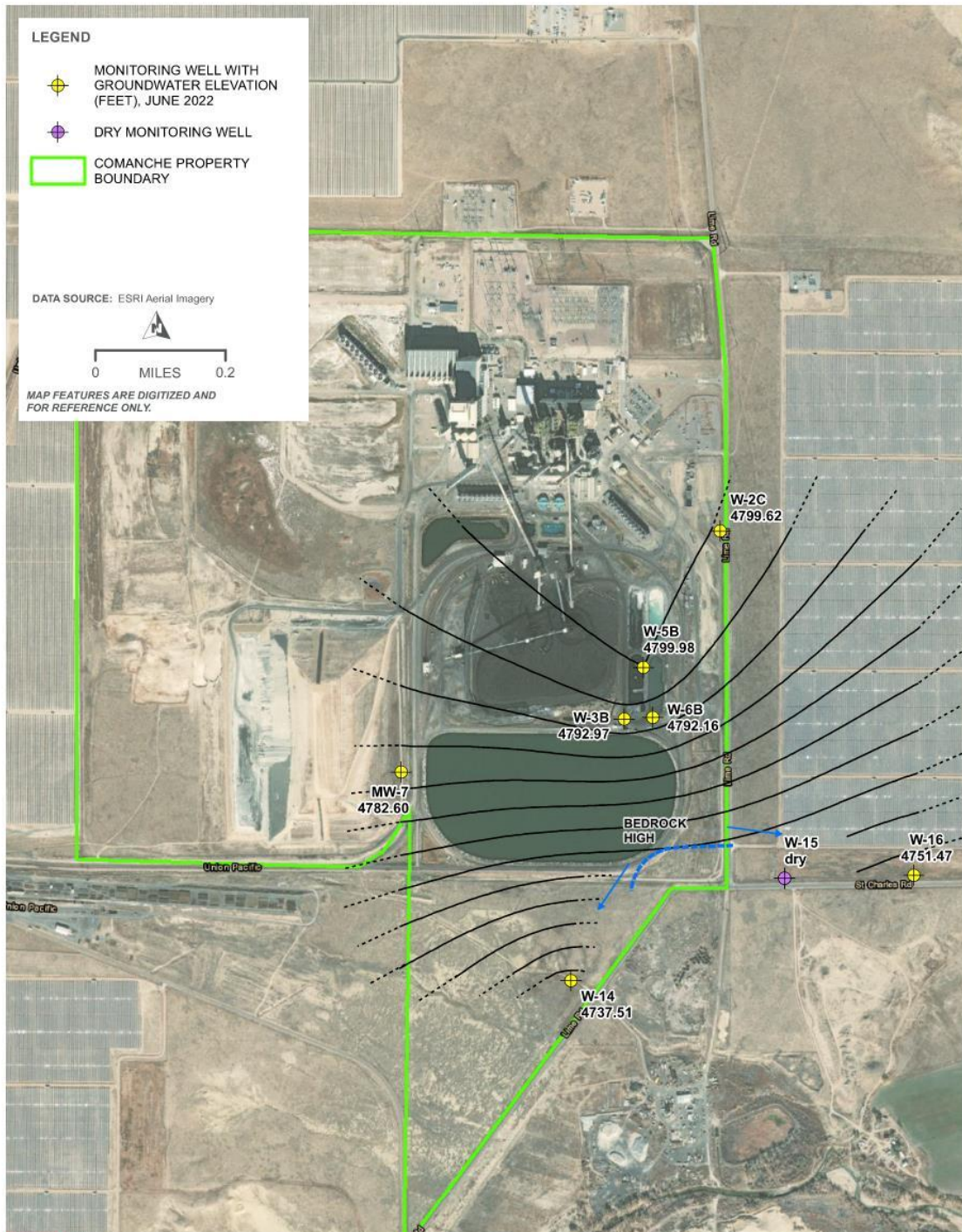


COMANCHE POWER STATION
PUEBLO COUNTY, CO

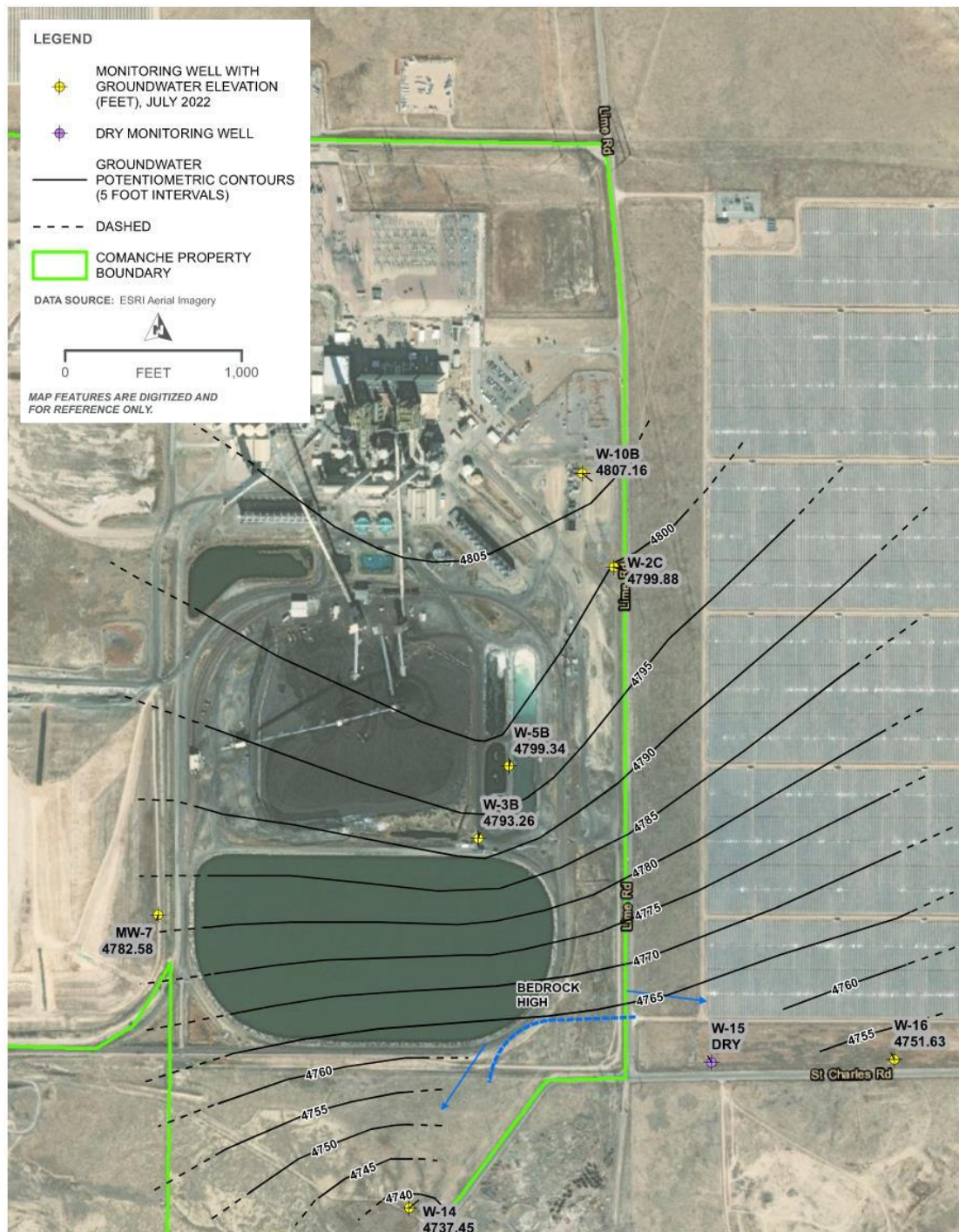






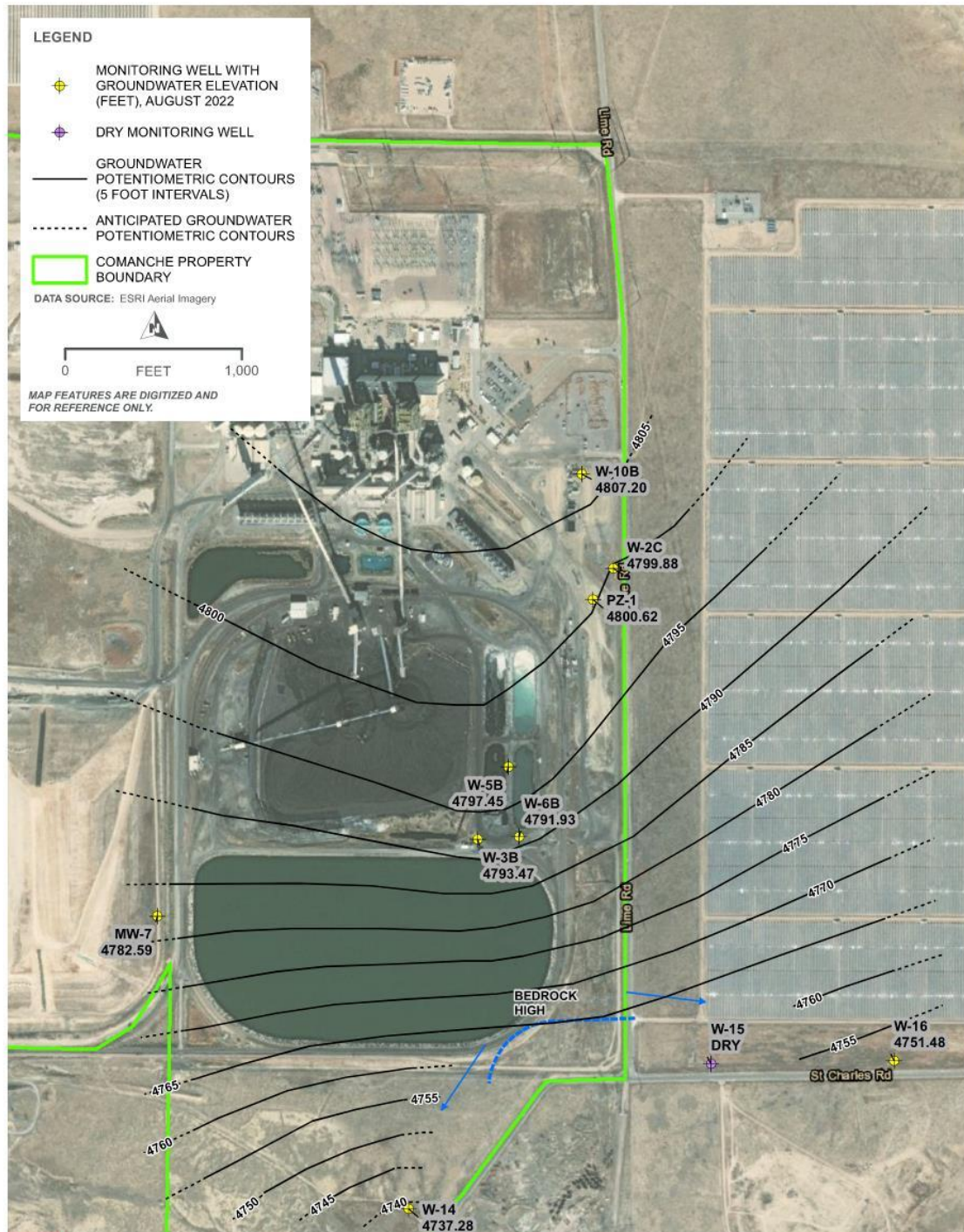


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PUEBLO COUNTY, CO

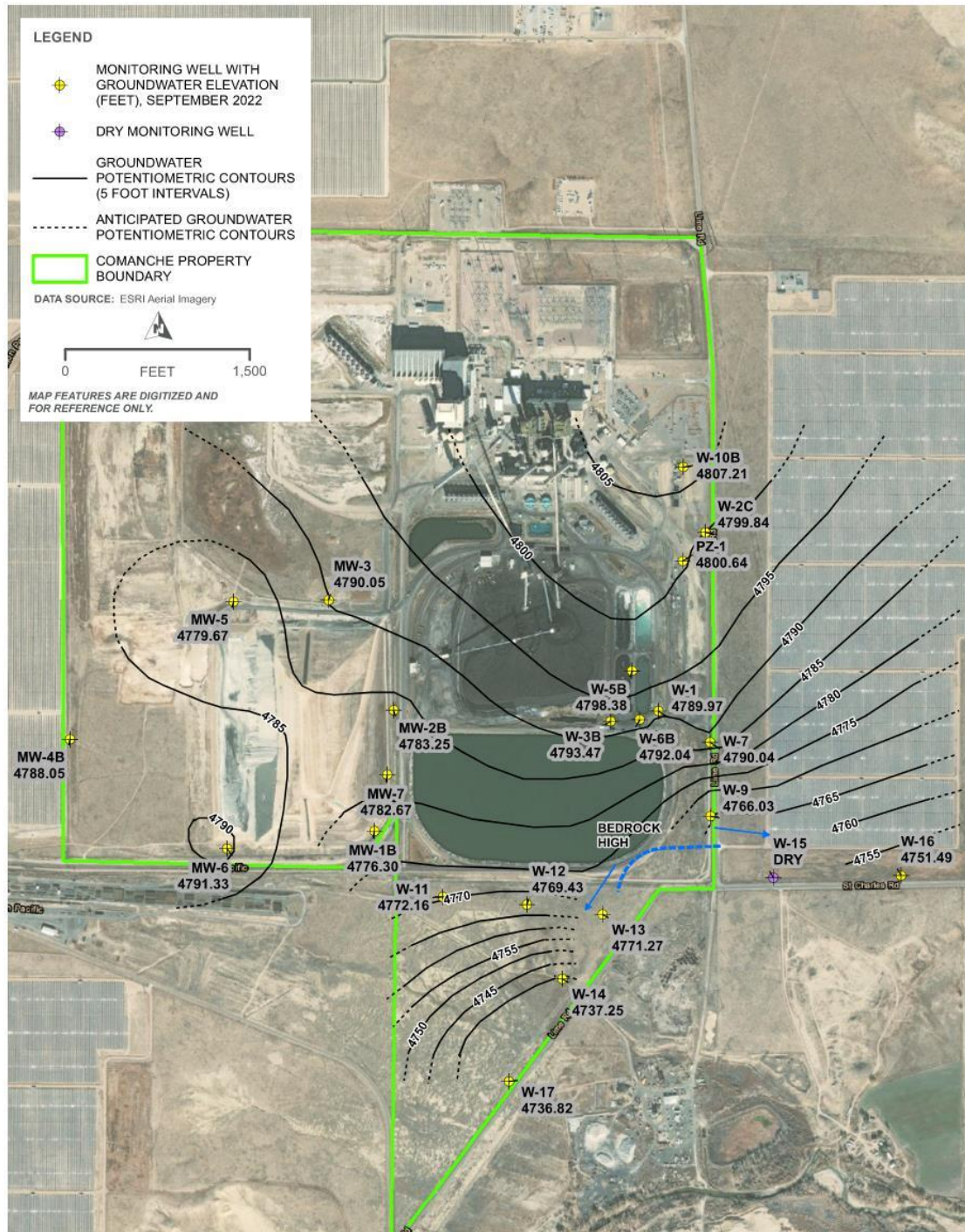


COMANCHE POWER STATION
PUEBLO COUNTY, CO

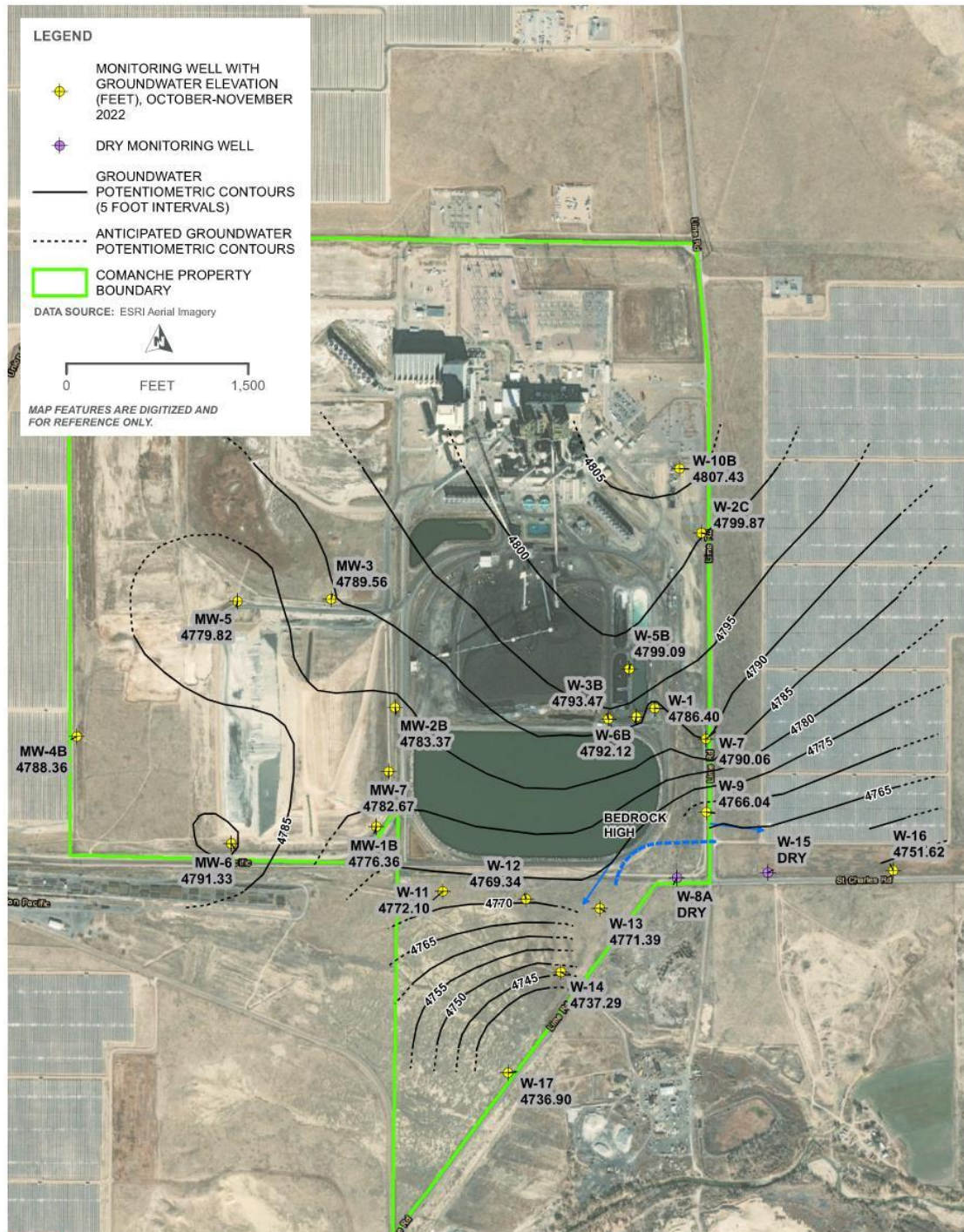
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COMANCHE POWER STATION
PUEBLO COUNTY, CO



COMANCHE POWER STATION
PUEBLO COUNTY, CO



Appendix B

Laboratory Reports

ANALYTICAL REPORT

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

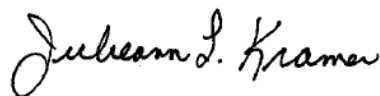
Laboratory Job ID: 280-157766-1

Client Project/Site: Xcel Energy GW CCR Monitoring -
Comanche
Revision: 2

For:

HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Attn: Molly Reeves



Authorized for release by:
4/20/2022 2:06:56 PM

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

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.
F1	MS and/or MSD recovery exceeds control limits.
F5	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL, and the absolute difference between results is < the upper reporting limits for both.
H	Sample was prepped or analyzed beyond the specified holding time
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
^+	Continuing Calibration Verification (CCV) is outside acceptance limits, high biased.
H	Sample was prepped or analyzed beyond the specified holding time
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.
X	Carrier is outside acceptance limits.

Glossary

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

Eurofins Denver

Definitions/Glossary

Client: HDR Inc

Job ID: 280-157766-1

Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
TNTC	Too Numerous To Count

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Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Job ID: 280-157766-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-157766-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 01/14/2022; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was C.

DISSOLVED METALS- Method 6010C/6020A

Several samples required dilution prior to analysis. The reporting limits have been adjusted accordingly.

MS/MSD analysis data have been performed on sample W-1. The MS/MSD for multiple elements by method 6020 exhibited spike compound recoveries outside the QC limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The accuracy and precision of the Calcium and Lithium MS/MSD performed sample W-1 could not be reliably evaluated, as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

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

TOTAL RECOVERABLE METALS- Method 6010C/6020A

Several samples required dilution prior to analysis. The reporting limits have been adjusted accordingly.

The accuracy and precision of the Calcium MS/MSD performed on a laboratory generated sample could not be reliably evaluated, as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

Selenium exceeded the RPD limit for the duplicate of sample W-6DU (280-157766-9) for Method 6020A.

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

DISSOLVED MERCURY

MS/MSD analysis data have been performed on sample W-1. The MS/MSD Mercury by method 7470A exhibited spike compound recoveries outside the QC limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Job ID: 280-157766-1 (Continued)

Laboratory: Eurofins Denver (Continued)

TOTAL MERCURY

The analysis of the following samples were performed outside of the analytical holding time due to laboratory oversight: W-1 (280-157766-1), W-2A (280-157766-2), W-2C (280-157766-3), W-3 (280-157766-4), W-3B (280-157766-5), W-3D (280-157766-6), W-5 (280-157766-7), W-5B (280-157766-8), W-6 (280-157766-9), W-6B (280-157766-10), W-7 (280-157766-11), W-9 (280-157766-12), W-7EB (280-157766-13), W-11 (280-157766-14), W-12 (280-157766-15) and W-7 (280-157766-16).

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

General Chemistry- Various

Several samples were required to be prepped at a dilution or analyzed dilution prior to analysis for various analyses. The reporting limits have been adjusted accordingly.

Reanalysis of the following samples were performed outside of the analytical holding time due to the quality control fail for Fluoride with the original analysis: W-2C (280-157766-3), W-3B (280-157766-5), W-3D (280-157766-6), W-5B (280-157766-8), W-6B (280-157766-10), W-7 (280-157766-11), W-9 (280-157766-12), W-11 (280-157766-14), W-12 (280-157766-15) and W-7 (280-157766-16).

Reanalysis of the following samples were performed outside of the analytical holding time due to the quality control fail for Total Suspended Solids with the original analysis: W-6B (280-157766-10) and W-9 (280-157766-12).

Total Suspended Solids exceeded the RPD limit for the duplicate of laboratory generated sample. Refer to the QC report for details.

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

RADIUM-226 (GFPC)

The following samples were prepared at a reduced aliquot due to Matrix: W-1 (280-157766-1), W-2A (280-157766-2), W-2C (280-157766-3), W-3 (280-157766-4), W-3B (280-157766-5), W-3D (280-157766-6), W-5 (280-157766-7), W-5B (280-157766-8), W-6 (280-157766-9), W-6B (280-157766-10), W-7 (280-157766-11), W-9 (280-157766-12), W-7EB (280-157766-13), W-11 (280-157766-14), W-12 (280-157766-15) and W-7 (280-157766-16).

The method 9315 MS/MSD could not be performed for this batch, due to insufficient sample volume. Method precision and accuracy have been verified by the acceptable LCS/LCSD analysis data.

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

RADIUM-228

The following samples were prepared at a reduced aliquot due to Matrix: W-1 (280-157766-1), W-2A (280-157766-2), W-2C (280-157766-3), W-3 (280-157766-4), W-3B (280-157766-5), W-3D (280-157766-6), W-5 (280-157766-7), W-5B (280-157766-8), W-6 (280-157766-9), W-6B (280-157766-10), W-7 (280-157766-11), W-9 (280-157766-12), W-7EB (280-157766-13), W-11 (280-157766-14), W-12 (280-157766-15) and W-7 (280-157766-16).

The following samples W-3B (280-157766-5) and W-3D (280-157766-6) have Yttrium carrier recoveries above the 110% QC limit. Evidence of matrix interference was noted in prep. The LCS/LCSD (laboratory control sample/laboratory control sample duplicate) have acceptable spike recoveries demonstrating acceptable sample preparation and instrument performance. The sample(s) have been truncated to 100% to reduce any potential bias a high carrier recovery may have. The data have been reported with this narrative.

The method 9320 MS/MSD could not be performed for this batch, due to insufficient sample volume. Method precision and accuracy have been verified by the acceptable LCS/LCSD analysis data.

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

RADIUM-226/RADIUM-228 (GFPC)

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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Job ID: 280-157766-1 (Continued)

Laboratory: Eurofins Denver (Continued)

REVISION

Narrative was corrected: The following samples were analyzed outside of analytical holding time due to analyst oversight: W-1 (280-157766-1), W-2A (280-157766-2), W-2C (280-157766-3), W-3 (280-157766-4), W-3B (280-157766-5), W-3D (280-157766-6), W-5 (280-157766-7), W-5B (280-157766-8), W-6 (280-157766-9), W-6B (280-157766-10), W-7 (280-157766-11), W-9 (280-157766-12), W-7EB (280-157766-13), W-11 (280-157766-14), W-12 (280-157766-15) and W-7 (280-157766-16).

Revision 2

In the original report there was two W-7 samples... the one collected on the 14th has been corrected to MV not W-7.

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Client Sample ID: W-1

Lab Sample ID: 280-157766-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	3.5		3.0	0.84	mg/L	15		6010C	Total
Boron	3.6	J	5.0	1.4	mg/L	25		6010C	Recoverable
Barium	0.016		0.0080	0.0015	mg/L	4		6020A	Dissolved
Cadmium	0.00041		0.00040	0.00020	mg/L	4		6020A	Total
Calcium	390		2.0	0.76	mg/L	4		6020A	Recoverable
Lithium	2.3		0.040	0.010	mg/L	4		6020A	Total
Molybdenum	0.015		0.0080	0.0052	mg/L	4		6020A	Recoverable
Selenium	0.87		0.020	0.0038	mg/L	4		6020A	Total
Antimony	0.0013	J	0.0020	0.0011	mg/L	1		6020A	Recoverable
Arsenic	0.0021	F1	0.0020	0.00075	mg/L	1		6020A	Dissolved
Barium	0.013		0.0020	0.00037	mg/L	1		6020A	Dissolved
Cadmium	0.00032		0.00010	0.000051	mg/L	1		6020A	Dissolved
Calcium	430		5.0	1.9	mg/L	10		6020A	Dissolved
Chromium	0.0013	J F1	0.0050	0.0011	mg/L	1		6020A	Dissolved
Cobalt	0.00072		0.00050	0.00019	mg/L	1		6020A	Dissolved
Lead	0.00066		0.00050	0.00021	mg/L	1		6020A	Dissolved
Lithium	1.9		0.10	0.025	mg/L	10		6020A	Dissolved
Molybdenum	0.015		0.0020	0.0013	mg/L	1		6020A	Dissolved
Selenium	0.73	F1	0.050	0.0096	mg/L	10		6020A	Dissolved
pH adj. to 25 deg C	7.4	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.9	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	730		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	49		2.5	0.83	mg/L	5		9056A	Total/NA
Sulfate	25000		2500	520	mg/L	500		9056A	Total/NA
Total Dissolved Solids (TDS)	38000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	5.6		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-2A

Lab Sample ID: 280-157766-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.011	J	0.014	0.0026	mg/L	7		6020A	Total
Cadmium	0.0041		0.00070	0.00036	mg/L	7		6020A	Recoverable
Calcium	280		3.5	1.3	mg/L	7		6020A	Total
Cobalt	0.014		0.0035	0.0013	mg/L	7		6020A	Recoverable
Lithium	4.8		0.070	0.018	mg/L	7		6020A	Total
Selenium	2.6		0.035	0.0067	mg/L	7		6020A	Recoverable
Thallium	0.0040	J	0.0070	0.0018	mg/L	7		6020A	Total
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU	1		9040B	Recoverable
Temperature	23.2	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	830		30	10	mg/L	10		9056A	Total/NA
Sulfate	97000		2500	520	mg/L	500		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Client Sample ID: W-2A (Continued)

Lab Sample ID: 280-157766-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Dissolved Solids (TDS)	70000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	10		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-2C

Lab Sample ID: 280-157766-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.016		0.014	0.0026	mg/L	7		6020A	Total Recoverable
Cadmium	0.0034		0.00070	0.00036	mg/L	7		6020A	Total Recoverable
Calcium	290		3.5	1.3	mg/L	7		6020A	Total Recoverable
Cobalt	0.0060		0.0035	0.0013	mg/L	7		6020A	Total Recoverable
Lithium	3.9		0.070	0.018	mg/L	7		6020A	Total Recoverable
Selenium	3.1		0.035	0.0067	mg/L	7		6020A	Total Recoverable
Thallium	0.0030	J	0.0070	0.0018	mg/L	7		6020A	Total Recoverable
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.9	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	830		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	1.3	J H	2.5	0.83	mg/L	5		9056A	Total/NA
Sulfate	55000		2500	520	mg/L	500		9056A	Total/NA
Total Dissolved Solids (TDS)	54000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	2.8	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-3

Lab Sample ID: 280-157766-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.70		0.20	0.056	mg/L	1		6010C	Total Recoverable
Barium	0.039		0.0080	0.0015	mg/L	4		6020A	Total Recoverable
Calcium	280		2.0	0.76	mg/L	4		6020A	Total Recoverable
Lithium	0.074		0.040	0.010	mg/L	4		6020A	Total Recoverable
Molybdenum	0.016		0.0080	0.0052	mg/L	4		6020A	Total Recoverable
Selenium	0.0087	J	0.020	0.0038	mg/L	4		6020A	Total Recoverable
pH adj. to 25 deg C	7.8	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.9	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	36		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.45	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	1200		50	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids (TDS)	1800		20	9.4	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	5.2		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-3B

Lab Sample ID: 280-157766-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.014		0.0080	0.0015	mg/L	4		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Client Sample ID: W-3B (Continued)

Lab Sample ID: 280-157766-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cadmium	0.021		0.00040	0.00020	mg/L	4		6020A	Total
									Recoverable
Calcium	310		2.0	0.76	mg/L	4		6020A	Total
									Recoverable
Cobalt	0.14		0.0020	0.00076	mg/L	4		6020A	Total
									Recoverable
Lithium	3.0		0.040	0.010	mg/L	4		6020A	Total
									Recoverable
Selenium	0.015	J	0.020	0.0038	mg/L	4		6020A	Total
									Recoverable
Thallium	0.0029	J	0.0040	0.0010	mg/L	4		6020A	Total
									Recoverable
pH adj. to 25 deg C	6.8	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	23.1	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1500	J	3000	1000	mg/L	1000		9056A	Total/NA
Sulfate	50000		5000	1000	mg/L	1000		9056A	Total/NA
Total Dissolved Solids (TDS)	64000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	5.2		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-3D

Lab Sample ID: 280-157766-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.68		0.20	0.056	mg/L	1		6010C	Total
									Recoverable
Barium	0.035		0.0080	0.0015	mg/L	4		6020A	Total
									Recoverable
Calcium	310		2.0	0.76	mg/L	4		6020A	Total
									Recoverable
Lithium	0.076		0.040	0.010	mg/L	4		6020A	Total
									Recoverable
Molybdenum	0.016		0.014	0.0091	mg/L	7		6020A	Total
									Recoverable
Selenium	0.011	J	0.020	0.0038	mg/L	4		6020A	Total
									Recoverable
pH adj. to 25 deg C	7.8	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	23.4	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	36		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.95	H	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	940		500	100	mg/L	100		9056A	Total/NA
Total Dissolved Solids (TDS)	1900	H	20	9.4	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	2.0	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-5

Lab Sample ID: 280-157766-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	3.7		3.0	0.84	mg/L	15		6010C	Total
									Recoverable
Arsenic	0.0049	J	0.0080	0.0030	mg/L	4		6020A	Total
									Recoverable
Barium	0.025		0.0080	0.0015	mg/L	4		6020A	Total
									Recoverable
Cadmium	0.00020	J	0.00040	0.00020	mg/L	4		6020A	Total
									Recoverable
Calcium	440		2.0	0.76	mg/L	4		6020A	Total
									Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Client Sample ID: W-5 (Continued)

Lab Sample ID: 280-157766-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cobalt	0.0040		0.0020	0.00076	mg/L	4		6020A	Total Recoverable
Lithium	1.3		0.040	0.010	mg/L	4		6020A	Total Recoverable
Molybdenum	0.046		0.014	0.0091	mg/L	7		6020A	Total Recoverable
Selenium	0.021		0.020	0.0038	mg/L	4		6020A	Total Recoverable
pH adj. to 25 deg C	7.5	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	23.5	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	730		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	42		2.5	0.83	mg/L	5		9056A	Total/NA
Sulfate	23000		2500	520	mg/L	500		9056A	Total/NA
Total Dissolved Solids (TDS)	35000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	21		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-5B

Lab Sample ID: 280-157766-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.2		0.40	0.11	mg/L	2		6010C	Total Recoverable
Barium	0.017		0.0080	0.0015	mg/L	4		6020A	Total Recoverable
Cadmium	0.00088		0.00040	0.00020	mg/L	4		6020A	Total Recoverable
Calcium	590		2.0	0.76	mg/L	4		6020A	Total Recoverable
Cobalt	0.0030		0.0020	0.00076	mg/L	4		6020A	Total Recoverable
Lithium	0.30		0.040	0.010	mg/L	4		6020A	Total Recoverable
Selenium	0.0042	J	0.020	0.0038	mg/L	4		6020A	Total Recoverable
pH adj. to 25 deg C	7.5	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	23.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	100		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.40	J H	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	3800		100	21	mg/L	20		9056A	Total/NA
Total Dissolved Solids (TDS)	5300		40	19	mg/L	1		SM 2540C	Total/NA

Client Sample ID: W-6

Lab Sample ID: 280-157766-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	7.6		0.60	0.17	mg/L	3		6010C	Total Recoverable
Barium	0.025		0.014	0.0026	mg/L	7		6020A	Total Recoverable
Cadmium	0.00036	J	0.00070	0.00036	mg/L	7		6020A	Total Recoverable
Calcium	470		3.5	1.3	mg/L	7		6020A	Total Recoverable
Cobalt	0.0032	J	0.0035	0.0013	mg/L	7		6020A	Total Recoverable
Lithium	0.33		0.070	0.018	mg/L	7		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Client Sample ID: W-6 (Continued)

Lab Sample ID: 280-157766-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Molybdenum	0.27		0.014	0.0091	mg/L	7		6020A	Total
Selenium	0.011	J	0.035	0.0067	mg/L	7		6020A	Recoverable
pH adj. to 25 deg C	7.7	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	23.7	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	220		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	6.2		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	5100		1000	210	mg/L	200		9056A	Total/NA
Total Dissolved Solids (TDS)	9900		100	47	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	3.6	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-6B

Lab Sample ID: 280-157766-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.6	J	5.0	1.4	mg/L	25		6010C	Dissolved
Arsenic	0.0030	J	0.0080	0.0030	mg/L	4		6020A	Total
Barium	0.016		0.0080	0.0015	mg/L	4		6020A	Recoverable
Cadmium	0.0085		0.00040	0.00020	mg/L	4		6020A	Total
Calcium	230		2.0	0.76	mg/L	4		6020A	Recoverable
Cobalt	0.095		0.0020	0.00076	mg/L	4		6020A	Total
Lithium	3.5		0.040	0.010	mg/L	4		6020A	Recoverable
Selenium	0.012	J	0.020	0.0038	mg/L	4		6020A	Total
Thallium	0.0019	J	0.0040	0.0010	mg/L	4		6020A	Recoverable
Barium	0.019	J	0.020	0.0037	mg/L	10		6020A	Dissolved
Cadmium	0.0082		0.0010	0.00051	mg/L	10		6020A	Dissolved
Calcium	460		5.0	1.9	mg/L	10		6020A	Dissolved
Cobalt	0.084		0.0050	0.0019	mg/L	10		6020A	Dissolved
Lithium	2.8		0.10	0.025	mg/L	10		6020A	Dissolved
Thallium	0.0030	J	0.010	0.0026	mg/L	10		6020A	Dissolved
pH adj. to 25 deg C	7.1	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	23.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1800	J	3000	1000	mg/L	1000		9056A	Total/NA
Fluoride	2.5	J H	5.0	1.7	mg/L	10		9056A	Total/NA
Sulfate	60000		5000	1000	mg/L	1000		9056A	Total/NA
Total Dissolved Solids (TDS)	63000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	10	H	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-7

Lab Sample ID: 280-157766-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.014		0.014	0.0026	mg/L	7		6020A	Total
Cadmium	0.0070		0.00070	0.00036	mg/L	7		6020A	Recoverable
Calcium	500		3.5	1.3	mg/L	7		6020A	Total

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Client Sample ID: W-7 (Continued)

Lab Sample ID: 280-157766-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cobalt	0.023		0.0035	0.0013	mg/L	7		6020A	Total
									Recoverable
Lithium	4.8		0.070	0.018	mg/L	7		6020A	Total
									Recoverable
Selenium	2.3		0.035	0.0067	mg/L	7		6020A	Total
									Recoverable
Thallium	0.0047	J	0.0070	0.0018	mg/L	7		6020A	Total
									Recoverable
Barium	0.014	J	0.020	0.0037	mg/L	10		6020A	Dissolved
Cadmium	0.0067		0.0010	0.00051	mg/L	10		6020A	Dissolved
Calcium	500		5.0	1.9	mg/L	10		6020A	Dissolved
Cobalt	0.021		0.0050	0.0019	mg/L	10		6020A	Dissolved
Lithium	3.8		0.10	0.025	mg/L	10		6020A	Dissolved
Selenium	1.9		0.050	0.0096	mg/L	10		6020A	Dissolved
Thallium	0.0057	J	0.010	0.0026	mg/L	10		6020A	Dissolved
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	23.3	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	710		60	20	mg/L	20		9056A	Total/NA
Fluoride	3.9	H	2.5	0.83	mg/L	5		9056A	Total/NA
Sulfate	74000		2500	520	mg/L	500		9056A	Total/NA
Total Dissolved Solids (TDS)	63000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	12		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-9

Lab Sample ID: 280-157766-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.8		1.2	0.34	mg/L	6		6010C	Total
									Recoverable
Barium	0.017		0.0080	0.0015	mg/L	4		6020A	Total
									Recoverable
Cadmium	0.0011		0.00040	0.00020	mg/L	4		6020A	Total
									Recoverable
Calcium	600		2.0	0.76	mg/L	4		6020A	Total
									Recoverable
Cobalt	0.0020		0.0020	0.00076	mg/L	4		6020A	Total
									Recoverable
Lithium	1.2		0.040	0.010	mg/L	4		6020A	Total
									Recoverable
Selenium	0.0099	J	0.020	0.0038	mg/L	4		6020A	Total
									Recoverable
pH adj. to 25 deg C	7.5	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	23.5	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	370		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	0.93	J H	2.5	0.83	mg/L	5		9056A	Total/NA
Sulfate	11000		500	100	mg/L	100		9056A	Total/NA
Total Dissolved Solids (TDS)	17000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	2.4	J H	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-7EB

Lab Sample ID: 280-157766-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
pH adj. to 25 deg C	7.6	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.7	HF	1.0	1.0	Degrees C	1		9040B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Client Sample ID: W-11

Lab Sample ID: 280-157766-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.79	J	1.2	0.34	mg/L	6		6010C	Total
									Recoverable
Barium	0.013	J	0.014	0.0026	mg/L	7		6020A	Total
									Recoverable
Cadmium	0.0015		0.00070	0.00036	mg/L	7		6020A	Total
									Recoverable
Calcium	540		3.5	1.3	mg/L	7		6020A	Total
									Recoverable
Cobalt	0.017		0.0035	0.0013	mg/L	7		6020A	Total
									Recoverable
Lithium	3.4		0.070	0.018	mg/L	7		6020A	Total
									Recoverable
Selenium	2.6		0.035	0.0067	mg/L	7		6020A	Total
									Recoverable
Thallium	0.0034	J	0.0070	0.0018	mg/L	7		6020A	Total
									Recoverable
Barium	0.016		0.0020	0.00037	mg/L	1		6020A	Dissolved
Cadmium	0.0013		0.00010	0.000051	mg/L	1		6020A	Dissolved
Calcium	430		5.0	1.9	mg/L	10		6020A	Dissolved
Cobalt	0.019		0.00050	0.00019	mg/L	1		6020A	Dissolved
Lithium	3.0		0.10	0.025	mg/L	10		6020A	Dissolved
Molybdenum	0.0033		0.0020	0.0013	mg/L	1		6020A	Dissolved
Selenium	2.4		0.050	0.0096	mg/L	10		6020A	Dissolved
Thallium	0.0035		0.0010	0.00026	mg/L	1		6020A	Dissolved
pH adj. to 25 deg C	7.3	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.4	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	300		30	10	mg/L	10		9056A	Total/NA
Fluoride	1.1	J H	2.5	0.83	mg/L	5		9056A	Total/NA
Sulfate	140000		5000	1000	mg/L	1000		9056A	Total/NA
Total Dissolved Solids (TDS)	20000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	4.4		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-12

Lab Sample ID: 280-157766-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.1	J	2.0	0.56	mg/L	10		6010C	Total
									Recoverable
Barium	0.015		0.0080	0.0015	mg/L	4		6020A	Total
									Recoverable
Cadmium	0.0014		0.00040	0.00020	mg/L	4		6020A	Total
									Recoverable
Calcium	570		2.0	0.76	mg/L	4		6020A	Total
									Recoverable
Cobalt	0.033		0.0020	0.00076	mg/L	4		6020A	Total
									Recoverable
Lithium	2.3		0.040	0.010	mg/L	4		6020A	Total
									Recoverable
Selenium	0.038		0.020	0.0038	mg/L	4		6020A	Total
									Recoverable
Thallium	0.0034	J	0.0040	0.0010	mg/L	4		6020A	Total
									Recoverable
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	880		30	10	mg/L	10		9056A	Total/NA
Fluoride	0.85	J H	2.5	0.83	mg/L	5		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Client Sample ID: W-12 (Continued)

Lab Sample ID: 280-157766-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	16000		1000	210	mg/L	200		9056A	Total/NA
Total Dissolved Solids (TDS)	25000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	2.8	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-7

Lab Sample ID: 280-157766-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.78	J	1.2	0.34	mg/L	6		6010C	Total
Barium	0.011		0.0080	0.0015	mg/L	4		6020A	Recoverable Total
Cadmium	0.00083		0.00040	0.00020	mg/L	4		6020A	Recoverable Total
Calcium	570		2.0	0.76	mg/L	4		6020A	Recoverable Total
Cobalt	0.0053		0.0020	0.00076	mg/L	4		6020A	Recoverable Total
Lithium	2.0		0.040	0.010	mg/L	4		6020A	Recoverable Total
Selenium	0.46		0.020	0.0038	mg/L	4		6020A	Recoverable Total
Thallium	0.0013	J	0.0040	0.0010	mg/L	4		6020A	Recoverable Total
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.8	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	280		60	20	mg/L	20		9056A	Total/NA
Fluoride	0.90	J H	2.5	0.83	mg/L	5		9056A	Total/NA
Sulfate	9100		500	100	mg/L	100		9056A	Total/NA
Total Dissolved Solids (TDS)	34000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	2.0	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Method Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL CF
6020A	Metals (ICP/MS)	SW846	TAL CF
7470A	Mercury (CVAA)	SW846	TAL CF
9040B	pH	SW846	TAL DEN
9056A	Anions, Ion Chromatography	SW846	TAL DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL DEN
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL DEN
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL CF
7470A	Preparation, Mercury	SW846	TAL CF
Filtration	Sample Filtration	None	TAL CF
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL 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:

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

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

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

Sample Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-157766-1	W-1	Water	01/14/22 12:00	01/14/22 16:10
280-157766-2	W-2A	Water	01/12/22 14:15	01/14/22 16:10
280-157766-3	W-2C	Water	01/12/22 15:50	01/14/22 16:10
280-157766-4	W-3	Water	01/13/22 14:25	01/14/22 16:10
280-157766-5	W-3B	Water	01/13/22 16:45	01/14/22 16:10
280-157766-6	W-3D	Water	01/13/22 14:25	01/14/22 16:10
280-157766-7	W-5	Water	01/10/22 16:35	01/14/22 16:10
280-157766-8	W-5B	Water	01/14/22 09:00	01/14/22 16:10
280-157766-9	W-6	Water	01/11/22 09:40	01/14/22 16:10
280-157766-10	W-6B	Water	01/11/22 14:35	01/14/22 16:10
280-157766-11	W-7	Water	01/12/22 12:05	01/14/22 16:10
280-157766-12	W-9	Water	01/11/22 16:20	01/14/22 16:10
280-157766-13	W-7EB	Water	01/12/22 12:55	01/14/22 16:10
280-157766-14	W-11	Water	01/13/22 10:50	01/14/22 16:10
280-157766-15	W-12	Water	01/13/22 12:45	01/14/22 16:10
280-157766-16	MW-7	Water	01/14/22 11:00	01/14/22 16:10

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Method: 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: W-1
Date Collected: 01/14/22 12:00
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	3.5		3.0	0.84	mg/L		01/21/22 09:00	01/24/22 14:24	15

Client Sample ID: W-2A
Date Collected: 01/12/22 14:15
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		8.0	2.2	mg/L		01/21/22 09:00	01/24/22 14:34	40

Client Sample ID: W-2C
Date Collected: 01/12/22 15:50
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		8.0	2.2	mg/L		01/21/22 09:00	01/24/22 14:36	40

Client Sample ID: W-3
Date Collected: 01/13/22 14:25
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.70		0.20	0.056	mg/L		01/21/22 09:00	01/24/22 13:52	1

Client Sample ID: W-3B
Date Collected: 01/13/22 16:45
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		8.0	2.2	mg/L		01/21/22 09:00	01/24/22 14:42	40

Client Sample ID: W-3D
Date Collected: 01/13/22 14:25
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.68		0.20	0.056	mg/L		01/21/22 09:00	01/24/22 13:56	1

Client Sample ID: W-5
Date Collected: 01/10/22 16:35
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	3.7		3.0	0.84	mg/L		01/21/22 09:00	01/24/22 14:44	15

Client Sample ID: W-5B
Date Collected: 01/14/22 09:00
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.2		0.40	0.11	mg/L		01/21/22 09:00	01/24/22 14:46	2

Client Sample ID: W-6
Date Collected: 01/11/22 09:40
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	7.6		0.60	0.17	mg/L		01/21/22 09:00	01/24/22 14:48	3

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Method: 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: W-6B
Date Collected: 01/11/22 14:35
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		8.0	2.2	mg/L		01/21/22 09:00	01/24/22 14:50	40

Client Sample ID: W-7
Date Collected: 01/12/22 12:05
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		8.0	2.2	mg/L		01/21/22 09:00	01/24/22 14:52	40

Client Sample ID: W-9
Date Collected: 01/11/22 16:20
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.8		1.2	0.34	mg/L		01/21/22 09:00	01/24/22 14:55	6

Client Sample ID: W-7EB
Date Collected: 01/12/22 12:55
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.20	0.056	mg/L		01/21/22 09:00	01/24/22 14:16	1

Client Sample ID: W-11
Date Collected: 01/13/22 10:50
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.79	J	1.2	0.34	mg/L		01/21/22 09:00	01/24/22 14:57	6

Client Sample ID: W-12
Date Collected: 01/13/22 12:45
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.1	J	2.0	0.56	mg/L		01/21/22 09:00	01/25/22 09:38	10

Client Sample ID: MW-7
Date Collected: 01/14/22 11:00
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.78	J	1.2	0.34	mg/L		01/21/22 09:00	01/24/22 15:07	6

Method: 6010C - Metals (ICP) - Dissolved

Client Sample ID: W-1
Date Collected: 01/14/22 12:00
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	3.6	J	5.0	1.4	mg/L		01/27/22 09:00	01/31/22 15:43	25

Client Sample ID: W-6B
Date Collected: 01/11/22 14:35
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.6	J	5.0	1.4	mg/L		01/27/22 09:00	01/31/22 15:52	25

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Method: 6010C - Metals (ICP) - Dissolved

Client Sample ID: W-7
Date Collected: 01/12/22 12:05
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		5.0	1.4	mg/L		01/27/22 09:00	01/31/22 15:54	25

Client Sample ID: W-11
Date Collected: 01/13/22 10:50
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		5.0	1.4	mg/L		01/27/22 09:00	01/31/22 15:56	25

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Client Sample ID: W-1
Date Collected: 01/14/22 12:00
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0080	0.0044	mg/L		01/21/22 09:00	01/25/22 18:43	4
Arsenic	ND		0.0080	0.0030	mg/L		01/21/22 09:00	01/25/22 18:43	4
Barium	0.016		0.0080	0.0015	mg/L		01/21/22 09:00	01/25/22 18:43	4
Beryllium	ND		0.0040	0.0011	mg/L		01/21/22 09:00	01/25/22 18:43	4
Cadmium	0.00041		0.00040	0.00020	mg/L		01/21/22 09:00	01/25/22 18:43	4
Calcium	390		2.0	0.76	mg/L		01/21/22 09:00	01/25/22 18:43	4
Chromium	ND		0.020	0.0044	mg/L		01/21/22 09:00	01/25/22 18:43	4
Cobalt	ND		0.0020	0.00076	mg/L		01/21/22 09:00	01/25/22 18:43	4
Lead	ND		0.0020	0.00084	mg/L		01/21/22 09:00	01/25/22 18:43	4
Lithium	2.3		0.040	0.010	mg/L		01/21/22 09:00	01/25/22 18:43	4
Molybdenum	0.015		0.0080	0.0052	mg/L		01/21/22 09:00	01/25/22 18:43	4
Selenium	0.87		0.020	0.0038	mg/L		01/21/22 09:00	01/25/22 18:43	4
Thallium	ND		0.0040	0.0010	mg/L		01/21/22 09:00	01/25/22 18:43	4

Client Sample ID: W-2A
Date Collected: 01/12/22 14:15
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.014	0.0077	mg/L		01/21/22 09:00	01/25/22 18:48	7
Arsenic	ND		0.014	0.0053	mg/L		01/21/22 09:00	01/25/22 18:48	7
Barium	0.011	J	0.014	0.0026	mg/L		01/21/22 09:00	01/25/22 18:48	7
Beryllium	ND		0.010	0.0027	mg/L		01/21/22 09:00	01/26/22 16:38	10
Cadmium	0.0041		0.00070	0.00036	mg/L		01/21/22 09:00	01/25/22 18:48	7
Calcium	280		3.5	1.3	mg/L		01/21/22 09:00	01/25/22 18:48	7
Chromium	ND		0.035	0.0077	mg/L		01/21/22 09:00	01/25/22 18:48	7
Cobalt	0.014		0.0035	0.0013	mg/L		01/21/22 09:00	01/25/22 18:48	7
Lead	ND		0.0035	0.0015	mg/L		01/21/22 09:00	01/25/22 18:48	7
Lithium	4.8		0.070	0.018	mg/L		01/21/22 09:00	01/25/22 18:48	7
Molybdenum	ND		0.020	0.013	mg/L		01/21/22 09:00	01/26/22 16:38	10
Selenium	2.6		0.035	0.0067	mg/L		01/21/22 09:00	01/25/22 18:48	7
Thallium	0.0040	J	0.0070	0.0018	mg/L		01/21/22 09:00	01/25/22 18:48	7

Client Sample ID: W-2C
Date Collected: 01/12/22 15:50
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.014	0.0077	mg/L		01/21/22 09:00	01/25/22 18:52	7

Eurofins Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Method: 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

Client Sample ID: W-2C
Date Collected: 01/12/22 15:50
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.014	0.0053	mg/L		01/21/22 09:00	01/25/22 18:52	7
Barium	0.016		0.014	0.0026	mg/L		01/21/22 09:00	01/25/22 18:52	7
Beryllium	ND		0.010	0.0027	mg/L		01/21/22 09:00	01/26/22 16:41	10
Cadmium	0.0034		0.00070	0.00036	mg/L		01/21/22 09:00	01/25/22 18:52	7
Calcium	290		3.5	1.3	mg/L		01/21/22 09:00	01/25/22 18:52	7
Chromium	ND		0.035	0.0077	mg/L		01/21/22 09:00	01/25/22 18:52	7
Cobalt	0.0060		0.0035	0.0013	mg/L		01/21/22 09:00	01/25/22 18:52	7
Lead	ND		0.0035	0.0015	mg/L		01/21/22 09:00	01/25/22 18:52	7
Lithium	3.9		0.070	0.018	mg/L		01/21/22 09:00	01/25/22 18:52	7
Molybdenum	ND		0.020	0.013	mg/L		01/21/22 09:00	01/26/22 16:41	10
Selenium	3.1		0.035	0.0067	mg/L		01/21/22 09:00	01/25/22 18:52	7
Thallium	0.0030	J	0.0070	0.0018	mg/L		01/21/22 09:00	01/25/22 18:52	7

Client Sample ID: W-3
Date Collected: 01/13/22 14:25
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0080	0.0044	mg/L		01/21/22 09:00	01/25/22 18:56	4
Arsenic	ND		0.0080	0.0030	mg/L		01/21/22 09:00	01/25/22 18:56	4
Barium	0.039		0.0080	0.0015	mg/L		01/21/22 09:00	01/25/22 18:56	4
Beryllium	ND		0.0040	0.0011	mg/L		01/21/22 09:00	01/25/22 18:56	4
Cadmium	ND		0.00040	0.00020	mg/L		01/21/22 09:00	01/25/22 18:56	4
Calcium	280		2.0	0.76	mg/L		01/21/22 09:00	01/25/22 18:56	4
Chromium	ND		0.020	0.0044	mg/L		01/21/22 09:00	01/25/22 18:56	4
Cobalt	ND		0.0020	0.00076	mg/L		01/21/22 09:00	01/25/22 18:56	4
Lead	ND		0.0020	0.00084	mg/L		01/21/22 09:00	01/25/22 18:56	4
Lithium	0.074		0.040	0.010	mg/L		01/21/22 09:00	01/25/22 18:56	4
Molybdenum	0.016		0.0080	0.0052	mg/L		01/21/22 09:00	01/25/22 18:56	4
Selenium	0.0087	J	0.020	0.0038	mg/L		01/21/22 09:00	01/25/22 18:56	4
Thallium	ND		0.0040	0.0010	mg/L		01/21/22 09:00	01/25/22 18:56	4

Client Sample ID: W-3B
Date Collected: 01/13/22 16:45
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0080	0.0044	mg/L		01/21/22 09:00	01/25/22 19:00	4
Arsenic	ND		0.0080	0.0030	mg/L		01/21/22 09:00	01/25/22 19:00	4
Barium	0.014		0.0080	0.0015	mg/L		01/21/22 09:00	01/25/22 19:00	4
Beryllium	ND		0.0070	0.0019	mg/L		01/21/22 09:00	01/26/22 16:45	7
Cadmium	0.021		0.00040	0.00020	mg/L		01/21/22 09:00	01/25/22 19:00	4
Calcium	310		2.0	0.76	mg/L		01/21/22 09:00	01/25/22 19:00	4
Chromium	ND		0.020	0.0044	mg/L		01/21/22 09:00	01/25/22 19:00	4
Cobalt	0.14		0.0020	0.00076	mg/L		01/21/22 09:00	01/25/22 19:00	4
Lead	ND		0.0020	0.00084	mg/L		01/21/22 09:00	01/25/22 19:00	4
Lithium	3.0		0.040	0.010	mg/L		01/21/22 09:00	01/25/22 19:00	4
Molybdenum	ND		0.014	0.0091	mg/L		01/21/22 09:00	01/26/22 16:45	7
Selenium	0.015	J	0.020	0.0038	mg/L		01/21/22 09:00	01/25/22 19:00	4
Thallium	0.0029	J	0.0040	0.0010	mg/L		01/21/22 09:00	01/25/22 19:00	4

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Client Sample ID: W-3D
Date Collected: 01/13/22 14:25
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0080	0.0044	mg/L		01/21/22 09:00	01/25/22 19:05	4
Arsenic	ND		0.0080	0.0030	mg/L		01/21/22 09:00	01/25/22 19:05	4
Barium	0.035		0.0080	0.0015	mg/L		01/21/22 09:00	01/25/22 19:05	4
Beryllium	ND		0.0070	0.0019	mg/L		01/21/22 09:00	01/26/22 17:01	7
Cadmium	ND		0.00040	0.00020	mg/L		01/21/22 09:00	01/25/22 19:05	4
Calcium	310		2.0	0.76	mg/L		01/21/22 09:00	01/25/22 19:05	4
Chromium	ND		0.020	0.0044	mg/L		01/21/22 09:00	01/25/22 19:05	4
Cobalt	ND		0.0020	0.00076	mg/L		01/21/22 09:00	01/25/22 19:05	4
Lead	ND		0.0020	0.00084	mg/L		01/21/22 09:00	01/25/22 19:05	4
Lithium	0.076		0.040	0.010	mg/L		01/21/22 09:00	01/25/22 19:05	4
Molybdenum	0.016		0.014	0.0091	mg/L		01/21/22 09:00	01/26/22 17:01	7
Selenium	0.011	J	0.020	0.0038	mg/L		01/21/22 09:00	01/25/22 19:05	4
Thallium	ND		0.0040	0.0010	mg/L		01/21/22 09:00	01/25/22 19:05	4

Client Sample ID: W-5
Date Collected: 01/10/22 16:35
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0080	0.0044	mg/L		01/21/22 09:00	01/25/22 19:09	4
Arsenic	0.0049	J	0.0080	0.0030	mg/L		01/21/22 09:00	01/25/22 19:09	4
Barium	0.025		0.0080	0.0015	mg/L		01/21/22 09:00	01/25/22 19:09	4
Beryllium	ND		0.0070	0.0019	mg/L		01/21/22 09:00	01/26/22 17:04	7
Cadmium	0.00020	J	0.00040	0.00020	mg/L		01/21/22 09:00	01/25/22 19:09	4
Calcium	440		2.0	0.76	mg/L		01/21/22 09:00	01/25/22 19:09	4
Chromium	ND		0.020	0.0044	mg/L		01/21/22 09:00	01/25/22 19:09	4
Cobalt	0.0040		0.0020	0.00076	mg/L		01/21/22 09:00	01/25/22 19:09	4
Lead	ND		0.0020	0.00084	mg/L		01/21/22 09:00	01/25/22 19:09	4
Lithium	1.3		0.040	0.010	mg/L		01/21/22 09:00	01/25/22 19:09	4
Molybdenum	0.046		0.014	0.0091	mg/L		01/21/22 09:00	01/26/22 17:04	7
Selenium	0.021		0.020	0.0038	mg/L		01/21/22 09:00	01/25/22 19:09	4
Thallium	ND		0.0040	0.0010	mg/L		01/21/22 09:00	01/25/22 19:09	4

Client Sample ID: W-5B
Date Collected: 01/14/22 09:00
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0080	0.0044	mg/L		01/21/22 09:00	01/25/22 19:13	4
Arsenic	ND		0.0080	0.0030	mg/L		01/21/22 09:00	01/25/22 19:13	4
Barium	0.017		0.0080	0.0015	mg/L		01/21/22 09:00	01/25/22 19:13	4
Beryllium	ND		0.0070	0.0019	mg/L		01/21/22 09:00	01/26/22 17:07	7
Cadmium	0.00088		0.00040	0.00020	mg/L		01/21/22 09:00	01/25/22 19:13	4
Calcium	590		2.0	0.76	mg/L		01/21/22 09:00	01/25/22 19:13	4
Chromium	ND		0.020	0.0044	mg/L		01/21/22 09:00	01/25/22 19:13	4
Cobalt	0.0030		0.0020	0.00076	mg/L		01/21/22 09:00	01/25/22 19:13	4
Lead	ND		0.0020	0.00084	mg/L		01/21/22 09:00	01/25/22 19:13	4
Lithium	0.30		0.040	0.010	mg/L		01/21/22 09:00	01/25/22 19:13	4
Molybdenum	ND		0.014	0.0091	mg/L		01/21/22 09:00	01/26/22 17:07	7
Selenium	0.0042	J	0.020	0.0038	mg/L		01/21/22 09:00	01/25/22 19:13	4
Thallium	ND		0.0040	0.0010	mg/L		01/21/22 09:00	01/25/22 19:13	4

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Client Sample ID: W-6
Date Collected: 01/11/22 09:40
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.014	0.0077	mg/L		01/21/22 09:00	01/25/22 19:34	7
Arsenic	ND		0.014	0.0053	mg/L		01/21/22 09:00	01/25/22 19:34	7
Barium	0.025		0.014	0.0026	mg/L		01/21/22 09:00	01/25/22 19:34	7
Beryllium	ND		0.0070	0.0019	mg/L		01/21/22 09:00	01/25/22 19:34	7
Cadmium	0.00036	J	0.00070	0.00036	mg/L		01/21/22 09:00	01/25/22 19:34	7
Calcium	470		3.5	1.3	mg/L		01/21/22 09:00	01/25/22 19:34	7
Chromium	ND		0.035	0.0077	mg/L		01/21/22 09:00	01/25/22 19:34	7
Cobalt	0.0032	J	0.0035	0.0013	mg/L		01/21/22 09:00	01/25/22 19:34	7
Lead	ND		0.0035	0.0015	mg/L		01/21/22 09:00	01/25/22 19:34	7
Lithium	0.33		0.070	0.018	mg/L		01/21/22 09:00	01/25/22 19:34	7
Molybdenum	0.27		0.014	0.0091	mg/L		01/21/22 09:00	01/25/22 19:34	7
Selenium	0.011	J	0.035	0.0067	mg/L		01/21/22 09:00	01/25/22 19:34	7
Thallium	ND		0.0070	0.0018	mg/L		01/21/22 09:00	01/25/22 19:34	7

Client Sample ID: W-6B
Date Collected: 01/11/22 14:35
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0080	0.0044	mg/L		01/21/22 09:00	01/25/22 19:42	4
Arsenic	0.0030	J	0.0080	0.0030	mg/L		01/21/22 09:00	01/25/22 19:42	4
Barium	0.016		0.0080	0.0015	mg/L		01/21/22 09:00	01/25/22 19:42	4
Beryllium	ND		0.0070	0.0019	mg/L		01/21/22 09:00	01/26/22 17:17	7
Cadmium	0.0085		0.00040	0.00020	mg/L		01/21/22 09:00	01/25/22 19:42	4
Calcium	230		2.0	0.76	mg/L		01/21/22 09:00	01/25/22 19:42	4
Chromium	ND		0.020	0.0044	mg/L		01/21/22 09:00	01/25/22 19:42	4
Cobalt	0.095		0.0020	0.00076	mg/L		01/21/22 09:00	01/25/22 19:42	4
Lead	ND		0.0020	0.00084	mg/L		01/21/22 09:00	01/25/22 19:42	4
Lithium	3.5		0.040	0.010	mg/L		01/21/22 09:00	01/25/22 19:42	4
Molybdenum	ND		0.014	0.0091	mg/L		01/21/22 09:00	01/26/22 17:17	7
Selenium	0.012	J	0.020	0.0038	mg/L		01/21/22 09:00	01/25/22 19:42	4
Thallium	0.0019	J	0.0040	0.0010	mg/L		01/21/22 09:00	01/25/22 19:42	4

Client Sample ID: W-7
Date Collected: 01/12/22 12:05
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.014	0.0077	mg/L		01/21/22 09:00	01/25/22 19:47	7
Arsenic	ND		0.014	0.0053	mg/L		01/21/22 09:00	01/25/22 19:47	7
Barium	0.014		0.014	0.0026	mg/L		01/21/22 09:00	01/25/22 19:47	7
Beryllium	ND		0.010	0.0027	mg/L		01/21/22 09:00	01/26/22 17:20	10
Cadmium	0.0070		0.00070	0.00036	mg/L		01/21/22 09:00	01/25/22 19:47	7
Calcium	500		3.5	1.3	mg/L		01/21/22 09:00	01/25/22 19:47	7
Chromium	ND		0.035	0.0077	mg/L		01/21/22 09:00	01/25/22 19:47	7
Cobalt	0.023		0.0035	0.0013	mg/L		01/21/22 09:00	01/25/22 19:47	7
Lead	ND		0.0035	0.0015	mg/L		01/21/22 09:00	01/25/22 19:47	7
Lithium	4.8		0.070	0.018	mg/L		01/21/22 09:00	01/25/22 19:47	7
Molybdenum	ND		0.020	0.013	mg/L		01/21/22 09:00	01/26/22 17:20	10
Selenium	2.3		0.035	0.0067	mg/L		01/21/22 09:00	01/25/22 19:47	7
Thallium	0.0047	J	0.0070	0.0018	mg/L		01/21/22 09:00	01/25/22 19:47	7

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Client Sample ID: W-9
Date Collected: 01/11/22 16:20
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0080	0.0044	mg/L		01/21/22 09:00	01/25/22 19:51	4
Arsenic	ND		0.0080	0.0030	mg/L		01/21/22 09:00	01/25/22 19:51	4
Barium	0.017		0.0080	0.0015	mg/L		01/21/22 09:00	01/25/22 19:51	4
Beryllium	ND		0.0070	0.0019	mg/L		01/21/22 09:00	01/26/22 17:24	7
Cadmium	0.0011		0.00040	0.00020	mg/L		01/21/22 09:00	01/25/22 19:51	4
Calcium	600		2.0	0.76	mg/L		01/21/22 09:00	01/25/22 19:51	4
Chromium	ND		0.020	0.0044	mg/L		01/21/22 09:00	01/25/22 19:51	4
Cobalt	0.0020		0.0020	0.00076	mg/L		01/21/22 09:00	01/25/22 19:51	4
Lead	ND		0.0020	0.00084	mg/L		01/21/22 09:00	01/25/22 19:51	4
Lithium	1.2		0.040	0.010	mg/L		01/21/22 09:00	01/25/22 19:51	4
Molybdenum	ND		0.014	0.0091	mg/L		01/21/22 09:00	01/26/22 17:24	7
Selenium	0.0099	J	0.020	0.0038	mg/L		01/21/22 09:00	01/25/22 19:51	4
Thallium	ND		0.0040	0.0010	mg/L		01/21/22 09:00	01/25/22 19:51	4

Client Sample ID: W-7EB
Date Collected: 01/12/22 12:55
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.0011	mg/L		01/21/22 09:00	01/25/22 19:55	1
Arsenic	ND		0.0020	0.00075	mg/L		01/21/22 09:00	01/25/22 19:55	1
Barium	ND		0.0020	0.00037	mg/L		01/21/22 09:00	01/25/22 19:55	1
Beryllium	ND		0.0040	0.0011	mg/L		01/21/22 09:00	01/27/22 17:43	4
Cadmium	ND		0.00010	0.000051	mg/L		01/21/22 09:00	01/25/22 19:55	1
Calcium	ND		0.50	0.19	mg/L		01/21/22 09:00	01/25/22 19:55	1
Chromium	ND		0.0050	0.0011	mg/L		01/21/22 09:00	01/25/22 19:55	1
Cobalt	ND		0.00050	0.00019	mg/L		01/21/22 09:00	01/25/22 19:55	1
Lead	ND		0.00050	0.00021	mg/L		01/21/22 09:00	01/25/22 19:55	1
Lithium	ND		0.010	0.0025	mg/L		01/21/22 09:00	01/25/22 19:55	1
Molybdenum	ND		0.0080	0.0052	mg/L		01/21/22 09:00	01/27/22 17:43	4
Selenium	ND		0.0050	0.00096	mg/L		01/21/22 09:00	01/25/22 19:55	1
Thallium	ND		0.0010	0.00026	mg/L		01/21/22 09:00	01/25/22 19:55	1

Client Sample ID: W-11
Date Collected: 01/13/22 10:50
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.014	0.0077	mg/L		01/21/22 09:00	01/25/22 19:59	7
Arsenic	ND		0.014	0.0053	mg/L		01/21/22 09:00	01/25/22 19:59	7
Barium	0.013	J	0.014	0.0026	mg/L		01/21/22 09:00	01/25/22 19:59	7
Beryllium	ND		0.010	0.0027	mg/L		01/21/22 09:00	01/26/22 17:30	10
Cadmium	0.0015		0.00070	0.00036	mg/L		01/21/22 09:00	01/25/22 19:59	7
Calcium	540		3.5	1.3	mg/L		01/21/22 09:00	01/25/22 19:59	7
Chromium	ND		0.035	0.0077	mg/L		01/21/22 09:00	01/25/22 19:59	7
Cobalt	0.017		0.0035	0.0013	mg/L		01/21/22 09:00	01/25/22 19:59	7
Lead	ND		0.0035	0.0015	mg/L		01/21/22 09:00	01/25/22 19:59	7
Lithium	3.4		0.070	0.018	mg/L		01/21/22 09:00	01/25/22 19:59	7
Molybdenum	ND		0.020	0.013	mg/L		01/21/22 09:00	01/26/22 17:30	10
Selenium	2.6		0.035	0.0067	mg/L		01/21/22 09:00	01/25/22 19:59	7
Thallium	0.0034	J	0.0070	0.0018	mg/L		01/21/22 09:00	01/25/22 19:59	7

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Client Sample ID: W-12
Date Collected: 01/13/22 12:45
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0080	0.0044	mg/L		01/21/22 09:00	01/25/22 20:04	4
Arsenic	ND		0.0080	0.0030	mg/L		01/21/22 09:00	01/25/22 20:04	4
Barium	0.015		0.0080	0.0015	mg/L		01/21/22 09:00	01/25/22 20:04	4
Beryllium	ND		0.0070	0.0019	mg/L		01/21/22 09:00	01/26/22 17:46	7
Cadmium	0.0014		0.00040	0.00020	mg/L		01/21/22 09:00	01/25/22 20:04	4
Calcium	570		2.0	0.76	mg/L		01/21/22 09:00	01/25/22 20:04	4
Chromium	ND		0.020	0.0044	mg/L		01/21/22 09:00	01/25/22 20:04	4
Cobalt	0.033		0.0020	0.00076	mg/L		01/21/22 09:00	01/25/22 20:04	4
Lead	ND		0.0020	0.00084	mg/L		01/21/22 09:00	01/25/22 20:04	4
Lithium	2.3		0.040	0.010	mg/L		01/21/22 09:00	01/25/22 20:04	4
Molybdenum	ND		0.014	0.0091	mg/L		01/21/22 09:00	01/26/22 17:46	7
Selenium	0.038		0.020	0.0038	mg/L		01/21/22 09:00	01/25/22 20:04	4
Thallium	0.0034	J	0.0040	0.0010	mg/L		01/21/22 09:00	01/25/22 20:04	4

Client Sample ID: MW-7
Date Collected: 01/14/22 11:00
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0080	0.0044	mg/L		01/21/22 09:00	01/25/22 20:08	4
Arsenic	ND		0.0080	0.0030	mg/L		01/21/22 09:00	01/25/22 20:08	4
Barium	0.011		0.0080	0.0015	mg/L		01/21/22 09:00	01/25/22 20:08	4
Beryllium	ND		0.0070	0.0019	mg/L		01/21/22 09:00	01/26/22 17:50	7
Cadmium	0.00083		0.00040	0.00020	mg/L		01/21/22 09:00	01/25/22 20:08	4
Calcium	570		2.0	0.76	mg/L		01/21/22 09:00	01/25/22 20:08	4
Chromium	ND		0.020	0.0044	mg/L		01/21/22 09:00	01/25/22 20:08	4
Cobalt	0.0053		0.0020	0.00076	mg/L		01/21/22 09:00	01/25/22 20:08	4
Lead	ND		0.0020	0.00084	mg/L		01/21/22 09:00	01/25/22 20:08	4
Lithium	2.0		0.040	0.010	mg/L		01/21/22 09:00	01/25/22 20:08	4
Molybdenum	ND		0.014	0.0091	mg/L		01/21/22 09:00	01/26/22 17:50	7
Selenium	0.46		0.020	0.0038	mg/L		01/21/22 09:00	01/25/22 20:08	4
Thallium	0.0013	J	0.0040	0.0010	mg/L		01/21/22 09:00	01/25/22 20:08	4

Method: 6020A - Metals (ICP/MS) - Dissolved

Client Sample ID: W-1
Date Collected: 01/14/22 12:00
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0013	J	0.0020	0.0011	mg/L		01/27/22 09:00	01/28/22 04:55	1
Arsenic	0.0021	F1	0.0020	0.00075	mg/L		01/27/22 09:00	01/28/22 04:55	1
Barium	0.013		0.0020	0.00037	mg/L		01/27/22 09:00	01/28/22 04:55	1
Beryllium	ND		0.0010	0.00027	mg/L		01/27/22 09:00	01/28/22 04:55	1
Cadmium	0.00032		0.00010	0.000051	mg/L		01/27/22 09:00	01/28/22 04:55	1
Calcium	430		5.0	1.9	mg/L		01/27/22 09:00	01/28/22 15:29	10
Chromium	0.0013	J F1	0.0050	0.0011	mg/L		01/27/22 09:00	01/28/22 04:55	1
Cobalt	0.00072		0.00050	0.00019	mg/L		01/27/22 09:00	01/28/22 04:55	1
Lead	0.00066		0.00050	0.00021	mg/L		01/27/22 09:00	01/28/22 04:55	1
Lithium	1.9		0.10	0.025	mg/L		01/27/22 09:00	01/28/22 15:29	10
Molybdenum	0.015		0.0020	0.0013	mg/L		01/27/22 09:00	01/28/22 04:55	1
Selenium	0.73	F1	0.050	0.0096	mg/L		01/27/22 09:00	01/28/22 15:29	10

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Method: 6020A - Metals (ICP/MS) - Dissolved (Continued)

Client Sample ID: W-1
Date Collected: 01/14/22 12:00
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND		0.0010	0.00026	mg/L		01/27/22 09:00	01/28/22 04:55	1

Client Sample ID: W-6B
Date Collected: 01/11/22 14:35
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.011	mg/L		01/27/22 09:00	01/28/22 15:52	10
Arsenic	ND		0.020	0.0075	mg/L		01/27/22 09:00	01/28/22 15:52	10
Barium	0.019	J	0.020	0.0037	mg/L		01/27/22 09:00	01/28/22 15:52	10
Beryllium	ND		0.010	0.0027	mg/L		01/27/22 09:00	01/28/22 15:52	10
Cadmium	0.0082		0.0010	0.00051	mg/L		01/27/22 09:00	01/28/22 15:52	10
Calcium	460		5.0	1.9	mg/L		01/27/22 09:00	01/28/22 15:52	10
Chromium	ND		0.050	0.011	mg/L		01/27/22 09:00	01/28/22 15:52	10
Cobalt	0.084		0.0050	0.0019	mg/L		01/27/22 09:00	01/28/22 15:52	10
Lead	ND		0.0050	0.0021	mg/L		01/27/22 09:00	01/28/22 15:52	10
Lithium	2.8		0.10	0.025	mg/L		01/27/22 09:00	01/28/22 15:52	10
Molybdenum	ND		0.020	0.013	mg/L		01/27/22 09:00	01/28/22 15:52	10
Selenium	ND		0.050	0.0096	mg/L		01/27/22 09:00	01/28/22 15:52	10
Thallium	0.0030	J	0.010	0.0026	mg/L		01/27/22 09:00	01/28/22 15:52	10

Client Sample ID: W-7
Date Collected: 01/12/22 12:05
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.011	mg/L		01/27/22 09:00	01/28/22 15:55	10
Arsenic	ND		0.020	0.0075	mg/L		01/27/22 09:00	01/28/22 15:55	10
Barium	0.014	J	0.020	0.0037	mg/L		01/27/22 09:00	01/28/22 15:55	10
Beryllium	ND		0.010	0.0027	mg/L		01/27/22 09:00	01/28/22 15:55	10
Cadmium	0.0067		0.0010	0.00051	mg/L		01/27/22 09:00	01/28/22 15:55	10
Calcium	500		5.0	1.9	mg/L		01/27/22 09:00	01/28/22 15:55	10
Chromium	ND		0.050	0.011	mg/L		01/27/22 09:00	01/28/22 15:55	10
Cobalt	0.021		0.0050	0.0019	mg/L		01/27/22 09:00	01/28/22 15:55	10
Lead	ND		0.0050	0.0021	mg/L		01/27/22 09:00	01/28/22 15:55	10
Lithium	3.8		0.10	0.025	mg/L		01/27/22 09:00	01/28/22 15:55	10
Molybdenum	ND		0.020	0.013	mg/L		01/27/22 09:00	01/28/22 15:55	10
Selenium	1.9		0.050	0.0096	mg/L		01/27/22 09:00	01/28/22 15:55	10
Thallium	0.0057	J	0.010	0.0026	mg/L		01/27/22 09:00	01/28/22 15:55	10

Client Sample ID: W-11
Date Collected: 01/13/22 10:50
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.0011	mg/L		01/27/22 09:00	01/28/22 05:21	1
Arsenic	ND		0.0020	0.00075	mg/L		01/27/22 09:00	01/28/22 05:21	1
Barium	0.016		0.0020	0.00037	mg/L		01/27/22 09:00	01/28/22 05:21	1
Beryllium	ND		0.0010	0.00027	mg/L		01/27/22 09:00	01/28/22 05:21	1
Cadmium	0.0013		0.00010	0.000051	mg/L		01/27/22 09:00	01/28/22 05:21	1
Calcium	430		5.0	1.9	mg/L		01/27/22 09:00	01/28/22 15:58	10
Chromium	ND		0.0050	0.0011	mg/L		01/27/22 09:00	01/28/22 05:21	1
Cobalt	0.019		0.00050	0.00019	mg/L		01/27/22 09:00	01/28/22 05:21	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Method: 6020A - Metals (ICP/MS) - Dissolved (Continued)

Client Sample ID: W-11
Date Collected: 01/13/22 10:50
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.00050	0.00021	mg/L		01/27/22 09:00	01/28/22 05:21	1
Lithium	3.0		0.10	0.025	mg/L		01/27/22 09:00	01/28/22 15:58	10
Molybdenum	0.0033		0.0020	0.0013	mg/L		01/27/22 09:00	01/28/22 05:21	1
Selenium	2.4		0.050	0.0096	mg/L		01/27/22 09:00	01/28/22 15:58	10
Thallium	0.0035		0.0010	0.00026	mg/L		01/27/22 09:00	01/28/22 05:21	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: W-1
Date Collected: 01/14/22 12:00
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	H	0.00020	0.00015	mg/L		02/11/22 11:45	02/14/22 15:21	1

Client Sample ID: W-2A
Date Collected: 01/12/22 14:15
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	H	0.00020	0.00015	mg/L		02/11/22 11:45	02/14/22 15:23	1

Client Sample ID: W-2C
Date Collected: 01/12/22 15:50
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	H	0.00020	0.00015	mg/L		02/11/22 11:45	02/14/22 15:25	1

Client Sample ID: W-3
Date Collected: 01/13/22 14:25
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	H	0.00020	0.00015	mg/L		02/11/22 11:45	02/14/22 15:27	1

Client Sample ID: W-3B
Date Collected: 01/13/22 16:45
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	H	0.00020	0.00015	mg/L		02/11/22 11:45	02/14/22 15:29	1

Client Sample ID: W-3D
Date Collected: 01/13/22 14:25
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	H	0.00020	0.00015	mg/L		02/11/22 11:45	02/14/22 15:32	1

Client Sample ID: W-5
Date Collected: 01/10/22 16:35
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	H	0.00020	0.00015	mg/L		02/11/22 11:45	02/14/22 15:38	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Method: 7470A - Mercury (CVAA)

Client Sample ID: W-5B
Date Collected: 01/14/22 09:00
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	H	0.00020	0.00015	mg/L	—	02/11/22 11:45	02/14/22 15:40	1

Client Sample ID: W-6
Date Collected: 01/11/22 09:40
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	H	0.00020	0.00015	mg/L	—	02/11/22 11:45	02/14/22 15:42	1

Client Sample ID: W-6B
Date Collected: 01/11/22 14:35
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	H	0.00020	0.00015	mg/L	—	02/11/22 11:45	02/14/22 15:44	1

Client Sample ID: W-7
Date Collected: 01/12/22 12:05
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	H	0.00020	0.00015	mg/L	—	02/11/22 11:45	02/14/22 15:46	1

Client Sample ID: W-9
Date Collected: 01/11/22 16:20
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	H	0.00020	0.00015	mg/L	—	02/11/22 11:45	02/14/22 15:49	1

Client Sample ID: W-7EB
Date Collected: 01/12/22 12:55
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	H	0.00020	0.00015	mg/L	—	02/11/22 11:49	02/14/22 15:55	1

Client Sample ID: W-11
Date Collected: 01/13/22 10:50
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	H	0.00020	0.00015	mg/L	—	02/11/22 11:49	02/14/22 16:06	1

Client Sample ID: W-12
Date Collected: 01/13/22 12:45
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	H	0.00020	0.00015	mg/L	—	02/11/22 11:49	02/14/22 16:08	1

Client Sample ID: MW-7
Date Collected: 01/14/22 11:00
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	H	0.00020	0.00015	mg/L	—	02/11/22 11:49	02/14/22 16:10	1

Eurofins Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Method: 7470A - Mercury (CVAA) - Dissolved

Client Sample ID: W-1
Date Collected: 01/14/22 12:00
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	F1	0.00020	0.00015	mg/L	-	02/01/22 14:59	02/02/22 15:49	1

Client Sample ID: W-6B
Date Collected: 01/11/22 14:35
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00015	mg/L	-	02/01/22 14:59	02/02/22 15:55	1

Client Sample ID: W-7
Date Collected: 01/12/22 12:05
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00015	mg/L	-	02/01/22 14:59	02/02/22 15:58	1

Client Sample ID: W-11
Date Collected: 01/13/22 10:50
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00015	mg/L	-	02/01/22 14:59	02/02/22 16:00	1

General Chemistry

Client Sample ID: W-1
Date Collected: 01/14/22 12:00
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.4	HF	0.1	0.1	SU	-		01/20/22 17:08	1
Temperature	22.9	HF	1.0	1.0	Degrees C	-		01/20/22 17:08	1
Chloride	730		15	5.1	mg/L	-		02/07/22 20:30	5
Fluoride	49		2.5	0.83	mg/L	-		02/09/22 20:08	5
Sulfate	25000		2500	520	mg/L	-		02/07/22 20:46	500
Total Dissolved Solids (TDS)	38000		1000	470	mg/L	-		01/18/22 07:52	1
Total Suspended Solids	5.6		4.0	1.1	mg/L	-		01/18/22 08:09	1

Client Sample ID: W-2A
Date Collected: 01/12/22 14:15
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU	-		01/20/22 16:52	1
Temperature	23.2	HF	1.0	1.0	Degrees C	-		01/20/22 16:52	1
Chloride	830		30	10	mg/L	-		02/07/22 21:52	10
Fluoride	ND	^+	0.50	0.17	mg/L	-		02/07/22 21:36	1
Sulfate	97000		2500	520	mg/L	-		02/09/22 20:24	500
Total Dissolved Solids (TDS)	70000		1000	470	mg/L	-		01/17/22 10:03	1
Total Suspended Solids	10		4.0	1.1	mg/L	-		01/17/22 10:29	1

Client Sample ID: W-2C
Date Collected: 01/12/22 15:50
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU	-		01/20/22 17:00	1

Eurofins Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

General Chemistry (Continued)

Client Sample ID: W-2C

Date Collected: 01/12/22 15:50

Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Temperature	22.9	HF	1.0	1.0	Degrees C			01/20/22 17:00	1
Chloride	830		15	5.1	mg/L			02/07/22 22:41	5
Fluoride	1.3	J H	2.5	0.83	mg/L			02/12/22 17:03	5
Sulfate	55000		2500	520	mg/L			02/08/22 19:29	500
Total Dissolved Solids (TDS)	54000		1000	470	mg/L			01/17/22 10:03	1
Total Suspended Solids	2.8	J	4.0	1.1	mg/L			01/17/22 10:29	1

Client Sample ID: W-3

Date Collected: 01/13/22 14:25

Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-4

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.8	HF	0.1	0.1	SU			01/20/22 17:04	1
Temperature	22.9	HF	1.0	1.0	Degrees C			01/20/22 17:04	1
Chloride	36		3.0	1.0	mg/L			02/07/22 16:55	1
Fluoride	0.45	J	0.50	0.17	mg/L			02/07/22 16:55	1
Sulfate	1200		50	10	mg/L			02/08/22 16:28	10
Total Dissolved Solids (TDS)	1800		20	9.4	mg/L			01/17/22 10:03	1
Total Suspended Solids	5.2		4.0	1.1	mg/L			01/17/22 10:29	1

Client Sample ID: W-3B

Date Collected: 01/13/22 16:45

Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-5

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	6.8	HF	0.1	0.1	SU			01/20/22 17:12	1
Temperature	23.1	HF	1.0	1.0	Degrees C			01/20/22 17:12	1
Chloride	1500	J	3000	1000	mg/L			02/07/22 23:47	1000
Fluoride	ND	H	5.0	1.7	mg/L			02/12/22 19:03	10
Sulfate	50000		5000	1000	mg/L			02/07/22 23:47	1000
Total Dissolved Solids (TDS)	64000		1000	470	mg/L			01/17/22 10:03	1
Total Suspended Solids	5.2		4.0	1.1	mg/L			01/17/22 10:29	1

Client Sample ID: W-3D

Date Collected: 01/13/22 14:25

Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-6

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.8	HF	0.1	0.1	SU			01/20/22 17:15	1
Temperature	23.4	HF	1.0	1.0	Degrees C			01/20/22 17:15	1
Chloride	36		3.0	1.0	mg/L			02/08/22 00:36	1
Fluoride	0.95	H	0.50	0.17	mg/L			02/12/22 15:33	1
Sulfate	940		500	100	mg/L			02/08/22 01:42	100
Total Dissolved Solids (TDS)	1900	H	20	9.4	mg/L			01/25/22 12:10	1
Total Suspended Solids	2.0	J	4.0	1.1	mg/L			01/17/22 10:29	1

Client Sample ID: W-5

Date Collected: 01/10/22 16:35

Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-7

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.5	HF	0.1	0.1	SU			01/20/22 17:19	1
Temperature	23.5	HF	1.0	1.0	Degrees C			01/20/22 17:19	1
Chloride	730		15	5.1	mg/L			02/07/22 15:32	5

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

General Chemistry (Continued)

Client Sample ID: W-5
Date Collected: 01/10/22 16:35
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	42		2.5	0.83	mg/L			02/07/22 15:32	5
Sulfate	23000		2500	520	mg/L			02/07/22 15:49	500
Total Dissolved Solids (TDS)	35000		1000	470	mg/L			01/17/22 10:03	1
Total Suspended Solids	21		4.0	1.1	mg/L			01/17/22 10:28	1

Client Sample ID: W-5B
Date Collected: 01/14/22 09:00
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.5	HF	0.1	0.1	SU			01/20/22 17:36	1
Temperature	23.6	HF	1.0	1.0	Degrees C			01/20/22 17:36	1
Chloride	100		3.0	1.0	mg/L			02/08/22 02:47	1
Fluoride	0.40	J H	0.50	0.17	mg/L			02/12/22 16:33	1
Sulfate	3800		100	21	mg/L			02/08/22 03:04	20
Total Dissolved Solids (TDS)	5300		40	19	mg/L			01/18/22 07:52	1
Total Suspended Solids	ND		4.0	1.1	mg/L			01/19/22 08:21	1

Client Sample ID: W-6
Date Collected: 01/11/22 09:40
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.7	HF	0.1	0.1	SU			01/20/22 17:23	1
Temperature	23.7	HF	1.0	1.0	Degrees C			01/20/22 17:23	1
Chloride	220		15	5.1	mg/L			02/07/22 16:22	5
Fluoride	6.2		0.50	0.17	mg/L			02/07/22 16:05	1
Sulfate	5100		1000	210	mg/L			02/07/22 16:38	200
Total Dissolved Solids (TDS)	9900		100	47	mg/L			01/17/22 10:03	1
Total Suspended Solids	3.6	J	4.0	1.1	mg/L			01/17/22 10:28	1

Client Sample ID: W-6B
Date Collected: 01/11/22 14:35
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.1	HF	0.1	0.1	SU			01/20/22 17:26	1
Temperature	23.6	HF	1.0	1.0	Degrees C			01/20/22 17:26	1
Chloride	1800	J	3000	1000	mg/L			02/07/22 19:08	1000
Fluoride	2.5	J H	5.0	1.7	mg/L			02/12/22 20:48	10
Sulfate	60000		5000	1000	mg/L			02/07/22 19:08	1000
Total Dissolved Solids (TDS)	63000		1000	470	mg/L			01/17/22 10:03	1
Total Suspended Solids	10	H	4.0	1.1	mg/L			01/19/22 08:21	1

Client Sample ID: W-7
Date Collected: 01/12/22 12:05
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU			01/20/22 17:32	1
Temperature	23.3	HF	1.0	1.0	Degrees C			01/20/22 17:32	1
Chloride	710		60	20	mg/L			02/08/22 04:09	20
Fluoride	3.9	H	2.5	0.83	mg/L			02/12/22 17:18	5
Sulfate	74000		2500	520	mg/L			02/08/22 22:59	500

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

General Chemistry (Continued)

Client Sample ID: W-7
Date Collected: 01/12/22 12:05
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS)	63000		1000	470	mg/L			01/17/22 10:03	1
Total Suspended Solids	12		4.0	1.1	mg/L			01/17/22 10:29	1

Client Sample ID: W-9
Date Collected: 01/11/22 16:20
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.5	HF	0.1	0.1	SU			01/20/22 17:39	1
Temperature	23.5	HF	1.0	1.0	Degrees C			01/20/22 17:39	1
Chloride	370		15	5.1	mg/L			02/07/22 19:41	5
Fluoride	0.93	J H	2.5	0.83	mg/L			02/12/22 17:33	5
Sulfate	11000		500	100	mg/L			02/07/22 19:57	100
Total Dissolved Solids (TDS)	17000		1000	470	mg/L			01/17/22 10:03	1
Total Suspended Solids	2.4	J H	4.0	1.1	mg/L			01/19/22 08:21	1

Client Sample ID: W-7EB
Date Collected: 01/12/22 12:55
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.6	HF	0.1	0.1	SU			01/21/22 15:21	1
Temperature	22.7	HF	1.0	1.0	Degrees C			01/21/22 15:21	1
Chloride	ND		3.0	1.0	mg/L			02/08/22 06:54	1
Fluoride	ND	^+	0.50	0.17	mg/L			02/08/22 06:54	1
Sulfate	ND		5.0	1.0	mg/L			02/08/22 06:54	1
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			01/17/22 10:03	1
Total Suspended Solids	ND		4.0	1.1	mg/L			01/17/22 10:29	1

Client Sample ID: W-11
Date Collected: 01/13/22 10:50
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.3	HF	0.1	0.1	SU			01/20/22 16:31	1
Temperature	22.4	HF	1.0	1.0	Degrees C			01/20/22 16:31	1
Chloride	300		30	10	mg/L			02/08/22 04:59	10
Fluoride	1.1	J H	2.5	0.83	mg/L			02/12/22 17:48	5
Sulfate	140000		5000	1000	mg/L			02/08/22 05:15	1000
Total Dissolved Solids (TDS)	20000		1000	470	mg/L			01/17/22 10:03	1
Total Suspended Solids	4.4		4.0	1.1	mg/L			01/17/22 10:29	1

Client Sample ID: W-12
Date Collected: 01/13/22 12:45
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU			01/20/22 16:19	1
Temperature	22.6	HF	1.0	1.0	Degrees C			01/20/22 16:19	1
Chloride	880		30	10	mg/L			02/08/22 05:48	10
Fluoride	0.85	J H	2.5	0.83	mg/L			02/12/22 18:33	5
Sulfate	16000		1000	210	mg/L			02/08/22 06:04	200
Total Dissolved Solids (TDS)	25000		1000	470	mg/L			01/17/22 10:03	1
Total Suspended Solids	2.8	J	4.0	1.1	mg/L			01/17/22 10:29	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

General Chemistry

Client Sample ID: MW-7
Date Collected: 01/14/22 11:00
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU			01/20/22 16:42	1
Temperature	22.8	HF	1.0	1.0	Degrees C			01/20/22 16:42	1
Chloride	280		60	20	mg/L			02/08/22 12:08	20
Fluoride	0.90	J H	2.5	0.83	mg/L			02/12/22 18:48	5
Sulfate	9100		500	100	mg/L			02/08/22 12:24	100
Total Dissolved Solids (TDS)	34000		1000	470	mg/L			01/21/22 09:31	1
Total Suspended Solids	2.0	J	4.0	1.1	mg/L			01/19/22 08:21	1

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: W-1
Date Collected: 01/14/22 12:00
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.398		0.149	0.154	1.00	0.152	pCi/L	01/24/22 10:19	02/15/22 08:02	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.7		40 - 110					01/24/22 10:19	02/15/22 08:02	1

Client Sample ID: W-2A
Date Collected: 01/12/22 14:15
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.06		0.285	0.301	1.00	0.232	pCi/L	01/24/22 10:19	02/15/22 08:02	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.2		40 - 110					01/24/22 10:19	02/15/22 08:02	1

Client Sample ID: W-2C
Date Collected: 01/12/22 15:50
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.899		0.264	0.277	1.00	0.231	pCi/L	01/24/22 10:19	02/15/22 08:02	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.5		40 - 110					01/24/22 10:19	02/15/22 08:02	1

Client Sample ID: W-3
Date Collected: 01/13/22 14:25
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0814	U	0.110	0.110	1.00	0.184	pCi/L	01/24/22 10:19	02/15/22 08:03	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

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

Carrier

Ba Carrier

%Yield

92.2

Qualifier

Limits

40 - 110

Prepared

01/24/22 10:19

Analyzed

02/15/22 08:03

Dil Fac

1

Client Sample ID: W-3B

Date Collected: 01/13/22 16:45

Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-5

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	3.61		0.508	0.603	1.00	0.193	pCi/L	01/24/22 10:19	02/15/22 08:04	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.4		40 - 110					01/24/22 10:19	02/15/22 08:04	1

Client Sample ID: W-3D

Date Collected: 01/13/22 14:25

Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-6

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0893	U	0.0961	0.0964	1.00	0.153	pCi/L	01/24/22 10:19	02/15/22 08:04	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.4		40 - 110					01/24/22 10:19	02/15/22 08:04	1

Client Sample ID: W-5

Date Collected: 01/10/22 16:35

Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-7

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.314		0.148	0.150	1.00	0.159	pCi/L	01/24/22 10:19	02/15/22 08:04	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	79.5		40 - 110					01/24/22 10:19	02/15/22 08:04	1

Client Sample ID: W-5B

Date Collected: 01/14/22 09:00

Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-8

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.658		0.181	0.191	1.00	0.138	pCi/L	01/24/22 10:19	02/15/22 08:04	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.0		40 - 110					01/24/22 10:19	02/15/22 08:04	1

Client Sample ID: W-6

Date Collected: 01/11/22 09:40

Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-9

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.156	U	0.150	0.151	1.00	0.231	pCi/L	01/24/22 10:19	02/15/22 08:04	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

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

Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.2		40 - 110					01/24/22 10:19	02/15/22 08:04	1
Client Sample ID: W-6B								Lab Sample ID: 280-157766-10		
Date Collected: 01/11/22 14:35								Matrix: Water		
Date Received: 01/14/22 16:10										
Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.84		0.372	0.407	1.00	0.227	pCi/L	01/24/22 10:19	02/15/22 08:05	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.7		40 - 110					01/24/22 10:19	02/15/22 08:05	1
Client Sample ID: W-7								Lab Sample ID: 280-157766-11		
Date Collected: 01/12/22 12:05								Matrix: Water		
Date Received: 01/14/22 16:10										
Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	2.03		0.391	0.432	1.00	0.263	pCi/L	01/24/22 10:19	02/15/22 08:05	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.5		40 - 110					01/24/22 10:19	02/15/22 08:05	1
Client Sample ID: W-9								Lab Sample ID: 280-157766-12		
Date Collected: 01/11/22 16:20								Matrix: Water		
Date Received: 01/14/22 16:10										
Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.657		0.238	0.245	1.00	0.248	pCi/L	01/24/22 10:19	02/15/22 08:01	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					01/24/22 10:19	02/15/22 08:01	1
Client Sample ID: W-7EB								Lab Sample ID: 280-157766-13		
Date Collected: 01/12/22 12:55								Matrix: Water		
Date Received: 01/14/22 16:10										
Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0846	U	0.126	0.127	1.00	0.216	pCi/L	01/24/22 10:19	02/15/22 08:01	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	88.4		40 - 110					01/24/22 10:19	02/15/22 08:01	1
Client Sample ID: W-11								Lab Sample ID: 280-157766-14		
Date Collected: 01/13/22 10:50								Matrix: Water		
Date Received: 01/14/22 16:10										
Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.05		0.307	0.322	1.00	0.309	pCi/L	01/24/22 10:19	02/15/22 08:08	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

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

Carrier	%Yield	Qualifier	Limits						Prepared	Analyzed	Dil Fac
Ba Carrier	97.7		40 - 110						01/24/22 10:19	02/15/22 08:08	1
Client Sample ID: W-12					Lab Sample ID: 280-157766-15						
Date Collected: 01/13/22 12:45					Matrix: Water						
Date Received: 01/14/22 16:10											
Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac	
Radium-226	0.666		0.272	0.278	1.00	0.311	pCi/L	01/24/22 10:19	02/15/22 08:08	1	
Carrier	%Yield	Qualifier	Limits								
Ba Carrier	83.3		40 - 110								
								Prepared	Analyzed	Dil Fac	
								01/24/22 10:19	02/15/22 08:08	1	

Client Sample ID: MW-7

Date Collected: 01/14/22 11:00

Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-16

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.575		0.245	0.251	1.00	0.294	pCi/L	01/24/22 10:19	02/15/22 08:09	1
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	97.0		40 - 110							

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: W-1							Lab Sample ID: 280-157766-1			
Date Collected: 01/14/22 12:00							Matrix: Water			
Date Received: 01/14/22 16:10										
Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.02		0.372	0.384	1.00	0.502	pCi/L	01/24/22 10:50	02/09/22 13:52	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.7		40 - 110					01/24/22 10:50	02/09/22 13:52	1
Y Carrier	81.5		40 - 110					01/24/22 10:50	02/09/22 13:52	1

Client Sample ID: W-2A							Lab Sample ID: 280-157766-2			
Date Collected: 01/12/22 14:15							Matrix: Water			
Date Received: 01/14/22 16:10										
Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	4.32		0.763	0.860	1.00	0.785	pCi/L	01/24/22 10:50	02/09/22 13:52	1
Carrier	%Yield	Qualifier						Prepared	Analyzed	Dil Fac
Ba Carrier	98.2		40 - 110					01/24/22 10:50	02/09/22 13:52	1
Y Carrier	80.0		40 - 110					01/24/22 10:50	02/09/22 13:52	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: W-2C
Date Collected: 01/12/22 15:50
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.02		0.638	0.665	1.00	0.846	pCi/L	01/24/22 10:50	02/09/22 13:52	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.5		40 - 110					01/24/22 10:50	02/09/22 13:52	1
Y Carrier	80.4		40 - 110					01/24/22 10:50	02/09/22 13:52	1

Client Sample ID: W-3
Date Collected: 01/13/22 14:25
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.440	U	0.339	0.341	1.00	0.533	pCi/L	01/24/22 10:50	02/09/22 13:52	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.2		40 - 110					01/24/22 10:50	02/09/22 13:52	1
Y Carrier	81.5		40 - 110					01/24/22 10:50	02/09/22 13:52	1

Client Sample ID: W-3B
Date Collected: 01/13/22 16:45
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	4.78		0.708	0.834	1.00	0.626	pCi/L	01/24/22 10:50	02/09/22 13:52	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.4		40 - 110					01/24/22 10:50	02/09/22 13:52	1
Y Carrier	117	X	40 - 110					01/24/22 10:50	02/09/22 13:52	1

Client Sample ID: W-3D
Date Collected: 01/13/22 14:25
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.383	U	0.276	0.278	1.00	0.430	pCi/L	01/24/22 10:50	02/09/22 13:53	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.4		40 - 110					01/24/22 10:50	02/09/22 13:53	1
Y Carrier	116	X	40 - 110					01/24/22 10:50	02/09/22 13:53	1

Client Sample ID: W-5
Date Collected: 01/10/22 16:35
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.90		0.523	0.551	1.00	0.649	pCi/L	01/24/22 10:50	02/09/22 13:53	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	79.5		40 - 110	01/24/22 10:50	02/09/22 13:53	1
Y Carrier	81.1		40 - 110	01/24/22 10:50	02/09/22 13:53	1

Client Sample ID: W-5B
Date Collected: 01/14/22 09:00
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-8
Matrix: Water

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.28		0.392	0.410	1.00	0.498	pCi/L	01/24/22 10:50	02/09/22 13:55	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.0		40 - 110					01/24/22 10:50	02/09/22 13:55	1
Y Carrier	81.1		40 - 110					01/24/22 10:50	02/09/22 13:55	1

Client Sample ID: W-6
Date Collected: 01/11/22 09:40
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-9
Matrix: Water

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.574	U	0.481	0.484	1.00	0.762	pCi/L	01/24/22 10:50	02/09/22 13:53	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.2		40 - 110					01/24/22 10:50	02/09/22 13:53	1
Y Carrier	80.4		40 - 110					01/24/22 10:50	02/09/22 13:53	1

Client Sample ID: W-6B
Date Collected: 01/11/22 14:35
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-10
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	6.66		0.941	1.12	1.00	0.894	pCi/L	01/24/22 10:50	02/09/22 13:54	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.7		40 - 110					01/24/22 10:50	02/09/22 13:54	1
Y Carrier	81.9		40 - 110					01/24/22 10:50	02/09/22 13:54	1

Client Sample ID: W-7
Date Collected: 01/12/22 12:05
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-11
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	3.69		0.741	0.815	1.00	0.822	pCi/L	01/24/22 10:50	02/09/22 13:54	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.5		40 - 110					01/24/22 10:50	02/09/22 13:54	1
Y Carrier	81.1		40 - 110					01/24/22 10:50	02/09/22 13:54	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: W-9
Date Collected: 01/11/22 16:20
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-12
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.16		0.508	0.519	1.00	0.712	pCi/L	01/24/22 10:50	02/09/22 13:54	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					01/24/22 10:50	02/09/22 13:54	1
Y Carrier	82.2		40 - 110					01/24/22 10:50	02/09/22 13:54	1

Client Sample ID: W-7EB
Date Collected: 01/12/22 12:55
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-13
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.414	U	0.432	0.433	1.00	0.705	pCi/L	01/24/22 10:50	02/09/22 13:55	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	88.4		40 - 110					01/24/22 10:50	02/09/22 13:55	1
Y Carrier	82.6		40 - 110					01/24/22 10:50	02/09/22 13:55	1

Client Sample ID: W-11
Date Collected: 01/13/22 10:50
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-14
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.70		0.662	0.707	1.00	0.798	pCi/L	01/24/22 10:50	02/09/22 13:56	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.7		40 - 110					01/24/22 10:50	02/09/22 13:56	1
Y Carrier	83.4		40 - 110					01/24/22 10:50	02/09/22 13:56	1

Client Sample ID: W-12
Date Collected: 01/13/22 12:45
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-15
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.89		0.610	0.634	1.00	0.760	pCi/L	01/24/22 10:50	02/09/22 13:56	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	83.3		40 - 110					01/24/22 10:50	02/09/22 13:56	1
Y Carrier	82.2		40 - 110					01/24/22 10:50	02/09/22 13:56	1

Client Sample ID: MW-7
Date Collected: 01/14/22 11:00
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-16
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.01		0.490	0.499	1.00	0.705	pCi/L	01/24/22 10:50	02/09/22 13:56	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	97.0		40 - 110	01/24/22 10:50	02/09/22 13:56	1
Y Carrier	84.1		40 - 110	01/24/22 10:50	02/09/22 13:56	1

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

Client Sample ID: W-1
Date Collected: 01/14/22 12:00
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.42		0.401	0.414	5.00	0.502	pCi/L		02/15/22 17:25	1

Client Sample ID: W-2A
Date Collected: 01/12/22 14:15
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	5.38		0.814	0.911	5.00	0.785	pCi/L		02/15/22 17:25	1

Client Sample ID: W-2C
Date Collected: 01/12/22 15:50
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.91		0.690	0.720	5.00	0.846	pCi/L		02/15/22 17:25	1

Client Sample ID: W-3
Date Collected: 01/13/22 14:25
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.521	U	0.356	0.358	5.00	0.533	pCi/L		02/15/22 17:25	1

Client Sample ID: W-3B
Date Collected: 01/13/22 16:45
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	8.39		0.871	1.03	5.00	0.626	pCi/L		02/15/22 17:25	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

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

Client Sample ID: W-3D
Date Collected: 01/13/22 14:25
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.472		0.292	0.294	5.00	0.430	pCi/L		02/15/22 17:25	1

Client Sample ID: W-5
Date Collected: 01/10/22 16:35
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.22		0.544	0.571	5.00	0.649	pCi/L		02/15/22 17:25	1

Client Sample ID: W-5B
Date Collected: 01/14/22 09:00
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.94		0.432	0.452	5.00	0.498	pCi/L		02/15/22 17:25	1

Client Sample ID: W-6
Date Collected: 01/11/22 09:40
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.731	U	0.504	0.507	5.00	0.762	pCi/L		02/15/22 17:25	1

Client Sample ID: W-6B
Date Collected: 01/11/22 14:35
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-10
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	8.50		1.01	1.19	5.00	0.894	pCi/L		02/15/22 17:25	1

Client Sample ID: W-7
Date Collected: 01/12/22 12:05
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-11
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	5.73		0.838	0.922	5.00	0.822	pCi/L		02/15/22 17:25	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

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

Client Sample ID: W-9
Date Collected: 01/11/22 16:20
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-12
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.82		0.561	0.574	5.00	0.712	pCi/L		02/15/22 17:25	1

Client Sample ID: W-7EB
Date Collected: 01/12/22 12:55
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-13
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.499	U	0.450	0.451	5.00	0.705	pCi/L		02/15/22 17:25	1

Client Sample ID: W-11
Date Collected: 01/13/22 10:50
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-14
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	3.75		0.730	0.777	5.00	0.798	pCi/L		02/15/22 17:25	1

Client Sample ID: W-12
Date Collected: 01/13/22 12:45
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-15
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.55		0.668	0.692	5.00	0.760	pCi/L		02/15/22 17:25	1

Client Sample ID: MW-7
Date Collected: 01/14/22 11:00
Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-16
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.59		0.548	0.559	5.00	0.705	pCi/L		02/15/22 17:25	1

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 310-341917/1-A
Matrix: Water
Analysis Batch: 342271

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 341917

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.20	0.056	mg/L		01/21/22 09:00	01/24/22 13:30	1

Lab Sample ID: LCS 310-341917/2-A
Matrix: Water
Analysis Batch: 342271

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 341917

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	2.05		mg/L		103	80 - 120

Lab Sample ID: 280-157766-1 MS
Matrix: Water
Analysis Batch: 342271

Client Sample ID: W-1
Prep Type: Total Recoverable
Prep Batch: 341917

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	3.5		2.00	5.71		mg/L		108	75 - 125

Lab Sample ID: 280-157766-1 MSD
Matrix: Water
Analysis Batch: 342271

Client Sample ID: W-1
Prep Type: Total Recoverable
Prep Batch: 341917

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	3.5		2.00	5.68		mg/L		106	75 - 125	1	20

Lab Sample ID: 280-157766-11 DU
Matrix: Water
Analysis Batch: 342271

Client Sample ID: W-7
Prep Type: Total Recoverable
Prep Batch: 341917

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Boron	ND		ND		mg/L		NC	20

Lab Sample ID: MB 310-342166/1-B
Matrix: Water
Analysis Batch: 342618

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 342377

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.20	0.056	mg/L		01/27/22 09:00	01/27/22 16:21	1

Lab Sample ID: LCS 310-342166/2-B
Matrix: Water
Analysis Batch: 342618

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 342377

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	2.14		mg/L		107	80 - 120

Lab Sample ID: 280-157766-1 MS
Matrix: Water
Analysis Batch: 342837

Client Sample ID: W-1
Prep Type: Dissolved
Prep Batch: 342377

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	3.6	J	2.00	5.67		mg/L		104	75 - 125

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Method: 6010C - Metals (ICP)

Lab Sample ID: 280-157766-1 MSD
Matrix: Water
Analysis Batch: 342837

Client Sample ID: W-1
Prep Type: Dissolved
Prep Batch: 342377

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	3.6	J	2.00	5.61		mg/L		101	75 - 125	1	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-341916/1-A
Matrix: Water
Analysis Batch: 342359

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 341916

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.0011	mg/L		01/21/22 09:00	01/25/22 18:02	1
Arsenic	ND		0.0020	0.00075	mg/L		01/21/22 09:00	01/25/22 18:02	1
Barium	ND		0.0020	0.00037	mg/L		01/21/22 09:00	01/25/22 18:02	1
Beryllium	ND		0.0010	0.00027	mg/L		01/21/22 09:00	01/25/22 18:02	1
Cadmium	ND		0.00010	0.000051	mg/L		01/21/22 09:00	01/25/22 18:02	1
Calcium	ND		0.50	0.19	mg/L		01/21/22 09:00	01/25/22 18:02	1
Chromium	ND		0.0050	0.0011	mg/L		01/21/22 09:00	01/25/22 18:02	1
Cobalt	ND		0.00050	0.00019	mg/L		01/21/22 09:00	01/25/22 18:02	1
Lead	ND		0.00050	0.00021	mg/L		01/21/22 09:00	01/25/22 18:02	1
Lithium	ND		0.010	0.0025	mg/L		01/21/22 09:00	01/25/22 18:02	1
Molybdenum	ND		0.0020	0.0013	mg/L		01/21/22 09:00	01/25/22 18:02	1
Selenium	ND		0.0050	0.00096	mg/L		01/21/22 09:00	01/25/22 18:02	1
Thallium	ND		0.0010	0.00026	mg/L		01/21/22 09:00	01/25/22 18:02	1

Lab Sample ID: LCS 310-341916/2-A
Matrix: Water
Analysis Batch: 342359

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 341916

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.200	0.219		mg/L		109	80 - 120
Arsenic	0.200	0.212		mg/L		106	80 - 120
Barium	0.100	0.101		mg/L		101	80 - 120
Beryllium	0.100	0.106		mg/L		106	80 - 120
Cadmium	0.100	0.104		mg/L		104	80 - 120
Calcium	2.00	2.03		mg/L		101	80 - 120
Chromium	0.100	0.0989		mg/L		99	80 - 120
Cobalt	0.100	0.101		mg/L		101	80 - 120
Lead	0.200	0.212		mg/L		106	80 - 120
Lithium	0.200	0.207		mg/L		103	80 - 120
Molybdenum	0.200	0.210		mg/L		105	80 - 120
Selenium	0.400	0.392		mg/L		98	80 - 120
Thallium	0.200	0.207		mg/L		103	80 - 120

Lab Sample ID: 280-157766-9 DU
Matrix: Water
Analysis Batch: 342359

Client Sample ID: W-6
Prep Type: Total Recoverable
Prep Batch: 341916

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Antimony	ND		ND		mg/L		NC	20
Arsenic	ND		ND		mg/L		NC	20

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

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

Lab Sample ID: 280-157766-9 DU

Matrix: Water

Analysis Batch: 342359

Client Sample ID: W-6

Prep Type: Total Recoverable

Prep Batch: 341916

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Barium	0.025		0.0256		mg/L		2	20
Beryllium	ND		ND		mg/L		NC	20
Cadmium	0.00036	J	ND		mg/L		NC	20
Calcium	470		476		mg/L		1	20
Chromium	ND		ND		mg/L		NC	20
Cobalt	0.0032	J	0.00317	J	mg/L		2	20
Lead	ND		ND		mg/L		NC	20
Lithium	0.33		0.343		mg/L		4	20
Molybdenum	0.27		0.275		mg/L		0.1	20
Selenium	0.011	J	0.00872	J F5	mg/L		21	20
Thallium	ND		ND		mg/L		NC	20

Lab Sample ID: MB 310-342185/1-B

Matrix: Water

Analysis Batch: 342597

Client Sample ID: Method Blank

Prep Type: Dissolved

Prep Batch: 342378

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.0011	mg/L		01/27/22 09:00	01/28/22 04:31	1
Arsenic	ND		0.0020	0.00075	mg/L		01/27/22 09:00	01/28/22 04:31	1
Barium	ND		0.0020	0.00037	mg/L		01/27/22 09:00	01/28/22 04:31	1
Beryllium	ND		0.0010	0.00027	mg/L		01/27/22 09:00	01/28/22 04:31	1
Cadmium	ND		0.00010	0.000051	mg/L		01/27/22 09:00	01/28/22 04:31	1
Calcium	ND		0.50	0.19	mg/L		01/27/22 09:00	01/28/22 04:31	1
Chromium	ND		0.0050	0.0011	mg/L		01/27/22 09:00	01/28/22 04:31	1
Cobalt	ND		0.00050	0.00019	mg/L		01/27/22 09:00	01/28/22 04:31	1
Lead	ND		0.00050	0.00021	mg/L		01/27/22 09:00	01/28/22 04:31	1
Lithium	ND		0.010	0.0025	mg/L		01/27/22 09:00	01/28/22 04:31	1
Molybdenum	ND		0.0020	0.0013	mg/L		01/27/22 09:00	01/28/22 04:31	1
Selenium	ND		0.0050	0.00096	mg/L		01/27/22 09:00	01/28/22 04:31	1
Thallium	ND		0.0010	0.00026	mg/L		01/27/22 09:00	01/28/22 04:31	1

Lab Sample ID: LCS 310-342185/2-B

Matrix: Water

Analysis Batch: 342597

Client Sample ID: Lab Control Sample

Prep Type: Dissolved

Prep Batch: 342378

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.200	0.222		mg/L		111	80 - 120
Arsenic	0.200	0.212		mg/L		106	80 - 120
Barium	0.100	0.0970		mg/L		97	80 - 120
Beryllium	0.100	0.110		mg/L		110	80 - 120
Cadmium	0.100	0.105		mg/L		105	80 - 120
Calcium	2.00	2.05		mg/L		102	80 - 120
Chromium	0.100	0.103		mg/L		103	80 - 120
Cobalt	0.100	0.106		mg/L		106	80 - 120
Lead	0.200	0.210		mg/L		105	80 - 120
Lithium	0.200	0.222		mg/L		111	80 - 120
Molybdenum	0.200	0.201		mg/L		101	80 - 120
Selenium	0.400	0.364		mg/L		91	80 - 120
Thallium	0.200	0.209		mg/L		104	80 - 120

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

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

Lab Sample ID: 280-157766-1 MS

Matrix: Water

Analysis Batch: 342597

Client Sample ID: W-1

Prep Type: Dissolved

Prep Batch: 342378

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0013	J	0.200	0.230		mg/L		114	75 - 125
Arsenic	0.0021	F1	0.200	0.308	F1	mg/L		153	75 - 125
Barium	0.013		0.100	0.128		mg/L		114	75 - 125
Beryllium	ND		0.100	0.123		mg/L		123	75 - 125
Cadmium	0.00032		0.100	0.0947		mg/L		94	75 - 125
Chromium	0.0013	J F1	0.100	0.132	F1	mg/L		130	75 - 125
Cobalt	0.00072		0.100	0.119		mg/L		118	75 - 125
Lead	0.00066		0.200	0.166		mg/L		83	75 - 125
Molybdenum	0.015		0.200	0.166		mg/L		76	75 - 125
Thallium	ND		0.200	0.156		mg/L		78	75 - 125

Lab Sample ID: 280-157766-1 MS

Matrix: Water

Analysis Batch: 342711

Client Sample ID: W-1

Prep Type: Dissolved

Prep Batch: 342378

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	430		2.00	437	4	mg/L		534	75 - 125
Lithium	1.9		0.200	2.03	4	mg/L		69	75 - 125
Selenium	0.73	F1	0.400	1.18		mg/L		114	75 - 125

Lab Sample ID: 280-157766-1 MSD

Matrix: Water

Analysis Batch: 342597

Client Sample ID: W-1

Prep Type: Dissolved

Prep Batch: 342378

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	0.0013	J	0.200	0.238		mg/L		118	75 - 125	3	20
Arsenic	0.0021	F1	0.200	0.316	F1	mg/L		157	75 - 125	2	20
Barium	0.013		0.100	0.135		mg/L		122	75 - 125	6	20
Beryllium	ND		0.100	0.119		mg/L		119	75 - 125	3	20
Cadmium	0.00032		0.100	0.0975		mg/L		97	75 - 125	3	20
Chromium	0.0013	J F1	0.100	0.136	F1	mg/L		135	75 - 125	3	20
Cobalt	0.00072		0.100	0.123		mg/L		122	75 - 125	3	20
Lead	0.00066		0.200	0.170		mg/L		85	75 - 125	3	20
Molybdenum	0.015		0.200	0.173		mg/L		79	75 - 125	4	20
Thallium	ND		0.200	0.159		mg/L		79	75 - 125	2	20

Lab Sample ID: 280-157766-1 MSD

Matrix: Water

Analysis Batch: 342711

Client Sample ID: W-1

Prep Type: Dissolved

Prep Batch: 342378

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	430		2.00	467	4	mg/L		2023	75 - 125	7	20
Lithium	1.9		0.200	2.23	4	mg/L		170	75 - 125	9	20
Selenium	0.73	F1	0.400	1.28	F1	mg/L		138	75 - 125	8	20

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-343780/1-A
Matrix: Water
Analysis Batch: 343935

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 343780

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00015	mg/L		02/11/22 11:45	02/14/22 14:51	1

Lab Sample ID: LCS 310-343780/2-A
Matrix: Water
Analysis Batch: 343935

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 343780

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00167	0.00178		mg/L		107	80 - 120

Lab Sample ID: MB 310-343781/1-A
Matrix: Water
Analysis Batch: 343935

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 343781

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00015	mg/L		02/11/22 11:49	02/14/22 15:51	1

Lab Sample ID: LCS 310-343781/2-A
Matrix: Water
Analysis Batch: 343935

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 343781

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00167	0.00174		mg/L		104	80 - 120

Lab Sample ID: 280-157766-13 MS
Matrix: Water
Analysis Batch: 343935

Client Sample ID: W-7EB
Prep Type: Total/NA
Prep Batch: 343781

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND	H	0.00167	0.00179		mg/L		107	80 - 120

Lab Sample ID: 280-157766-13 MSD
Matrix: Water
Analysis Batch: 343935

Client Sample ID: W-7EB
Prep Type: Total/NA
Prep Batch: 343781

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND	H	0.00167	0.00180		mg/L		108	80 - 120	1	20

Lab Sample ID: MB 310-342161/1-B
Matrix: Water
Analysis Batch: 343025

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 342875

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00015	mg/L		02/01/22 14:59	02/02/22 15:45	1

Lab Sample ID: LCS 310-342161/2-B
Matrix: Water
Analysis Batch: 343025

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 342875

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00167	0.00166		mg/L		99	80 - 120

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Method: 7470A - Mercury (CVAA)

Lab Sample ID: 280-157766-1 MS
Matrix: Water
Analysis Batch: 343025

Client Sample ID: W-1
Prep Type: Dissolved
Prep Batch: 342875

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	
Mercury	ND	F1	0.00167	0.00114	F1	mg/L		68	80 - 120	

Lab Sample ID: 280-157766-1 MSD
Matrix: Water
Analysis Batch: 343025

Client Sample ID: W-1
Prep Type: Dissolved
Prep Batch: 342875

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND	F1	0.00167	0.00117	F1	mg/L		70	80 - 120	3	20

Method: 9040B - pH

Lab Sample ID: LCS 280-564003/27
Matrix: Water
Analysis Batch: 564003

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
pH adj. to 25 deg C	7.00	7.0		SU		101	99 - 101	

Lab Sample ID: LCS 280-564003/50
Matrix: Water
Analysis Batch: 564003

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
pH adj. to 25 deg C	7.00	7.0		SU		101	99 - 101	

Lab Sample ID: 280-157766-2 DU
Matrix: Water
Analysis Batch: 564003

Client Sample ID: W-2A
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH adj. to 25 deg C	7.0	HF	6.9		SU		0.7	5
Temperature	23.2	HF	23.0		Degrees C		1	10

Lab Sample ID: LCS 280-564264/4
Matrix: Water
Analysis Batch: 564264

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
pH adj. to 25 deg C	7.00	7.0		SU		101	99 - 101	

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-565344/6
Matrix: Water
Analysis Batch: 565344

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			02/07/22 14:54	1
Fluoride	ND		0.50	0.17	mg/L			02/07/22 14:54	1
Sulfate	ND		5.0	1.0	mg/L			02/07/22 14:54	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

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

Lab Sample ID: LCS 280-565344/4

Matrix: Water

Analysis Batch: 565344

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	97.6		mg/L		98	90 - 110
Fluoride	5.00	4.82		mg/L		96	90 - 110
Sulfate	100	93.9		mg/L		94	90 - 110

Lab Sample ID: LCSD 280-565344/5

Matrix: Water

Analysis Batch: 565344

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	97.7		mg/L		98	90 - 110	0	10
Fluoride	5.00	4.84		mg/L		97	90 - 110	0	10
Sulfate	100	94.0		mg/L		94	90 - 110	0	10

Lab Sample ID: MRL 280-565344/3

Matrix: Water

Analysis Batch: 565344

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.00	4.15		mg/L		83	50 - 150
Fluoride	0.500	0.466	J	mg/L		93	50 - 150
Sulfate	5.00	4.24	J	mg/L		85	50 - 150

Lab Sample ID: 280-157766-4 MS

Matrix: Water

Analysis Batch: 565344

Client Sample ID: W-3

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	36		50.0	93.4		mg/L		114	80 - 120
Fluoride	0.45	J	5.00	6.20		mg/L		115	80 - 120

Lab Sample ID: 280-157766-4 MSD

Matrix: Water

Analysis Batch: 565344

Client Sample ID: W-3

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	36		50.0	92.1		mg/L		112	80 - 120	1	20
Fluoride	0.45	J	5.00	5.90		mg/L		109	80 - 120	5	20

Lab Sample ID: 280-157766-6 MS

Matrix: Water

Analysis Batch: 565344

Client Sample ID: W-3D

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	36		50.0	93.0		mg/L		114	80 - 120

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

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

Lab Sample ID: 280-157766-6 MS

Matrix: Water

Analysis Batch: 565344

Client Sample ID: W-3D

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	ND		5000	5030		mg/L		101	80 - 120		
Sulfate	940		5000	5760		mg/L		96	80 - 120		

Lab Sample ID: 280-157766-6 MSD

Matrix: Water

Analysis Batch: 565344

Client Sample ID: W-3D

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	36		50.0	91.9		mg/L		112	80 - 120	1	20

Lab Sample ID: 280-157766-6 MSD

Matrix: Water

Analysis Batch: 565344

Client Sample ID: W-3D

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	ND		5000	5010		mg/L		100	80 - 120	0	20
Sulfate	940		5000	5710		mg/L		95	80 - 120	1	20

Lab Sample ID: 280-157766-4 DU

Matrix: Water

Analysis Batch: 565344

Client Sample ID: W-3

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Chloride	36			36.1		mg/L				0.3	15
Fluoride	0.45	J		0.448	J	mg/L				1	15

Lab Sample ID: 280-157766-6 DU

Matrix: Water

Analysis Batch: 565344

Client Sample ID: W-3D

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Chloride	36			36.1		mg/L				0	15

Lab Sample ID: 280-157766-6 DU

Matrix: Water

Analysis Batch: 565344

Client Sample ID: W-3D

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Chloride	ND			ND		mg/L				NC	15
Sulfate	940			879		mg/L				6	15

Lab Sample ID: MB 280-565432/6

Matrix: Water

Analysis Batch: 565432

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			02/08/22 11:42	1
Sulfate	ND		5.0	1.0	mg/L			02/08/22 11:42	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

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

Lab Sample ID: LCS 280-565432/4

Matrix: Water

Analysis Batch: 565432

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	97.8		mg/L		98	90 - 110
Sulfate	100	97.5		mg/L		97	90 - 110

Lab Sample ID: LCSD 280-565432/5

Matrix: Water

Analysis Batch: 565432

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	97.8		mg/L		98	90 - 110	0	10
Sulfate	100	97.5		mg/L		98	90 - 110	0	10

Lab Sample ID: MRL 280-565432/3

Matrix: Water

Analysis Batch: 565432

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.00	4.41		mg/L		88	50 - 150
Fluoride	0.500	0.388	J	mg/L		78	50 - 150
Sulfate	5.00	4.09	J	mg/L		82	50 - 150

Lab Sample ID: 280-157766-4 MS

Matrix: Water

Analysis Batch: 565432

Client Sample ID: W-3

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	36		500	564		mg/L		106	80 - 120
Sulfate	1200		500	1620		mg/L		93	80 - 120

Lab Sample ID: 280-157766-4 MSD

Matrix: Water

Analysis Batch: 565432

Client Sample ID: W-3

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	36		500	579		mg/L		108	80 - 120	3	20
Sulfate	1200		500	1660		mg/L		101	80 - 120	2	20

Lab Sample ID: 280-157766-6 MS

Matrix: Water

Analysis Batch: 565432

Client Sample ID: W-3D

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	39		50.0	93.6		mg/L		109	80 - 120

Lab Sample ID: 280-157766-6 MSD

Matrix: Water

Analysis Batch: 565432

Client Sample ID: W-3D

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	39		50.0	93.5		mg/L		109	80 - 120	0	20

Eurofins Denver

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

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

Lab Sample ID: 280-157766-4 DU

Matrix: Water

Analysis Batch: 565432

Client Sample ID: W-3

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	36		35.5		mg/L		2	15
Sulfate	1200		1130		mg/L		3	15

Lab Sample ID: 280-157766-6 DU

Matrix: Water

Analysis Batch: 565432

Client Sample ID: W-3D

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	39		39.1		mg/L		0.06	15

Lab Sample ID: MB 280-565611/13

Matrix: Water

Analysis Batch: 565611

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			02/09/22 17:40	1
Fluoride	ND		0.50	0.17	mg/L			02/09/22 17:40	1
Sulfate	ND		5.0	1.0	mg/L			02/09/22 17:40	1

Lab Sample ID: LCS 280-565611/11

Matrix: Water

Analysis Batch: 565611

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	98.8		mg/L		99	90 - 110
Fluoride	5.00	4.62		mg/L		92	90 - 110
Sulfate	100	96.5		mg/L		96	90 - 110

Lab Sample ID: LCSD 280-565611/12

Matrix: Water

Analysis Batch: 565611

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	98.8		mg/L		99	90 - 110	0	10
Fluoride	5.00	4.65		mg/L		93	90 - 110	1	10
Sulfate	100	96.6		mg/L		97	90 - 110	0	10

Lab Sample ID: MRL 280-565611/10

Matrix: Water

Analysis Batch: 565611

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.00	4.06		mg/L		81	50 - 150
Fluoride	0.500	0.488	J	mg/L		98	50 - 150
Sulfate	5.00	4.18	J	mg/L		84	50 - 150

Eurofins Denver

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

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

Lab Sample ID: MB 280-565895/6

Matrix: Water

Analysis Batch: 565895

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			02/12/22 12:05	1
Fluoride	ND		0.50	0.17	mg/L			02/12/22 12:05	1
Sulfate	ND		5.0	1.0	mg/L			02/12/22 12:05	1

Lab Sample ID: LCS 280-565895/4

Matrix: Water

Analysis Batch: 565895

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	101		mg/L		101	90 - 110
Fluoride	5.00	5.13		mg/L		103	90 - 110
Sulfate	100	103		mg/L		103	90 - 110

Lab Sample ID: LCSD 280-565895/5

Matrix: Water

Analysis Batch: 565895

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	101		mg/L		101	90 - 110	0	10
Fluoride	5.00	5.10		mg/L		102	90 - 110	1	10
Sulfate	100	103		mg/L		103	90 - 110	0	10

Lab Sample ID: MRL 280-565895/3

Matrix: Water

Analysis Batch: 565895

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.00	4.56		mg/L		91	50 - 150
Fluoride	0.500	0.478	J	mg/L		96	50 - 150
Sulfate	5.00	4.35	J	mg/L		87	50 - 150

Lab Sample ID: 280-157766-6 MS

Matrix: Water

Analysis Batch: 565895

Client Sample ID: W-3D

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	0.95	H	5.00	5.54		mg/L		92	80 - 120

Lab Sample ID: 280-157766-6 MSD

Matrix: Water

Analysis Batch: 565895

Client Sample ID: W-3D

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Fluoride	0.95	H	5.00	6.33		mg/L		108	80 - 120	13	20

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

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

Lab Sample ID: 280-157766-6 DU

Matrix: Water

Analysis Batch: 565895

Client Sample ID: W-3D

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Fluoride	0.95	H	0.917		mg/L		3	15

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

Lab Sample ID: MB 280-563500/1

Matrix: Water

Analysis Batch: 563500

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 (TDS)	ND		10	4.7	mg/L			01/17/22 09:03	1

Lab Sample ID: LCS 280-563500/2

Matrix: Water

Analysis Batch: 563500

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 (TDS)	500	510		mg/L		102	88 - 114

Lab Sample ID: 280-157766-4 DU

Matrix: Water

Analysis Batch: 563500

Client Sample ID: W-3

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids (TDS)	1800		1850		mg/L		1	10

Lab Sample ID: MB 280-563583/1

Matrix: Water

Analysis Batch: 563583

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 (TDS)	ND		10	4.7	mg/L			01/18/22 06:51	1

Lab Sample ID: LCS 280-563583/2

Matrix: Water

Analysis Batch: 563583

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 (TDS)	500	495		mg/L		99	88 - 114

Lab Sample ID: LCSD 280-563583/3

Matrix: Water

Analysis Batch: 563583

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids (TDS)	500	497		mg/L		99	88 - 114	0	20

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

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

Lab Sample ID: MB 280-564006/1
Matrix: Water
Analysis Batch: 564006

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 (TDS)	ND		10	4.7	mg/L			01/21/22 09:30	1

Lab Sample ID: LCS 280-564006/2
Matrix: Water
Analysis Batch: 564006

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 (TDS)	501	488		mg/L		97	88 - 114

Lab Sample ID: LCSD 280-564006/3
Matrix: Water
Analysis Batch: 564006

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids (TDS)	501	505		mg/L		101	88 - 114	3	20

Lab Sample ID: MB 280-564302/1
Matrix: Water
Analysis Batch: 564302

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 (TDS)	ND		10	4.7	mg/L			01/25/22 11:10	1

Lab Sample ID: LCS 280-564302/2
Matrix: Water
Analysis Batch: 564302

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 (TDS)	501	489		mg/L		98	88 - 114

Lab Sample ID: LCSD 280-564302/3
Matrix: Water
Analysis Batch: 564302

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids (TDS)	501	493		mg/L		98	88 - 114	1	20

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 280-563511/1
Matrix: Water
Analysis Batch: 563511

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			01/17/22 09:28	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

Lab Sample ID: LCS 280-563511/2
Matrix: Water
Analysis Batch: 563511

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	85.2		mg/L		85	79 - 114

Lab Sample ID: LCSD 280-563511/3
Matrix: Water
Analysis Batch: 563511

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	100	94.4		mg/L		94	79 - 114	10	20

Lab Sample ID: MB 280-563512/1
Matrix: Water
Analysis Batch: 563512

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			01/17/22 09:29	1

Lab Sample ID: LCS 280-563512/2
Matrix: Water
Analysis Batch: 563512

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	90.4		mg/L		90	79 - 114

Lab Sample ID: LCSD 280-563512/3
Matrix: Water
Analysis Batch: 563512

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	100	87.2		mg/L		87	79 - 114	4	20

Lab Sample ID: MB 280-563589/1
Matrix: Water
Analysis Batch: 563589

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			01/18/22 08:09	1

Lab Sample ID: LCS 280-563589/2
Matrix: Water
Analysis Batch: 563589

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	90.0		mg/L		90	79 - 114

Lab Sample ID: LCSD 280-563589/3
Matrix: Water
Analysis Batch: 563589

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	100	87.6		mg/L		88	79 - 114	3	20

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 280-563757/1
Matrix: Water
Analysis Batch: 563757

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			01/19/22 07:21	1

Lab Sample ID: LCS 280-563757/2
Matrix: Water
Analysis Batch: 563757

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	85.6		mg/L		86	79 - 114

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-547780/21-A
Matrix: Water
Analysis Batch: 550642

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 547780

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.1541	U	0.177	0.177	1.00	0.288	pCi/L	01/24/22 10:19	02/15/22 08:09	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.2		40 - 110					01/24/22 10:19	02/15/22 08:09	1

Lab Sample ID: LCS 160-547780/1-A
Matrix: Water
Analysis Batch: 550630

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 547780

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226	22.7	19.99		2.14	1.00	0.316	pCi/L	88	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	97.5		40 - 110						

Lab Sample ID: LCSD 160-547780/2-A
Matrix: Water
Analysis Batch: 550630

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 547780

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-226	22.7	18.80		2.03	1.00	0.262	pCi/L	83	75 - 125	0.28	1
Carrier	LCSD %Yield	LCSD Qualifier	Limits								
Ba Carrier	96.0		40 - 110								

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-547782/21-A

Matrix: Water

Analysis Batch: 549816

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 547782

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.6160	U	0.518	0.521	1.00	0.826	pCi/L	01/24/22 10:50	02/09/22 13:57	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.2		40 - 110					01/24/22 10:50	02/09/22 13:57	1
Y Carrier	83.0		40 - 110					01/24/22 10:50	02/09/22 13:57	1

Lab Sample ID: LCS 160-547782/1-A

Matrix: Water

Analysis Batch: 549823

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 547782

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-228	17.8	19.72		2.28	1.00	0.770	pCi/L	111	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	97.5		40 - 110						
Y Carrier	83.7		40 - 110						

Lab Sample ID: LCSD 160-547782/2-A

Matrix: Water

Analysis Batch: 549823

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 547782

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-228	17.8	21.65		2.47	1.00	0.736	pCi/L	122	75 - 125	0.41	1
Carrier	LCSD %Yield	LCSD Qualifier	Limits								
Ba Carrier	96.0		40 - 110								
Y Carrier	82.6		40 - 110								

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Metals

Prep Batch: 341916

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-1	W-1	Total Recoverable	Water	3005A	
280-157766-2	W-2A	Total Recoverable	Water	3005A	
280-157766-3	W-2C	Total Recoverable	Water	3005A	
280-157766-4	W-3	Total Recoverable	Water	3005A	
280-157766-5	W-3B	Total Recoverable	Water	3005A	
280-157766-6	W-3D	Total Recoverable	Water	3005A	
280-157766-7	W-5	Total Recoverable	Water	3005A	
280-157766-8	W-5B	Total Recoverable	Water	3005A	
280-157766-9	W-6	Total Recoverable	Water	3005A	
280-157766-10	W-6B	Total Recoverable	Water	3005A	
280-157766-11	W-7	Total Recoverable	Water	3005A	
280-157766-12	W-9	Total Recoverable	Water	3005A	
280-157766-13	W-7EB	Total Recoverable	Water	3005A	
280-157766-14	W-11	Total Recoverable	Water	3005A	
280-157766-15	W-12	Total Recoverable	Water	3005A	
280-157766-16	MW-7	Total Recoverable	Water	3005A	
MB 310-341916/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 310-341916/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-157766-9 DU	W-6	Total Recoverable	Water	3005A	

Prep Batch: 341917

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-1	W-1	Total Recoverable	Water	3005A	
280-157766-2	W-2A	Total Recoverable	Water	3005A	
280-157766-3	W-2C	Total Recoverable	Water	3005A	
280-157766-4	W-3	Total Recoverable	Water	3005A	
280-157766-5	W-3B	Total Recoverable	Water	3005A	
280-157766-6	W-3D	Total Recoverable	Water	3005A	
280-157766-7	W-5	Total Recoverable	Water	3005A	
280-157766-8	W-5B	Total Recoverable	Water	3005A	
280-157766-9	W-6	Total Recoverable	Water	3005A	
280-157766-10	W-6B	Total Recoverable	Water	3005A	
280-157766-11	W-7	Total Recoverable	Water	3005A	
280-157766-12	W-9	Total Recoverable	Water	3005A	
280-157766-13	W-7EB	Total Recoverable	Water	3005A	
280-157766-14	W-11	Total Recoverable	Water	3005A	
280-157766-15	W-12	Total Recoverable	Water	3005A	
280-157766-16	MW-7	Total Recoverable	Water	3005A	
MB 310-341917/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 310-341917/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-157766-1 MS	W-1	Total Recoverable	Water	3005A	
280-157766-1 MSD	W-1	Total Recoverable	Water	3005A	
280-157766-11 DU	W-7	Total Recoverable	Water	3005A	

Filtration Batch: 342161

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-1	W-1	Dissolved	Water	Filtration	
280-157766-10	W-6B	Dissolved	Water	Filtration	
280-157766-11	W-7	Dissolved	Water	Filtration	
280-157766-14	W-11	Dissolved	Water	Filtration	
MB 310-342161/1-B	Method Blank	Dissolved	Water	Filtration	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Metals (Continued)

Filtration Batch: 342161 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-342161/2-B	Lab Control Sample	Dissolved	Water	Filtration	
280-157766-1 MS	W-1	Dissolved	Water	Filtration	
280-157766-1 MSD	W-1	Dissolved	Water	Filtration	

Filtration Batch: 342166

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-1	W-1	Dissolved	Water	Filtration	
280-157766-10	W-6B	Dissolved	Water	Filtration	
280-157766-11	W-7	Dissolved	Water	Filtration	
280-157766-14	W-11	Dissolved	Water	Filtration	
MB 310-342166/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 310-342166/2-B	Lab Control Sample	Dissolved	Water	Filtration	
280-157766-1 MS	W-1	Dissolved	Water	Filtration	
280-157766-1 MSD	W-1	Dissolved	Water	Filtration	

Filtration Batch: 342185

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-1	W-1	Dissolved	Water	Filtration	
280-157766-10	W-6B	Dissolved	Water	Filtration	
280-157766-11	W-7	Dissolved	Water	Filtration	
280-157766-14	W-11	Dissolved	Water	Filtration	
MB 310-342185/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 310-342185/2-B	Lab Control Sample	Dissolved	Water	Filtration	
280-157766-1 MS	W-1	Dissolved	Water	Filtration	
280-157766-1 MSD	W-1	Dissolved	Water	Filtration	

Analysis Batch: 342271

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-1	W-1	Total Recoverable	Water	6010C	341917
280-157766-2	W-2A	Total Recoverable	Water	6010C	341917
280-157766-3	W-2C	Total Recoverable	Water	6010C	341917
280-157766-4	W-3	Total Recoverable	Water	6010C	341917
280-157766-5	W-3B	Total Recoverable	Water	6010C	341917
280-157766-6	W-3D	Total Recoverable	Water	6010C	341917
280-157766-7	W-5	Total Recoverable	Water	6010C	341917
280-157766-8	W-5B	Total Recoverable	Water	6010C	341917
280-157766-9	W-6	Total Recoverable	Water	6010C	341917
280-157766-10	W-6B	Total Recoverable	Water	6010C	341917
280-157766-11	W-7	Total Recoverable	Water	6010C	341917
280-157766-12	W-9	Total Recoverable	Water	6010C	341917
280-157766-13	W-7EB	Total Recoverable	Water	6010C	341917
280-157766-14	W-11	Total Recoverable	Water	6010C	341917
280-157766-15	W-12	Total Recoverable	Water	6010C	341917
280-157766-16	MW-7	Total Recoverable	Water	6010C	341917
MB 310-341917/1-A	Method Blank	Total Recoverable	Water	6010C	341917
LCS 310-341917/2-A	Lab Control Sample	Total Recoverable	Water	6010C	341917
280-157766-1 MS	W-1	Total Recoverable	Water	6010C	341917
280-157766-1 MSD	W-1	Total Recoverable	Water	6010C	341917
280-157766-11 DU	W-7	Total Recoverable	Water	6010C	341917

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Metals

Analysis Batch: 342359

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-1	W-1	Total Recoverable	Water	6020A	341916
280-157766-2	W-2A	Total Recoverable	Water	6020A	341916
280-157766-3	W-2C	Total Recoverable	Water	6020A	341916
280-157766-4	W-3	Total Recoverable	Water	6020A	341916
280-157766-5	W-3B	Total Recoverable	Water	6020A	341916
280-157766-6	W-3D	Total Recoverable	Water	6020A	341916
280-157766-7	W-5	Total Recoverable	Water	6020A	341916
280-157766-8	W-5B	Total Recoverable	Water	6020A	341916
280-157766-9	W-6	Total Recoverable	Water	6020A	341916
280-157766-10	W-6B	Total Recoverable	Water	6020A	341916
280-157766-11	W-7	Total Recoverable	Water	6020A	341916
280-157766-12	W-9	Total Recoverable	Water	6020A	341916
280-157766-13	W-7EB	Total Recoverable	Water	6020A	341916
280-157766-14	W-11	Total Recoverable	Water	6020A	341916
280-157766-15	W-12	Total Recoverable	Water	6020A	341916
280-157766-16	MW-7	Total Recoverable	Water	6020A	341916
MB 310-341916/1-A	Method Blank	Total Recoverable	Water	6020A	341916
LCS 310-341916/2-A	Lab Control Sample	Total Recoverable	Water	6020A	341916
280-157766-9 DU	W-6	Total Recoverable	Water	6020A	341916

Prep Batch: 342377

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-1	W-1	Dissolved	Water	3005A	342166
280-157766-10	W-6B	Dissolved	Water	3005A	342166
280-157766-11	W-7	Dissolved	Water	3005A	342166
280-157766-14	W-11	Dissolved	Water	3005A	342166
MB 310-342166/1-B	Method Blank	Dissolved	Water	3005A	342166
LCS 310-342166/2-B	Lab Control Sample	Dissolved	Water	3005A	342166
280-157766-1 MS	W-1	Dissolved	Water	3005A	342166
280-157766-1 MSD	W-1	Dissolved	Water	3005A	342166

Prep Batch: 342378

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-1	W-1	Dissolved	Water	3005A	342185
280-157766-10	W-6B	Dissolved	Water	3005A	342185
280-157766-11	W-7	Dissolved	Water	3005A	342185
280-157766-14	W-11	Dissolved	Water	3005A	342185
MB 310-342185/1-B	Method Blank	Dissolved	Water	3005A	342185
LCS 310-342185/2-B	Lab Control Sample	Dissolved	Water	3005A	342185
280-157766-1 MS	W-1	Dissolved	Water	3005A	342185
280-157766-1 MSD	W-1	Dissolved	Water	3005A	342185

Analysis Batch: 342470

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-2	W-2A	Total Recoverable	Water	6020A	341916
280-157766-3	W-2C	Total Recoverable	Water	6020A	341916
280-157766-5	W-3B	Total Recoverable	Water	6020A	341916
280-157766-6	W-3D	Total Recoverable	Water	6020A	341916
280-157766-7	W-5	Total Recoverable	Water	6020A	341916
280-157766-8	W-5B	Total Recoverable	Water	6020A	341916
280-157766-10	W-6B	Total Recoverable	Water	6020A	341916

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Metals (Continued)

Analysis Batch: 342470 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-11	W-7	Total Recoverable	Water	6020A	341916
280-157766-12	W-9	Total Recoverable	Water	6020A	341916
280-157766-14	W-11	Total Recoverable	Water	6020A	341916
280-157766-15	W-12	Total Recoverable	Water	6020A	341916
280-157766-16	MW-7	Total Recoverable	Water	6020A	341916

Analysis Batch: 342597

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-1	W-1	Dissolved	Water	6020A	342378
280-157766-14	W-11	Dissolved	Water	6020A	342378
MB 310-342185/1-B	Method Blank	Dissolved	Water	6020A	342378
LCS 310-342185/2-B	Lab Control Sample	Dissolved	Water	6020A	342378
280-157766-1 MS	W-1	Dissolved	Water	6020A	342378
280-157766-1 MSD	W-1	Dissolved	Water	6020A	342378

Analysis Batch: 342599

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-13	W-7EB	Total Recoverable	Water	6020A	341916

Analysis Batch: 342618

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 310-342166/1-B	Method Blank	Dissolved	Water	6010C	342377
LCS 310-342166/2-B	Lab Control Sample	Dissolved	Water	6010C	342377

Analysis Batch: 342711

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-1	W-1	Dissolved	Water	6020A	342378
280-157766-10	W-6B	Dissolved	Water	6020A	342378
280-157766-11	W-7	Dissolved	Water	6020A	342378
280-157766-14	W-11	Dissolved	Water	6020A	342378
280-157766-1 MS	W-1	Dissolved	Water	6020A	342378
280-157766-1 MSD	W-1	Dissolved	Water	6020A	342378

Analysis Batch: 342837

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-1	W-1	Dissolved	Water	6010C	342377
280-157766-10	W-6B	Dissolved	Water	6010C	342377
280-157766-11	W-7	Dissolved	Water	6010C	342377
280-157766-14	W-11	Dissolved	Water	6010C	342377
280-157766-1 MS	W-1	Dissolved	Water	6010C	342377
280-157766-1 MSD	W-1	Dissolved	Water	6010C	342377

Prep Batch: 342875

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-1	W-1	Dissolved	Water	7470A	342161
280-157766-10	W-6B	Dissolved	Water	7470A	342161
280-157766-11	W-7	Dissolved	Water	7470A	342161
280-157766-14	W-11	Dissolved	Water	7470A	342161
MB 310-342161/1-B	Method Blank	Dissolved	Water	7470A	342161
LCS 310-342161/2-B	Lab Control Sample	Dissolved	Water	7470A	342161
280-157766-1 MS	W-1	Dissolved	Water	7470A	342161

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Metals (Continued)

Prep Batch: 342875 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-1 MSD	W-1	Dissolved	Water	7470A	342161

Analysis Batch: 343025

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-1	W-1	Dissolved	Water	7470A	342875
280-157766-10	W-6B	Dissolved	Water	7470A	342875
280-157766-11	W-7	Dissolved	Water	7470A	342875
280-157766-14	W-11	Dissolved	Water	7470A	342875
MB 310-342161/1-B	Method Blank	Dissolved	Water	7470A	342875
LCS 310-342161/2-B	Lab Control Sample	Dissolved	Water	7470A	342875
280-157766-1 MS	W-1	Dissolved	Water	7470A	342875
280-157766-1 MSD	W-1	Dissolved	Water	7470A	342875

Prep Batch: 343780

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-1	W-1	Total/NA	Water	7470A	
280-157766-2	W-2A	Total/NA	Water	7470A	
280-157766-3	W-2C	Total/NA	Water	7470A	
280-157766-4	W-3	Total/NA	Water	7470A	
280-157766-5	W-3B	Total/NA	Water	7470A	
280-157766-6	W-3D	Total/NA	Water	7470A	
280-157766-7	W-5	Total/NA	Water	7470A	
280-157766-8	W-5B	Total/NA	Water	7470A	
280-157766-9	W-6	Total/NA	Water	7470A	
280-157766-10	W-6B	Total/NA	Water	7470A	
280-157766-11	W-7	Total/NA	Water	7470A	
280-157766-12	W-9	Total/NA	Water	7470A	
MB 310-343780/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-343780/2-A	Lab Control Sample	Total/NA	Water	7470A	

Prep Batch: 343781

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-13	W-7EB	Total/NA	Water	7470A	
280-157766-14	W-11	Total/NA	Water	7470A	
280-157766-15	W-12	Total/NA	Water	7470A	
280-157766-16	MW-7	Total/NA	Water	7470A	
MB 310-343781/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-343781/2-A	Lab Control Sample	Total/NA	Water	7470A	
280-157766-13 MS	W-7EB	Total/NA	Water	7470A	
280-157766-13 MSD	W-7EB	Total/NA	Water	7470A	

Analysis Batch: 343935

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-1	W-1	Total/NA	Water	7470A	343780
280-157766-2	W-2A	Total/NA	Water	7470A	343780
280-157766-3	W-2C	Total/NA	Water	7470A	343780
280-157766-4	W-3	Total/NA	Water	7470A	343780
280-157766-5	W-3B	Total/NA	Water	7470A	343780
280-157766-6	W-3D	Total/NA	Water	7470A	343780
280-157766-7	W-5	Total/NA	Water	7470A	343780
280-157766-8	W-5B	Total/NA	Water	7470A	343780

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Metals (Continued)

Analysis Batch: 343935 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-9	W-6	Total/NA	Water	7470A	343780
280-157766-10	W-6B	Total/NA	Water	7470A	343780
280-157766-11	W-7	Total/NA	Water	7470A	343780
280-157766-12	W-9	Total/NA	Water	7470A	343780
280-157766-13	W-7EB	Total/NA	Water	7470A	343781
280-157766-14	W-11	Total/NA	Water	7470A	343781
280-157766-15	W-12	Total/NA	Water	7470A	343781
280-157766-16	MW-7	Total/NA	Water	7470A	343781
MB 310-343780/1-A	Method Blank	Total/NA	Water	7470A	343780
MB 310-343781/1-A	Method Blank	Total/NA	Water	7470A	343781
LCS 310-343780/2-A	Lab Control Sample	Total/NA	Water	7470A	343780
LCS 310-343781/2-A	Lab Control Sample	Total/NA	Water	7470A	343781
280-157766-13 MS	W-7EB	Total/NA	Water	7470A	343781
280-157766-13 MSD	W-7EB	Total/NA	Water	7470A	343781

General Chemistry

Analysis Batch: 563500

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-2	W-2A	Total/NA	Water	SM 2540C	
280-157766-3	W-2C	Total/NA	Water	SM 2540C	
280-157766-4	W-3	Total/NA	Water	SM 2540C	
280-157766-5	W-3B	Total/NA	Water	SM 2540C	
280-157766-7	W-5	Total/NA	Water	SM 2540C	
280-157766-9	W-6	Total/NA	Water	SM 2540C	
280-157766-10	W-6B	Total/NA	Water	SM 2540C	
280-157766-11	W-7	Total/NA	Water	SM 2540C	
280-157766-12	W-9	Total/NA	Water	SM 2540C	
280-157766-13	W-7EB	Total/NA	Water	SM 2540C	
280-157766-14	W-11	Total/NA	Water	SM 2540C	
280-157766-15	W-12	Total/NA	Water	SM 2540C	
MB 280-563500/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-563500/2	Lab Control Sample	Total/NA	Water	SM 2540C	
280-157766-4 DU	W-3	Total/NA	Water	SM 2540C	

Analysis Batch: 563511

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-7	W-5	Total/NA	Water	SM 2540D	
280-157766-9	W-6	Total/NA	Water	SM 2540D	
MB 280-563511/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-563511/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-563511/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 563512

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-2	W-2A	Total/NA	Water	SM 2540D	
280-157766-3	W-2C	Total/NA	Water	SM 2540D	
280-157766-4	W-3	Total/NA	Water	SM 2540D	
280-157766-5	W-3B	Total/NA	Water	SM 2540D	
280-157766-6	W-3D	Total/NA	Water	SM 2540D	
280-157766-11	W-7	Total/NA	Water	SM 2540D	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

General Chemistry (Continued)

Analysis Batch: 563512 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-13	W-7EB	Total/NA	Water	SM 2540D	
280-157766-14	W-11	Total/NA	Water	SM 2540D	
280-157766-15	W-12	Total/NA	Water	SM 2540D	
MB 280-563512/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-563512/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-563512/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 563583

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-1	W-1	Total/NA	Water	SM 2540C	
280-157766-8	W-5B	Total/NA	Water	SM 2540C	
MB 280-563583/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-563583/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-563583/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 563589

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-1	W-1	Total/NA	Water	SM 2540D	
MB 280-563589/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-563589/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-563589/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 563757

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-8	W-5B	Total/NA	Water	SM 2540D	
280-157766-10	W-6B	Total/NA	Water	SM 2540D	
280-157766-12	W-9	Total/NA	Water	SM 2540D	
280-157766-16	MW-7	Total/NA	Water	SM 2540D	
MB 280-563757/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-563757/2	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 564003

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-1	W-1	Total/NA	Water	9040B	
280-157766-2	W-2A	Total/NA	Water	9040B	
280-157766-3	W-2C	Total/NA	Water	9040B	
280-157766-4	W-3	Total/NA	Water	9040B	
280-157766-5	W-3B	Total/NA	Water	9040B	
280-157766-6	W-3D	Total/NA	Water	9040B	
280-157766-7	W-5	Total/NA	Water	9040B	
280-157766-8	W-5B	Total/NA	Water	9040B	
280-157766-9	W-6	Total/NA	Water	9040B	
280-157766-10	W-6B	Total/NA	Water	9040B	
280-157766-11	W-7	Total/NA	Water	9040B	
280-157766-12	W-9	Total/NA	Water	9040B	
280-157766-14	W-11	Total/NA	Water	9040B	
280-157766-15	W-12	Total/NA	Water	9040B	
280-157766-16	MW-7	Total/NA	Water	9040B	
LCS 280-564003/27	Lab Control Sample	Total/NA	Water	9040B	
LCS 280-564003/50	Lab Control Sample	Total/NA	Water	9040B	
280-157766-2 DU	W-2A	Total/NA	Water	9040B	

Eurofins Denver

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

General Chemistry

Analysis Batch: 564006

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-16	MW-7	Total/NA	Water	SM 2540C	
MB 280-564006/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-564006/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-564006/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 564264

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-13	W-7EB	Total/NA	Water	9040B	
LCS 280-564264/4	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 564302

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-6	W-3D	Total/NA	Water	SM 2540C	
MB 280-564302/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-564302/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-564302/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 565344

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-1	W-1	Total/NA	Water	9056A	
280-157766-1	W-1	Total/NA	Water	9056A	
280-157766-2	W-2A	Total/NA	Water	9056A	
280-157766-2	W-2A	Total/NA	Water	9056A	
280-157766-3	W-2C	Total/NA	Water	9056A	
280-157766-4	W-3	Total/NA	Water	9056A	
280-157766-5	W-3B	Total/NA	Water	9056A	
280-157766-6	W-3D	Total/NA	Water	9056A	
280-157766-6	W-3D	Total/NA	Water	9056A	
280-157766-7	W-5	Total/NA	Water	9056A	
280-157766-7	W-5	Total/NA	Water	9056A	
280-157766-8	W-5B	Total/NA	Water	9056A	
280-157766-8	W-5B	Total/NA	Water	9056A	
280-157766-9	W-6	Total/NA	Water	9056A	
280-157766-9	W-6	Total/NA	Water	9056A	
280-157766-9	W-6	Total/NA	Water	9056A	
280-157766-10	W-6B	Total/NA	Water	9056A	
280-157766-11	W-7	Total/NA	Water	9056A	
280-157766-12	W-9	Total/NA	Water	9056A	
280-157766-12	W-9	Total/NA	Water	9056A	
280-157766-13	W-7EB	Total/NA	Water	9056A	
280-157766-14	W-11	Total/NA	Water	9056A	
280-157766-14	W-11	Total/NA	Water	9056A	
280-157766-15	W-12	Total/NA	Water	9056A	
280-157766-15	W-12	Total/NA	Water	9056A	
280-157766-16	MW-7	Total/NA	Water	9056A	
280-157766-16	MW-7	Total/NA	Water	9056A	
MB 280-565344/6	Method Blank	Total/NA	Water	9056A	
LCS 280-565344/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-565344/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-565344/3	Lab Control Sample	Total/NA	Water	9056A	
280-157766-4 MS	W-3	Total/NA	Water	9056A	

Eurofins Denver

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

General Chemistry (Continued)

Analysis Batch: 565344 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-4 MSD	W-3	Total/NA	Water	9056A	
280-157766-6 MS	W-3D	Total/NA	Water	9056A	
280-157766-6 MS	W-3D	Total/NA	Water	9056A	
280-157766-6 MSD	W-3D	Total/NA	Water	9056A	
280-157766-6 MSD	W-3D	Total/NA	Water	9056A	
280-157766-4 DU	W-3	Total/NA	Water	9056A	
280-157766-6 DU	W-3D	Total/NA	Water	9056A	
280-157766-6 DU	W-3D	Total/NA	Water	9056A	

Analysis Batch: 565432

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-3	W-2C	Total/NA	Water	9056A	
280-157766-4	W-3	Total/NA	Water	9056A	
280-157766-11	W-7	Total/NA	Water	9056A	
MB 280-565432/6	Method Blank	Total/NA	Water	9056A	
LCS 280-565432/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-565432/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-565432/3	Lab Control Sample	Total/NA	Water	9056A	
280-157766-4 MS	W-3	Total/NA	Water	9056A	
280-157766-4 MSD	W-3	Total/NA	Water	9056A	
280-157766-6 MS	W-3D	Total/NA	Water	9056A	
280-157766-6 MSD	W-3D	Total/NA	Water	9056A	
280-157766-4 DU	W-3	Total/NA	Water	9056A	
280-157766-6 DU	W-3D	Total/NA	Water	9056A	

Analysis Batch: 565611

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-1	W-1	Total/NA	Water	9056A	
280-157766-2	W-2A	Total/NA	Water	9056A	
MB 280-565611/13	Method Blank	Total/NA	Water	9056A	
LCS 280-565611/11	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-565611/12	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-565611/10	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 565895

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-3	W-2C	Total/NA	Water	9056A	
280-157766-5	W-3B	Total/NA	Water	9056A	
280-157766-6	W-3D	Total/NA	Water	9056A	
280-157766-8	W-5B	Total/NA	Water	9056A	
280-157766-10	W-6B	Total/NA	Water	9056A	
280-157766-11	W-7	Total/NA	Water	9056A	
280-157766-12	W-9	Total/NA	Water	9056A	
280-157766-14	W-11	Total/NA	Water	9056A	
280-157766-15	W-12	Total/NA	Water	9056A	
280-157766-16	MW-7	Total/NA	Water	9056A	
MB 280-565895/6	Method Blank	Total/NA	Water	9056A	
LCS 280-565895/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-565895/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-565895/3	Lab Control Sample	Total/NA	Water	9056A	
280-157766-6 MS	W-3D	Total/NA	Water	9056A	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

General Chemistry (Continued)

Analysis Batch: 565895 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-6 MSD	W-3D	Total/NA	Water	9056A	
280-157766-6 DU	W-3D	Total/NA	Water	9056A	

Rad

Prep Batch: 547780

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-1	W-1	Total/NA	Water	PrecSep-21	
280-157766-2	W-2A	Total/NA	Water	PrecSep-21	
280-157766-3	W-2C	Total/NA	Water	PrecSep-21	
280-157766-4	W-3	Total/NA	Water	PrecSep-21	
280-157766-5	W-3B	Total/NA	Water	PrecSep-21	
280-157766-6	W-3D	Total/NA	Water	PrecSep-21	
280-157766-7	W-5	Total/NA	Water	PrecSep-21	
280-157766-8	W-5B	Total/NA	Water	PrecSep-21	
280-157766-9	W-6	Total/NA	Water	PrecSep-21	
280-157766-10	W-6B	Total/NA	Water	PrecSep-21	
280-157766-11	W-7	Total/NA	Water	PrecSep-21	
280-157766-12	W-9	Total/NA	Water	PrecSep-21	
280-157766-13	W-7EB	Total/NA	Water	PrecSep-21	
280-157766-14	W-11	Total/NA	Water	PrecSep-21	
280-157766-15	W-12	Total/NA	Water	PrecSep-21	
280-157766-16	MW-7	Total/NA	Water	PrecSep-21	
MB 160-547780/21-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-547780/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-547780/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 547782

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-157766-1	W-1	Total/NA	Water	PrecSep_0	
280-157766-2	W-2A	Total/NA	Water	PrecSep_0	
280-157766-3	W-2C	Total/NA	Water	PrecSep_0	
280-157766-4	W-3	Total/NA	Water	PrecSep_0	
280-157766-5	W-3B	Total/NA	Water	PrecSep_0	
280-157766-6	W-3D	Total/NA	Water	PrecSep_0	
280-157766-7	W-5	Total/NA	Water	PrecSep_0	
280-157766-8	W-5B	Total/NA	Water	PrecSep_0	
280-157766-9	W-6	Total/NA	Water	PrecSep_0	
280-157766-10	W-6B	Total/NA	Water	PrecSep_0	
280-157766-11	W-7	Total/NA	Water	PrecSep_0	
280-157766-12	W-9	Total/NA	Water	PrecSep_0	
280-157766-13	W-7EB	Total/NA	Water	PrecSep_0	
280-157766-14	W-11	Total/NA	Water	PrecSep_0	
280-157766-15	W-12	Total/NA	Water	PrecSep_0	
280-157766-16	MW-7	Total/NA	Water	PrecSep_0	
MB 160-547782/21-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-547782/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-547782/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Client Sample ID: W-1

Date Collected: 01/14/22 12:00

Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	Filtration			50 mL	50 mL	342166	01/24/22 15:30	ACM2	TAL CF
Dissolved	Prep	3005A			50 mL	50 mL	342377	01/27/22 09:00	ACM2	TAL CF
Dissolved	Analysis	6010C		25			342837	01/31/22 15:43	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	341917	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6010C		15			342271	01/24/22 14:24	CTB	TAL CF
Dissolved	Filtration	Filtration			50 mL	50 mL	342185	01/24/22 15:30	ACM2	TAL CF
Dissolved	Prep	3005A			50 mL	50 mL	342378	01/27/22 09:00	ACM2	TAL CF
Dissolved	Analysis	6020A		1			342597	01/28/22 04:55	SAP	TAL CF
Dissolved	Filtration	Filtration			50 mL	50 mL	342185	01/24/22 15:30	ACM2	TAL CF
Dissolved	Prep	3005A			50 mL	50 mL	342378	01/27/22 09:00	ACM2	TAL CF
Dissolved	Analysis	6020A		10			342711	01/28/22 15:29	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	341916	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6020A		4			342359	01/25/22 18:43	SAP	TAL CF
Dissolved	Filtration	Filtration			30 mL	30 mL	342161	01/24/22 15:30	ACM2	TAL CF
Dissolved	Prep	7470A			30 mL	40 mL	342875	02/01/22 14:59	EAM	TAL CF
Dissolved	Analysis	7470A		1			343025	02/02/22 15:49	EAM	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	343780	02/11/22 11:45	EAM	TAL CF
Total/NA	Analysis	7470A		1			343935	02/14/22 15:21	EAM	TAL CF
Total/NA	Analysis	9040B		1			564003	01/20/22 17:08	ECC	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	565344	02/07/22 20:30	CJ	TAL DEN
Total/NA	Analysis	9056A		500	5 mL	5 mL	565344	02/07/22 20:46	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	565611	02/09/22 20:08	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	563583	01/18/22 07:52	ABW	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	563589	01/18/22 08:09	ABW	TAL DEN
Total/NA	Prep	PrecSep-21			749.82 mL	1.0 g	547780	01/24/22 10:19	LPS	TAL SL
Total/NA	Analysis	9315		1			550630	02/15/22 08:02	FLC	TAL SL
Total/NA	Prep	PrecSep_0			749.82 mL	1.0 g	547782	01/24/22 10:50	LPS	TAL SL
Total/NA	Analysis	9320		1			549823	02/09/22 13:52	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			550678	02/15/22 17:25	EMH	TAL SL

Client Sample ID: W-2A

Date Collected: 01/12/22 14:15

Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	341917	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6010C		40			342271	01/24/22 14:34	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	341916	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6020A		7			342359	01/25/22 18:48	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	341916	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			342470	01/26/22 16:38	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	343780	02/11/22 11:45	EAM	TAL CF
Total/NA	Analysis	7470A		1			343935	02/14/22 15:23	EAM	TAL CF
Total/NA	Analysis	9040B		1			564003	01/20/22 16:52	ECC	TAL DEN

Eurofins Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Client Sample ID: W-2A

Date Collected: 01/12/22 14:15

Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1	5 mL	5 mL	565344	02/07/22 21:36	CJ	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	565344	02/07/22 21:52	CJ	TAL DEN
Total/NA	Analysis	9056A		500	5 mL	5 mL	565611	02/09/22 20:24	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	563500	01/17/22 10:03	ABW	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	563512	01/17/22 10:29	ABW	TAL DEN
Total/NA	Prep	PrecSep-21			500.20 mL	1.0 g	547780	01/24/22 10:19	LPS	TAL SL
Total/NA	Analysis	9315		1			550630	02/15/22 08:02	FLC	TAL SL
Total/NA	Prep	PrecSep_0			500.20 mL	1.0 g	547782	01/24/22 10:50	LPS	TAL SL
Total/NA	Analysis	9320		1			549823	02/09/22 13:52	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			550678	02/15/22 17:25	EMH	TAL SL

Client Sample ID: W-2C

Date Collected: 01/12/22 15:50

Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	341917	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6010C		40			342271	01/24/22 14:36	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	341916	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6020A		7			342359	01/25/22 18:52	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	341916	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			342470	01/26/22 16:41	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	343780	02/11/22 11:45	EAM	TAL CF
Total/NA	Analysis	7470A		1			343935	02/14/22 15:25	EAM	TAL CF
Total/NA	Analysis	9040B		1			564003	01/20/22 17:00	ECC	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	565344	02/07/22 22:41	CJ	TAL DEN
Total/NA	Analysis	9056A		500	10 mL	10 mL	565432	02/08/22 19:29	CJ	TAL DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	565895	02/12/22 17:03	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	563500	01/17/22 10:03	ABW	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	563512	01/17/22 10:29	ABW	TAL DEN
Total/NA	Prep	PrecSep-21			500.63 mL	1.0 g	547780	01/24/22 10:19	LPS	TAL SL
Total/NA	Analysis	9315		1			550630	02/15/22 08:02	FLC	TAL SL
Total/NA	Prep	PrecSep_0			500.63 mL	1.0 g	547782	01/24/22 10:50	LPS	TAL SL
Total/NA	Analysis	9320		1			549823	02/09/22 13:52	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			550678	02/15/22 17:25	EMH	TAL SL

Client Sample ID: W-3

Date Collected: 01/13/22 14:25

Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	341917	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6010C		1			342271	01/24/22 13:52	CTB	TAL CF

Eurofins Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Client Sample ID: W-3

Date Collected: 01/13/22 14:25

Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	341916	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6020A		4			342359	01/25/22 18:56	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	343780	02/11/22 11:45	EAM	TAL CF
Total/NA	Analysis	7470A		1			343935	02/14/22 15:27	EAM	TAL CF
Total/NA	Analysis	9040B		1			564003	01/20/22 17:04	ECC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	565344	02/07/22 16:55	CJ	TAL DEN
Total/NA	Analysis	9056A		10	10 mL	10 mL	565432	02/08/22 16:28	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	563500	01/17/22 10:03	ABW	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	563512	01/17/22 10:29	ABW	TAL DEN
Total/NA	Prep	PrecSep-21			750.56 mL	1.0 g	547780	01/24/22 10:19	LPS	TAL SL
Total/NA	Analysis	9315		1			550630	02/15/22 08:03	FLC	TAL SL
Total/NA	Prep	PrecSep_0			750.56 mL	1.0 g	547782	01/24/22 10:50	LPS	TAL SL
Total/NA	Analysis	9320		1			549823	02/09/22 13:52	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			550678	02/15/22 17:25	EMH	TAL SL

Client Sample ID: W-3B

Date Collected: 01/13/22 16:45

Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	341917	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6010C		40			342271	01/24/22 14:42	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	341916	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6020A		4			342359	01/25/22 19:00	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	341916	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6020A		7			342470	01/26/22 16:45	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	343780	02/11/22 11:45	EAM	TAL CF
Total/NA	Analysis	7470A		1			343935	02/14/22 15:29	EAM	TAL CF
Total/NA	Analysis	9040B		1			564003	01/20/22 17:12	ECC	TAL DEN
Total/NA	Analysis	9056A		1000	5 mL	5 mL	565344	02/07/22 23:47	CJ	TAL DEN
Total/NA	Analysis	9056A		10	10 mL	10 mL	565895	02/12/22 19:03	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	563500	01/17/22 10:03	ABW	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	563512	01/17/22 10:29	ABW	TAL DEN
Total/NA	Prep	PrecSep-21			500.39 mL	1.0 g	547780	01/24/22 10:19	LPS	TAL SL
Total/NA	Analysis	9315		1			550630	02/15/22 08:04	FLC	TAL SL
Total/NA	Prep	PrecSep_0			500.39 mL	1.0 g	547782	01/24/22 10:50	LPS	TAL SL
Total/NA	Analysis	9320		1			549823	02/09/22 13:52	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			550678	02/15/22 17:25	EMH	TAL SL

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Client Sample ID: W-3D

Date Collected: 01/13/22 14:25

Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	341917	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6010C		1			342271	01/24/22 13:56	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	341916	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6020A		4			342359	01/25/22 19:05	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	341916	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6020A		7			342470	01/26/22 17:01	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	343780	02/11/22 11:45	EAM	TAL CF
Total/NA	Analysis	7470A		1			343935	02/14/22 15:32	EAM	TAL CF
Total/NA	Analysis	9040B		1			564003	01/20/22 17:15	ECC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	565344	02/08/22 00:36	CJ	TAL DEN
Total/NA	Analysis	9056A		100	5 mL	5 mL	565344	02/08/22 01:42	CJ	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	565895	02/12/22 15:33	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	564302	01/25/22 12:10	ABW	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	563512	01/17/22 10:29	ABW	TAL DEN
Total/NA	Prep	PrecSep-21			750.19 mL	1.0 g	547780	01/24/22 10:19	LPS	TAL SL
Total/NA	Analysis	9315		1			550630	02/15/22 08:04	FLC	TAL SL
Total/NA	Prep	PrecSep_0			750.19 mL	1.0 g	547782	01/24/22 10:50	LPS	TAL SL
Total/NA	Analysis	9320		1			549823	02/09/22 13:53	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			550678	02/15/22 17:25	EMH	TAL SL

Client Sample ID: W-5

Date Collected: 01/10/22 16:35

Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	341917	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6010C		15			342271	01/24/22 14:44	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	341916	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6020A		4			342359	01/25/22 19:09	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	341916	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6020A		7			342470	01/26/22 17:04	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	343780	02/11/22 11:45	EAM	TAL CF
Total/NA	Analysis	7470A		1			343935	02/14/22 15:38	EAM	TAL CF
Total/NA	Analysis	9040B		1			564003	01/20/22 17:19	ECC	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	565344	02/07/22 15:32	CJ	TAL DEN
Total/NA	Analysis	9056A		500	5 mL	5 mL	565344	02/07/22 15:49	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	563500	01/17/22 10:03	ABW	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	563511	01/17/22 10:28	ABW	TAL DEN
Total/NA	Prep	PrecSep-21			750.36 mL	1.0 g	547780	01/24/22 10:19	LPS	TAL SL
Total/NA	Analysis	9315		1			550630	02/15/22 08:04	FLC	TAL SL
Total/NA	Prep	PrecSep_0			750.36 mL	1.0 g	547782	01/24/22 10:50	LPS	TAL SL
Total/NA	Analysis	9320		1			549823	02/09/22 13:53	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			550678	02/15/22 17:25	EMH	TAL SL

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Client Sample ID: W-5B

Date Collected: 01/14/22 09:00

Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	341917	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6010C		2			342271	01/24/22 14:46	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	341916	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6020A		4			342359	01/25/22 19:13	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	341916	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6020A		7			342470	01/26/22 17:07	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	343780	02/11/22 11:45	EAM	TAL CF
Total/NA	Analysis	7470A		1			343935	02/14/22 15:40	EAM	TAL CF
Total/NA	Analysis	9040B		1			564003	01/20/22 17:36	ECC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	565344	02/08/22 02:47	CJ	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	565344	02/08/22 03:04	CJ	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	565895	02/12/22 16:33	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	563583	01/18/22 07:52	ABW	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	563757	01/19/22 08:21	ABW	TAL DEN
Total/NA	Prep	PrecSep-21			750.24 mL	1.0 g	547780	01/24/22 10:19	LPS	TAL SL
Total/NA	Analysis	9315		1			550630	02/15/22 08:04	FLC	TAL SL
Total/NA	Prep	PrecSep_0			750.24 mL	1.0 g	547782	01/24/22 10:50	LPS	TAL SL
Total/NA	Analysis	9320		1			549823	02/09/22 13:55	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			550678	02/15/22 17:25	EMH	TAL SL

Client Sample ID: W-6

Date Collected: 01/11/22 09:40

Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	341917	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6010C		3			342271	01/24/22 14:48	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	341916	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6020A		7			342359	01/25/22 19:34	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	343780	02/11/22 11:45	EAM	TAL CF
Total/NA	Analysis	7470A		1			343935	02/14/22 15:42	EAM	TAL CF
Total/NA	Analysis	9040B		1			564003	01/20/22 17:23	ECC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	565344	02/07/22 16:05	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	565344	02/07/22 16:22	CJ	TAL DEN
Total/NA	Analysis	9056A		200	5 mL	5 mL	565344	02/07/22 16:38	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	563500	01/17/22 10:03	ABW	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	563511	01/17/22 10:28	ABW	TAL DEN
Total/NA	Prep	PrecSep-21			500.52 mL	1.0 g	547780	01/24/22 10:19	LPS	TAL SL
Total/NA	Analysis	9315		1			550630	02/15/22 08:04	FLC	TAL SL
Total/NA	Prep	PrecSep_0			500.52 mL	1.0 g	547782	01/24/22 10:50	LPS	TAL SL
Total/NA	Analysis	9320		1			549823	02/09/22 13:53	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			550678	02/15/22 17:25	EMH	TAL SL

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Client Sample ID: W-6B

Date Collected: 01/11/22 14:35

Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	Filtration			50 mL	50 mL	342166	01/24/22 15:30	ACM2	TAL CF
Dissolved	Prep	3005A			50 mL	50 mL	342377	01/27/22 09:00	ACM2	TAL CF
Dissolved	Analysis	6010C		25			342837	01/31/22 15:52	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	341917	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6010C		40			342271	01/24/22 14:50	CTB	TAL CF
Dissolved	Filtration	Filtration			50 mL	50 mL	342185	01/24/22 15:30	ACM2	TAL CF
Dissolved	Prep	3005A			50 mL	50 mL	342378	01/27/22 09:00	ACM2	TAL CF
Dissolved	Analysis	6020A		10			342711	01/28/22 15:52	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	341916	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6020A		4			342359	01/25/22 19:42	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	341916	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6020A		7			342470	01/26/22 17:17	SAP	TAL CF
Dissolved	Filtration	Filtration			30 mL	30 mL	342161	01/24/22 15:30	ACM2	TAL CF
Dissolved	Prep	7470A			30 mL	40 mL	342875	02/01/22 14:59	EAM	TAL CF
Dissolved	Analysis	7470A		1			343025	02/02/22 15:55	EAM	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	343780	02/11/22 11:45	EAM	TAL CF
Total/NA	Analysis	7470A		1			343935	02/14/22 15:44	EAM	TAL CF
Total/NA	Analysis	9040B		1			564003	01/20/22 17:26	ECC	TAL DEN
Total/NA	Analysis	9056A		1000	5 mL	5 mL	565344	02/07/22 19:08	CJ	TAL DEN
Total/NA	Analysis	9056A		10	10 mL	10 mL	565895	02/12/22 20:48	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	563500	01/17/22 10:03	ABW	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	563757	01/19/22 08:21	ABW	TAL DEN
Total/NA	Prep	PrecSep-21			500.67 mL	1.0 g	547780	01/24/22 10:19	LPS	TAL SL
Total/NA	Analysis	9315		1			550630	02/15/22 08:05	FLC	TAL SL
Total/NA	Prep	PrecSep_0			500.67 mL	1.0 g	547782	01/24/22 10:50	LPS	TAL SL
Total/NA	Analysis	9320		1			549823	02/09/22 13:54	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			550678	02/15/22 17:25	EMH	TAL SL

Client Sample ID: W-7

Date Collected: 01/12/22 12:05

Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-11

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	Filtration			50 mL	50 mL	342166	01/24/22 15:30	ACM2	TAL CF
Dissolved	Prep	3005A			50 mL	50 mL	342377	01/27/22 09:00	ACM2	TAL CF
Dissolved	Analysis	6010C		25			342837	01/31/22 15:54	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	341917	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6010C		40			342271	01/24/22 14:52	CTB	TAL CF
Dissolved	Filtration	Filtration			50 mL	50 mL	342185	01/24/22 15:30	ACM2	TAL CF
Dissolved	Prep	3005A			50 mL	50 mL	342378	01/27/22 09:00	ACM2	TAL CF
Dissolved	Analysis	6020A		10			342711	01/28/22 15:55	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	341916	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6020A		7			342359	01/25/22 19:47	SAP	TAL CF

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Client Sample ID: W-7

Date Collected: 01/12/22 12:05

Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-11

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	341916	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			342470	01/26/22 17:20	SAP	TAL CF
Dissolved	Filtration	Filtration			30 mL	30 mL	342161	01/24/22 15:30	ACM2	TAL CF
Dissolved	Prep	7470A			30 mL	40 mL	342875	02/01/22 14:59	EAM	TAL CF
Dissolved	Analysis	7470A		1			343025	02/02/22 15:58	EAM	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	343780	02/11/22 11:45	EAM	TAL CF
Total/NA	Analysis	7470A		1			343935	02/14/22 15:46	EAM	TAL CF
Total/NA	Analysis	9040B		1			564003	01/20/22 17:32	ECC	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	565344	02/08/22 04:09	CJ	TAL DEN
Total/NA	Analysis	9056A		500	10 mL	10 mL	565432	02/08/22 22:59	CJ	TAL DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	565895	02/12/22 17:18	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	563500	01/17/22 10:03	ABW	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	563512	01/17/22 10:29	ABW	TAL DEN
Total/NA	Prep	PrecSep-21			500.54 mL	1.0 g	547780	01/24/22 10:19	LPS	TAL SL
Total/NA	Analysis	9315		1			550630	02/15/22 08:05	FLC	TAL SL
Total/NA	Prep	PrecSep_0			500.54 mL	1.0 g	547782	01/24/22 10:50	LPS	TAL SL
Total/NA	Analysis	9320		1			549823	02/09/22 13:54	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			550678	02/15/22 17:25	EMH	TAL SL

Client Sample ID: W-9

Date Collected: 01/11/22 16:20

Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-12

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	341917	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6010C		6			342271	01/24/22 14:55	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	341916	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6020A		4			342359	01/25/22 19:51	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	341916	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6020A		7			342470	01/26/22 17:24	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	343780	02/11/22 11:45	EAM	TAL CF
Total/NA	Analysis	7470A		1			343935	02/14/22 15:49	EAM	TAL CF
Total/NA	Analysis	9040B		1			564003	01/20/22 17:39	ECC	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	565344	02/07/22 19:41	CJ	TAL DEN
Total/NA	Analysis	9056A		100	5 mL	5 mL	565344	02/07/22 19:57	CJ	TAL DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	565895	02/12/22 17:33	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	563500	01/17/22 10:03	ABW	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	563757	01/19/22 08:21	ABW	TAL DEN
Total/NA	Prep	PrecSep-21			499.83 mL	1.0 g	547780	01/24/22 10:19	LPS	TAL SL
Total/NA	Analysis	9315		1			550630	02/15/22 08:01	FLC	TAL SL
Total/NA	Prep	PrecSep_0			499.83 mL	1.0 g	547782	01/24/22 10:50	LPS	TAL SL
Total/NA	Analysis	9320		1			549823	02/09/22 13:54	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			550678	02/15/22 17:25	EMH	TAL SL

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Client Sample ID: W-7EB

Date Collected: 01/12/22 12:55

Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-13

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	341917	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6010C		1			342271	01/24/22 14:16	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	341916	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6020A		1			342359	01/25/22 19:55	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	341916	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6020A		4			342599	01/27/22 17:43	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	343781	02/11/22 11:49	EAM	TAL CF
Total/NA	Analysis	7470A		1			343935	02/14/22 15:55	EAM	TAL CF
Total/NA	Analysis	9040B		1			564264	01/21/22 15:21	ECC	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	565344	02/08/22 06:54	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	563500	01/17/22 10:03	ABW	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	563512	01/17/22 10:29	ABW	TAL DEN
Total/NA	Prep	PrecSep-21			750.64 mL	1.0 g	547780	01/24/22 10:19	LPS	TAL SL
Total/NA	Analysis	9315		1			550630	02/15/22 08:01	FLC	TAL SL
Total/NA	Prep	PrecSep_0			750.64 mL	1.0 g	547782	01/24/22 10:50	LPS	TAL SL
Total/NA	Analysis	9320		1			549823	02/09/22 13:55	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			550678	02/15/22 17:25	EMH	TAL SL

Client Sample ID: W-11

Date Collected: 01/13/22 10:50

Date Received: 01/14/22 16:10

Lab Sample ID: 280-157766-14

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	Filtration			50 mL	50 mL	342166	01/24/22 15:30	ACM2	TAL CF
Dissolved	Prep	3005A			50 mL	50 mL	342377	01/27/22 09:00	ACM2	TAL CF
Dissolved	Analysis	6010C		25			342837	01/31/22 15:56	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	341917	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6010C		6			342271	01/24/22 14:57	CTB	TAL CF
Dissolved	Filtration	Filtration			50 mL	50 mL	342185	01/24/22 15:30	ACM2	TAL CF
Dissolved	Prep	3005A			50 mL	50 mL	342378	01/27/22 09:00	ACM2	TAL CF
Dissolved	Analysis	6020A		1			342597	01/28/22 05:21	SAP	TAL CF
Dissolved	Filtration	Filtration			50 mL	50 mL	342185	01/24/22 15:30	ACM2	TAL CF
Dissolved	Prep	3005A			50 mL	50 mL	342378	01/27/22 09:00	ACM2	TAL CF
Dissolved	Analysis	6020A		10			342711	01/28/22 15:58	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	341916	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6020A		7			342359	01/25/22 19:59	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	341916	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			342470	01/26/22 17:30	SAP	TAL CF
Dissolved	Filtration	Filtration			30 mL	30 mL	342161	01/24/22 15:30	ACM2	TAL CF
Dissolved	Prep	7470A			30 mL	40 mL	342875	02/01/22 14:59	EAM	TAL CF
Dissolved	Analysis	7470A		1			343025	02/02/22 16:00	EAM	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	343781	02/11/22 11:49	EAM	TAL CF
Total/NA	Analysis	7470A		1			343935	02/14/22 16:06	EAM	TAL CF
Total/NA	Analysis	9040B		1			564003	01/20/22 16:31	ECC	TAL DEN

Eurofins Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Client Sample ID: W-11

Lab Sample ID: 280-157766-14

Date Collected: 01/13/22 10:50

Matrix: Water

Date Received: 01/14/22 16:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		10	5 mL	5 mL	565344	02/08/22 04:59	CJ	TAL DEN
Total/NA	Analysis	9056A		1000	5 mL	5 mL	565344	02/08/22 05:15	CJ	TAL DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	565895	02/12/22 17:48	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	563500	01/17/22 10:03	ABW	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	563512	01/17/22 10:29	ABW	TAL DEN
Total/NA	Prep	PrecSep-21			500.49 mL	1.0 g	547780	01/24/22 10:19	LPS	TAL SL
Total/NA	Analysis	9315		1			550642	02/15/22 08:08	FLC	TAL SL
Total/NA	Prep	PrecSep_0			500.49 mL	1.0 g	547782	01/24/22 10:50	LPS	TAL SL
Total/NA	Analysis	9320		1			549823	02/09/22 13:56	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			550678	02/15/22 17:25	EMH	TAL SL

Client Sample ID: W-12

Lab Sample ID: 280-157766-15

Date Collected: 01/13/22 12:45

Matrix: Water

Date Received: 01/14/22 16:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	341917	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6010C		10			342271	01/25/22 09:38	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	341916	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6020A		4			342359	01/25/22 20:04	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	341916	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6020A		7			342470	01/26/22 17:46	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	343781	02/11/22 11:49	EAM	TAL CF
Total/NA	Analysis	7470A		1			343935	02/14/22 16:08	EAM	TAL CF
Total/NA	Analysis	9040B		1			564003	01/20/22 16:19	ECC	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	565344	02/08/22 05:48	CJ	TAL DEN
Total/NA	Analysis	9056A		200	5 mL	5 mL	565344	02/08/22 06:04	CJ	TAL DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	565895	02/12/22 18:33	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	563500	01/17/22 10:03	ABW	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	563512	01/17/22 10:29	ABW	TAL DEN
Total/NA	Prep	PrecSep-21			500.55 mL	1.0 g	547780	01/24/22 10:19	LPS	TAL SL
Total/NA	Analysis	9315		1			550642	02/15/22 08:08	FLC	TAL SL
Total/NA	Prep	PrecSep_0			500.55 mL	1.0 g	547782	01/24/22 10:50	LPS	TAL SL
Total/NA	Analysis	9320		1			549823	02/09/22 13:56	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			550678	02/15/22 17:25	EMH	TAL SL

Client Sample ID: MW-7

Lab Sample ID: 280-157766-16

Date Collected: 01/14/22 11:00

Matrix: Water

Date Received: 01/14/22 16:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	341917	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6010C		6			342271	01/24/22 15:07	CTB	TAL CF

Eurofins Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Client Sample ID: MW-7

Lab Sample ID: 280-157766-16

Date Collected: 01/14/22 11:00

Matrix: Water

Date Received: 01/14/22 16:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	341916	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6020A		4			342359	01/25/22 20:08	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	341916	01/21/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6020A		7			342470	01/26/22 17:50	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	343781	02/11/22 11:49	EAM	TAL CF
Total/NA	Analysis	7470A		1			343935	02/14/22 16:10	EAM	TAL CF
Total/NA	Analysis	9040B		1			564003	01/20/22 16:42	ECC	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	565344	02/08/22 12:08	CJ	TAL DEN
Total/NA	Analysis	9056A		100	5 mL	5 mL	565344	02/08/22 12:24	CJ	TAL DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	565895	02/12/22 18:48	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	564006	01/21/22 09:31	ABW	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	563757	01/19/22 08:21	ABW	TAL DEN
Total/NA	Prep	PrecSep-21			500.19 mL	1.0 g	547780	01/24/22 10:19	LPS	TAL SL
Total/NA	Analysis	9315		1			550642	02/15/22 08:09	FLC	TAL SL
Total/NA	Prep	PrecSep_0			500.19 mL	1.0 g	547782	01/24/22 10:50	LPS	TAL SL
Total/NA	Analysis	9320		1			549823	02/09/22 13:56	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			550678	02/15/22 17:25	EMH	TAL SL

Laboratory References:

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

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

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

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Laboratory: Eurofins Denver

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

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-23
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
9040B		Water	Temperature

Laboratory: Eurofins Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Colorado	Petroleum Storage Tank Program	IA100001 (OR)	09-29-22
Georgia	State	IA100001 (OR)	09-29-22
Illinois	NELAP	200024	11-29-22
Iowa	State	007	12-01-21 *
Kansas	NELAP	E-10341	01-31-23
Minnesota	NELAP	019-999-319	12-31-22
Minnesota (Petrofund)	State	3349	04-06-23
North Dakota	State	R-186	09-29-22
Oregon	NELAP	IA100001	09-29-22

Laboratory: Eurofins St. Louis

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

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	04-17-22
ANAB	Dept. of Defense ELAP	L2305	04-05-22
ANAB	Dept. of Energy	L2305.01	04-05-22
ANAB	ISO/IEC 17025	L2305	04-05-22
Arizona	State	AZ0813	12-08-22
California	Los Angeles County Sanitation Districts	10259	06-30-22
California	State	2886	07-01-22
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-22
HI - RadChem Recognition	State	n/a	06-30-22
Illinois	NELAP	200023	11-30-22
Iowa	State	373	12-01-22
Kansas	NELAP	E-10236	10-31-22
Kentucky (DW)	State	KY90125	12-31-22
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-22
Louisiana	NELAP	04080	06-30-22
Louisiana (DW)	State	LA011	12-31-22
Maryland	State	310	09-30-22
MI - RadChem Recognition	State	9005	06-30-22
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-22
New Jersey	NELAP	MO002	06-30-22
New York	NELAP	11616	03-31-22
North Dakota	State	R-207	06-30-22
NRC	NRC	24-24817-01	12-31-22

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

Eurofins Denver

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Laboratory: Eurofins St. Louis (Continued)

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

Authority	Program	Identification Number	Expiration Date
Oklahoma	State	9997	03-17-22
Oregon	NELAP	4157	09-01-22
Pennsylvania	NELAP	68-00540	02-28-23
South Carolina	State	85002001	06-30-22
Texas	NELAP	T104704193	07-31-22
US Fish & Wildlife	US Federal Programs	058448	07-31-22
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	08-01-22
Virginia	NELAP	10310	06-14-22
Washington	State	C592	08-30-22
West Virginia DEP	State	381	10-31-22

Eurofins TestAmerica, Denver
4955 Yarrow Street
Anvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

eurofins | Environment Testing
America

Client Information

Client Contact:
Molly Reeves

Sampler: Tava Kent
Phone: 720 933 7496

Lab PIV:
Harrington, Danielle M
E-Mail:
Danielle.Harrington@Eurofinset.com

Carrier Tracking No(s):

COC No:
280-103098-29694.3
Page:
Page 1 of 2
Job #:

Company:
HDR Inc

Address:
9781 S. Meridian Blvd Suite 400

City:
Englewood

State, Zip:
CO, 80112

Phone:
734-263-7138(Tel)

Email:
Molly.Reeves@hdrinc.com

Project Name:
Xcel Energy GW COR Monitoring - Variant

Site: Colorado
Groundwater App III + App IV

Due Date Requested:

TAT Requested (days):

Standard

PO #:
DEN-018

WO #:

Project #:
28014376

SSOW#:

Analysis Requested

Field Filtered Sample (Yes or No)

Perform MS/MSD (Yes or No)

6010C, 6020A Total Metals - ETA Canton

2540C, 2540D TDS/IC Chloride, Fluoride, Sulfate/ pH/

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

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

Z - other (specify)

Special Instructions/Note:

APPT II

IV

IV

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IV

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IV

IV

Ver: 01/16/2019

Eurofins TestAmerica, Denver
4955 Yarrow Street
Anvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

eurofins | Environment Testing
America

Client Information

Client Contact:
Molly Reeves

Sampler: Tava Kent
Phone: 720 933 7496

Lab PIV:
Harrington, Danielle M
E-Mail:
Danielle.Harrington@Eurofinset.com

COC No:
280-103098-29694.3
Page:
1 of 2
Job #:

Company:
HDR Inc

Address:
9781 S. Meridian Blvd Suite 400

City:
Englewood

State, Zip:
CO, 80112

Phone:
734-263-7138(Tel)

Email:
Molly.Reeves@hdrinc.com

Project Name:
Xcel Energy GW COR Monitoring - Variant

Site: Colorado
Groundwater App III + App IV

Due Date Requested:

TAT Requested (days):

Standard

PO #:
DEN-018

WO #:

Project #:
28014376

SSOW#:

Analysis Requested

Field Filtered Sample (Yes or No)

Perform MS/MSD (Yes or No)

6010C, 6020A Total Metals - ETA Canton

2540C, 2540D TDS/IC Chloride, Fluoride, Sulfate/ pH/

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

9315, Ra226, 9320, Ra228, Ra226Ra228, GFC - ETA SL

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

Z - other (specify)

Special Instructions/Note:

280-157766 Chain of Custody

280-157766 Chain of Custody

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280-157766 Chain of Custody

280-157766 Chain of Custody

280-157766 Chain of Custody

Sample Identification

W-1

W-2A

W-2C

W-3

W-3B

W-3D

W-5

W-5B

W-6

W-6B

W-6B

W-6B

W-6B

W-6B

W-6B

W-6B

W-6B

W-6B

W-6B

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Sample Type

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Sample Date

01-14-22

01-12-22

01-12-22

01-13-22

01-13-22

01-13-22

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01-13-22

Sample Time

1200

1415

1550

1455

1645

1425

1635

0900

0940

1435

1435

1435

1435

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Field Filtered Sample (Yes or No)

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Perform MS/MSD (Yes or No)

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-157766-1

Login Number: 157766

List Number: 1

Creator: O'Hara, Jake F

List Source: Eurofins Denver

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

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-157766-1

Login Number: 157766

List Number: 3

Creator: Homolar, Dana J

List Source: Eurofins Cedar Falls

List Creation: 01/19/22 12:36 PM

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?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-157766-1

Login Number: 157766

List Number: 2

Creator: Worthington, Sierra M

List Source: Eurofins St. Louis

List Creation: 01/18/22 02:50 PM

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

Tracer/Carrier Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-157766-1

Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)					
Lab Sample ID	Client Sample ID	Ba (40-110)					
280-157766-1	W-1	96.7					
280-157766-2	W-2A	98.2					
280-157766-3	W-2C	98.5					
280-157766-4	W-3	92.2					
280-157766-5	W-3B	89.4					
280-157766-6	W-3D	94.4					
280-157766-7	W-5	79.5					
280-157766-8	W-5B	96.0					
280-157766-9	W-6	96.2					
280-157766-10	W-6B	92.7					
280-157766-11	W-7	96.5					
280-157766-12	W-9	101					
280-157766-13	W-7EB	88.4					
280-157766-14	W-11	97.7					
280-157766-15	W-12	83.3					
280-157766-16	MW-7	97.0					
LCS 160-547780/1-A	Lab Control Sample	97.5					
LCSD 160-547780/2-A	Lab Control Sample Dup	96.0					
MB 160-547780/21-A	Method Blank	95.2					
Tracer/Carrier Legend							
Ba = Ba Carrier							

Method: 9320 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)					
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)				
280-157766-1	W-1	96.7	81.5				
280-157766-2	W-2A	98.2	80.0				
280-157766-3	W-2C	98.5	80.4				
280-157766-4	W-3	92.2	81.5				
280-157766-5	W-3B	89.4	117 X				
280-157766-6	W-3D	94.4	116 X				
280-157766-7	W-5	79.5	81.1				
280-157766-8	W-5B	96.0	81.1				
280-157766-9	W-6	96.2	80.4				
280-157766-10	W-6B	92.7	81.9				
280-157766-11	W-7	96.5	81.1				
280-157766-12	W-9	101	82.2				
280-157766-13	W-7EB	88.4	82.6				
280-157766-14	W-11	97.7	83.4				
280-157766-15	W-12	83.3	82.2				
280-157766-16	MW-7	97.0	84.1				
LCS 160-547782/1-A	Lab Control Sample	97.5	83.7				
LCSD 160-547782/2-A	Lab Control Sample Dup	96.0	82.6				
MB 160-547782/21-A	Method Blank	95.2	83.0				
Tracer/Carrier Legend							
Ba = Ba Carrier							

Eurofins Denver

Tracer/Carrier Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche
Y = Y Carrier

Job ID: 280-157766-1

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ANALYTICAL REPORT

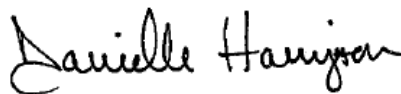
Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-159246-1

Client Project/Site: Xcel Energy GW CCR Monitoring -
Comanche

For:
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Attn: Molly Reeves



Authorized for release by:
4/5/2022 4:50:07 PM

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

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.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
E	Result exceeded calibration range.
F5	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL, and the absolute difference between results is < the upper reporting limits for both.
H	Sample was prepped or analyzed beyond the specified holding time
H3	Sample was received and analyzed past holding time.
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Job ID: 280-159246-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-159246-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 03/02/2022; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt were 0.1°C, 0.2°C, 0.3°C, 1.1°C, 2.2°C, 2.7°C and 3.7°C.

DISSOLVED METALS- Method 6010C/6020A

Sample W-11 (280-159246-17) required dilution prior to analysis. The reporting limits have been adjusted accordingly.

The accuracy and precision of the Calcium, Selenium, and Lithium MS/MSD performed on a sample W-11 could not be reliably evaluated, as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

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

TOTAL RECOVERABLE METALS- Method 6010C/6020A

Several samples required dilution prior to analysis. The reporting limits have been adjusted accordingly.

The accuracy and precision of the Calcium and Lithium MS/MSD performed on a sample MW-7 could not be reliably evaluated, as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The reference method requires samples to be preserved to a pH of <2. The following samples were received with insufficient preservation at a pH of >2: W-7 (280-159246-5) and W-3B (280-159246-6). The sample(s) was preserved additionally 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.

DISSOLVED MERCURY

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

TOTAL MERCURY

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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Job ID: 280-159246-1 (Continued)

Laboratory: Eurofins Denver (Continued)

GENERAL CHEMISTRY- VARIOUS

The analysis for Total Dissolved Solids by method 2540C and Total Suspended Solids by method 2540D for samples W-3B, W-3EB, W-3, W-3D, W-2C, and W-2A were performed outside of hold due to more than half of the hold time expiring during transit. It is Eurofins TestAmerica's policy to analyze all samples within holding time, but when samples are received with less than half the hold time remaining, this cannot be guaranteed. Please note that the sample results should be considered estimated.

Several samples required dilution prior to analysis for various methods. The reporting limits have been adjusted accordingly.

The Total Suspended Solids sample duplicate analysis data associated with QC batch 280-567918 exhibited RPD data outside the QC limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The Total Suspended Solids sample duplicate analysis data for sample MW-7 exhibited RPD data outside the QC limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The pH sample duplicate analysis data associated with QC batch 280-567782 exhibited RPD data outside the QC limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

Method 9056A_28D: The following samples has chromatographic interferences that could adversely impact the identification and quantitation of target analytes: W-3B (280-159246-6) and W-6B (280-159246-13). These interferences could cause false positive and/or false negative results.

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

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Client Sample ID: W-4

Lab Sample ID: 280-159246-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	2.2	J	4.0	1.1	mg/L	20		6010C	Total Recoverable
Barium	0.032		0.020	0.0088	mg/L	10		6020A	Total Recoverable
Cadmium	0.00064	J	0.0010	0.00055	mg/L	10		6020A	Total Recoverable
Calcium	350		5.0	1.9	mg/L	10		6020A	Total Recoverable
Cobalt	0.0049	J	0.0050	0.0019	mg/L	10		6020A	Total Recoverable
Lithium	1.7		0.10	0.025	mg/L	10		6020A	Total Recoverable
Molybdenum	0.098		0.020	0.012	mg/L	10		6020A	Total Recoverable
Selenium	0.022	J	0.050	0.0096	mg/L	10		6020A	Total Recoverable
pH adj. to 25 deg C	7.9	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.7	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	490		60	20	mg/L	20		9056A	Total/NA
Fluoride	4.8		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	35000		1000	210	mg/L	200		9056A	Total/NA
Total Dissolved Solids (TDS)	43000		1000	470	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-7

Lab Sample ID: 280-159246-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.76	J	1.0	0.28	mg/L	5		6010C	Total Recoverable
Barium	0.012	J	0.020	0.0088	mg/L	10		6020A	Total Recoverable
Cadmium	0.00063	J	0.0010	0.00055	mg/L	10		6020A	Total Recoverable
Calcium	530		5.0	1.9	mg/L	10		6020A	Total Recoverable
Cobalt	0.0077		0.0050	0.0019	mg/L	10		6020A	Total Recoverable
Lithium	1.6		0.10	0.025	mg/L	10		6020A	Total Recoverable
Selenium	0.47		0.050	0.0096	mg/L	10		6020A	Total Recoverable
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	290		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	0.32	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	6700		1000	210	mg/L	200		9056A	Total/NA
Alkalinity	690		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	690		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	13000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	5.2		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-12

Lab Sample ID: 280-159246-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.98	J	2.0	0.56	mg/L	10		6010C	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Client Sample ID: W-12 (Continued)

Lab Sample ID: 280-159246-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.019	J	0.020	0.0088	mg/L	10		6020A	Total
									Recoverable
Cadmium	0.0013		0.0010	0.00055	mg/L	10		6020A	Total
									Recoverable
Calcium	420		0.50	0.19	mg/L	1		6020A	Total
									Recoverable
Chromium	0.0020	J	0.0050	0.0011	mg/L	1		6020A	Total
									Recoverable
Cobalt	0.022		0.00050	0.00019	mg/L	1		6020A	Total
									Recoverable
Lithium	2.8		0.10	0.025	mg/L	10		6020A	Total
									Recoverable
Molybdenum	0.0039		0.0020	0.0012	mg/L	1		6020A	Total
									Recoverable
Selenium	0.043		0.0050	0.00096	mg/L	1		6020A	Total
									Recoverable
Thallium	0.0051	J	0.010	0.0026	mg/L	10		6020A	Total
									Recoverable
pH adj. to 25 deg C	7.1	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.1	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	860		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	0.43	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	16000		1000	210	mg/L	200		9056A	Total/NA
Alkalinity	1400		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	1400		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	25000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	14		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-9

Lab Sample ID: 280-159246-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.9		1.4	0.39	mg/L	7		6010C	Total
									Recoverable
Antimony	0.0076	J	0.020	0.0069	mg/L	10		6020A	Total
									Recoverable
Barium	0.021		0.0020	0.00088	mg/L	1		6020A	Total
									Recoverable
Calcium	450		0.50	0.19	mg/L	1		6020A	Total
									Recoverable
Cobalt	0.00084		0.00050	0.00019	mg/L	1		6020A	Total
									Recoverable
Lithium	1.2		0.10	0.025	mg/L	10		6020A	Total
									Recoverable
Molybdenum	0.0031		0.0020	0.0012	mg/L	1		6020A	Total
									Recoverable
Selenium	0.0037	J	0.0050	0.00096	mg/L	1		6020A	Total
									Recoverable
pH adj. to 25 deg C	7.3	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.4	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	400		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	0.61		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	11000		1000	210	mg/L	200		9056A	Total/NA
Alkalinity	640		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	640		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	18000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	3.2	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Client Sample ID: W-7

Lab Sample ID: 280-159246-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.016	J	0.020	0.0088	mg/L	10		6020A	Total
									Recoverable
Cadmium	0.0084		0.0010	0.00055	mg/L	10		6020A	Total
									Recoverable
Calcium	250		0.50	0.19	mg/L	1		6020A	Total
									Recoverable
Chromium	0.0018	J	0.0050	0.0011	mg/L	1		6020A	Total
									Recoverable
Cobalt	0.014		0.00050	0.00019	mg/L	1		6020A	Total
									Recoverable
Lithium	5.5		0.10	0.025	mg/L	10		6020A	Total
									Recoverable
Selenium	2.1		0.050	0.0096	mg/L	10		6020A	Total
									Recoverable
Thallium	0.0063	J	0.010	0.0026	mg/L	10		6020A	Total
									Recoverable
pH adj. to 25 deg C	6.9	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.9	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	740		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	1.1	J	2.5	0.83	mg/L	5		9056A	Total/NA
Sulfate	47000		5000	1000	mg/L	1000		9056A	Total/NA
Alkalinity	1000		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	1000		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	65000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	11		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-3B

Lab Sample ID: 280-159246-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.7	J	6.0	1.7	mg/L	30		6010C	Total
									Recoverable
Barium	0.013	J	0.020	0.0088	mg/L	10		6020A	Total
									Recoverable
Cadmium	0.023		0.0010	0.00055	mg/L	10		6020A	Total
									Recoverable
Calcium	210		0.50	0.19	mg/L	1		6020A	Total
									Recoverable
Cobalt	0.083		0.00050	0.00019	mg/L	1		6020A	Total
									Recoverable
Lithium	3.1		0.10	0.025	mg/L	10		6020A	Total
									Recoverable
Selenium	0.0047	J	0.0050	0.00096	mg/L	1		6020A	Total
									Recoverable
Thallium	0.0032	J	0.010	0.0026	mg/L	10		6020A	Total
									Recoverable
pH adj. to 25 deg C	6.7	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.4	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1100		30	10	mg/L	10		9056A	Total/NA
Sulfate	69000		2500	520	mg/L	500		9056A	Total/NA
Alkalinity	880		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	880		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Suspended Solids	4.0	H	4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Client Sample ID: W-3BEB

Lab Sample ID: 280-159246-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
pH adj. to 25 deg C	6.6	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.4	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1.1	J	3.0	1.0	mg/L	1		9056A	Total/NA

Client Sample ID: W-3

Lab Sample ID: 280-159246-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.0		0.20	0.056	mg/L	1		6010C	Total
Arsenic	0.0010	J	0.0020	0.00075	mg/L	1		6020A	Recoverable Total
Barium	0.049		0.0020	0.00088	mg/L	1		6020A	Recoverable Total
Calcium	440		0.50	0.19	mg/L	1		6020A	Recoverable Total
Cobalt	0.00028	J	0.00050	0.00019	mg/L	1		6020A	Recoverable Total
Lead	0.00024	J	0.00050	0.00024	mg/L	1		6020A	Recoverable Total
Lithium	0.078		0.040	0.010	mg/L	4		6020A	Recoverable Total
Molybdenum	0.022		0.0020	0.0012	mg/L	1		6020A	Recoverable Total
Selenium	0.020		0.0050	0.00096	mg/L	1		6020A	Recoverable Total
pH adj. to 25 deg C	7.7	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	42		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.90		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	1600		1000	210	mg/L	200		9056A	Total/NA
Alkalinity	210		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	210		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	1100	H	20	9.4	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	3.6	J H	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-3D

Lab Sample ID: 280-159246-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.0		0.20	0.056	mg/L	1		6010C	Total
Barium	0.049		0.0020	0.00088	mg/L	1		6020A	Recoverable Total
Calcium	300		2.0	0.76	mg/L	4		6020A	Recoverable Total
Lithium	0.059		0.040	0.010	mg/L	4		6020A	Recoverable Total
Molybdenum	0.013		0.0080	0.0048	mg/L	4		6020A	Recoverable Total
Selenium	0.015	J	0.020	0.0038	mg/L	4		6020A	Recoverable Total
pH adj. to 25 deg C	7.8	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.7	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	42		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.91		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	1700		50	10	mg/L	10		9056A	Total/NA
Alkalinity	210		10	3.1	mg/L	1		SM 2320B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Client Sample ID: W-3D (Continued)

Lab Sample ID: 280-159246-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Bicarbonate Alkalinity as CaCO3	210		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	15000	H	100	47	mg/L	1		SM 2540C	Total/NA

Client Sample ID: W-2C

Lab Sample ID: 280-159246-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.7	J	6.0	1.7	mg/L	30		6010C	Total Recoverable
Barium	0.015	J	0.020	0.0088	mg/L	10		6020A	Total Recoverable
Cadmium	0.0047		0.0010	0.00055	mg/L	10		6020A	Total Recoverable
Calcium	320		5.0	1.9	mg/L	10		6020A	Total Recoverable
Chromium	0.0015	J	0.0050	0.0011	mg/L	1		6020A	Total Recoverable
Cobalt	0.0033	J	0.0050	0.0019	mg/L	10		6020A	Total Recoverable
Lithium	4.6		0.10	0.025	mg/L	10		6020A	Total Recoverable
Selenium	2.8		0.050	0.0096	mg/L	10		6020A	Total Recoverable
Thallium	0.0040	J	0.010	0.0026	mg/L	10		6020A	Total Recoverable
pH adj. to 25 deg C	6.8	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	820		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	1.1	J	2.5	0.83	mg/L	5		9056A	Total/NA
Sulfate	53000		2500	520	mg/L	500		9056A	Total/NA
Alkalinity	660		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	660		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	65000	H	1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	47	H	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-2A

Lab Sample ID: 280-159246-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.9	J	6.0	1.7	mg/L	30		6010C	Total Recoverable
Barium	0.010	J	0.020	0.0088	mg/L	10		6020A	Total Recoverable
Cadmium	0.0047		0.0010	0.00055	mg/L	10		6020A	Total Recoverable
Calcium	310		5.0	1.9	mg/L	10		6020A	Total Recoverable
Cobalt	0.012		0.0050	0.0019	mg/L	10		6020A	Total Recoverable
Lithium	4.8		0.10	0.025	mg/L	10		6020A	Total Recoverable
Selenium	2.2		0.050	0.0096	mg/L	10		6020A	Total Recoverable
Thallium	0.0042	J	0.010	0.0026	mg/L	10		6020A	Total Recoverable
pH adj. to 25 deg C	6.8	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.7	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	850		15	5.1	mg/L	5		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Client Sample ID: W-2A (Continued)

Lab Sample ID: 280-159246-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoride	1.1	J	2.5	0.83	mg/L	5		9056A	Total/NA
Sulfate	55000		5000	1000	mg/L	1000		9056A	Total/NA
Alkalinity	700		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	700		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	74000	H H3	1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	23	H H3	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-6

Lab Sample ID: 280-159246-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	8.0		6.0	1.7	mg/L	30		6010C	Total Recoverable
Barium	0.033		0.020	0.0088	mg/L	10		6020A	Total Recoverable
Calcium	550		5.0	1.9	mg/L	10		6020A	Total Recoverable
Cobalt	0.0021	J	0.0050	0.0019	mg/L	10		6020A	Total Recoverable
Lithium	0.17		0.10	0.025	mg/L	10		6020A	Total Recoverable
Molybdenum	0.35		0.020	0.012	mg/L	10		6020A	Total Recoverable
Selenium	0.014	J	0.050	0.0096	mg/L	10		6020A	Total Recoverable
pH adj. to 25 deg C	7.7	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.7	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	180		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	1.8		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	4300		2500	520	mg/L	500		9056A	Total/NA
Alkalinity	670		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	670		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	9200		100	47	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	3.2	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-6B

Lab Sample ID: 280-159246-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.9	J	6.0	1.7	mg/L	30		6010C	Total Recoverable
Antimony	0.0073	J	0.020	0.0069	mg/L	10		6020A	Total Recoverable
Barium	0.017	J	0.020	0.0088	mg/L	10		6020A	Total Recoverable
Cadmium	0.012		0.0010	0.00055	mg/L	10		6020A	Total Recoverable
Calcium	290		5.0	1.9	mg/L	10		6020A	Total Recoverable
Cobalt	0.10		0.0050	0.0019	mg/L	10		6020A	Total Recoverable
Lithium	3.8		0.10	0.025	mg/L	10		6020A	Total Recoverable
Selenium	0.016	J	0.050	0.0096	mg/L	10		6020A	Total Recoverable
Thallium	0.0027	J	0.010	0.0026	mg/L	10		6020A	Total Recoverable
pH adj. to 25 deg C	6.8	HF	0.1	0.1	SU	1		9040B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Client Sample ID: W-6B (Continued)

Lab Sample ID: 280-159246-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Temperature	21.9	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1200		30	10	mg/L	10		9056A	Total/NA
Sulfate	53000		2500	520	mg/L	500		9056A	Total/NA
Alkalinity	870		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	870		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	72000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	14		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-5

Lab Sample ID: 280-159246-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	3.3	J	6.0	1.7	mg/L	30		6010C	Total Recoverable
Barium	0.023		0.020	0.0088	mg/L	10		6020A	Total Recoverable
Calcium	390		5.0	1.9	mg/L	10		6020A	Total Recoverable
Cobalt	0.0066		0.0050	0.0019	mg/L	10		6020A	Total Recoverable
Lithium	1.6		0.10	0.025	mg/L	10		6020A	Total Recoverable
Molybdenum	0.055		0.020	0.012	mg/L	10		6020A	Total Recoverable
Selenium	0.012	J	0.050	0.0096	mg/L	10		6020A	Total Recoverable
pH adj. to 25 deg C	7.3	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.5	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	800		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	6.4		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	33000		2500	520	mg/L	500		9056A	Total/NA
Alkalinity	590		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	590		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	41000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	27		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-5B

Lab Sample ID: 280-159246-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.018	J	0.020	0.0088	mg/L	10		6020A	Total Recoverable
Cadmium	0.00061	J	0.0010	0.00055	mg/L	10		6020A	Total Recoverable
Calcium	500		5.0	1.9	mg/L	10		6020A	Total Recoverable
Cobalt	0.0031	J	0.0050	0.0019	mg/L	10		6020A	Total Recoverable
Lithium	0.25		0.10	0.025	mg/L	10		6020A	Total Recoverable
pH adj. to 25 deg C	7.4	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.4	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	97		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.39	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	3200		500	100	mg/L	100		9056A	Total/NA
Alkalinity	190		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	190		10	3.1	mg/L	1		SM 2320B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Client Sample ID: W-5B (Continued)

Lab Sample ID: 280-159246-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Dissolved Solids (TDS)	4900		40	19	mg/L	1		SM 2540C	Total/NA

Client Sample ID: W-1

Lab Sample ID: 280-159246-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	3.6	J	6.0	1.7	mg/L	30		6010C	Total Recoverable
Barium	0.015	J	0.020	0.0088	mg/L	10		6020A	Total Recoverable
Calcium	360		5.0	1.9	mg/L	10		6020A	Total Recoverable
Lithium	2.5		0.10	0.025	mg/L	10		6020A	Total Recoverable
Molybdenum	0.018	J	0.020	0.012	mg/L	10		6020A	Total Recoverable
Selenium	0.79		0.050	0.0096	mg/L	10		6020A	Total Recoverable
pH adj. to 25 deg C	7.4	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.3	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	680		30	10	mg/L	10		9056A	Total/NA
Fluoride	2.7		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	31000		1000	210	mg/L	200		9056A	Total/NA
Alkalinity	680		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	680		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	38000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	3.6	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-11

Lab Sample ID: 280-159246-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.81	J	1.4	0.39	mg/L	7		6010C	Dissolved
Barium	0.019	J	0.020	0.0088	mg/L	10		6020A	Total Recoverable
Cadmium	0.0019		0.0010	0.00055	mg/L	10		6020A	Total Recoverable
Calcium	720		5.0	1.9	mg/L	10		6020A	Total Recoverable
Cobalt	0.023		0.0050	0.0019	mg/L	10		6020A	Total Recoverable
Lithium	4.5		0.10	0.025	mg/L	10		6020A	Total Recoverable
Selenium	3.1		0.050	0.0096	mg/L	10		6020A	Total Recoverable
Thallium	0.0047	J	0.010	0.0026	mg/L	10		6020A	Total Recoverable
Antimony	0.011		0.0080	0.0028	mg/L	4		6020A	Dissolved
Arsenic	0.0090		0.0080	0.0030	mg/L	4		6020A	Dissolved
Barium	0.012	J	0.020	0.0088	mg/L	10		6020A	Dissolved
Beryllium	0.0045		0.0040	0.0011	mg/L	4		6020A	Dissolved
Cadmium	0.0054		0.00040	0.00022	mg/L	4		6020A	Dissolved
Calcium	390		5.0	1.9	mg/L	10		6020A	Dissolved
Chromium	0.0053	J	0.020	0.0044	mg/L	4		6020A	Dissolved
Cobalt	0.020		0.0020	0.00076	mg/L	4		6020A	Dissolved
Lead	0.0079		0.0020	0.00096	mg/L	4		6020A	Dissolved
Lithium	2.9		0.10	0.025	mg/L	10		6020A	Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Client Sample ID: W-11 (Continued)

Lab Sample ID: 280-159246-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Molybdenum	0.016		0.0080	0.0048	mg/L	4		6020A	Dissolved
Selenium	2.0		0.050	0.0096	mg/L	10		6020A	Dissolved
Thallium	0.018		0.0040	0.0010	mg/L	4		6020A	Dissolved
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.4	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	330		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	0.40	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	13000		1000	210	mg/L	200		9056A	Total/NA
Alkalinity	1100		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	1100		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	23000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	18	H	4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Method Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL CF
6020A	Metals (ICP/MS)	SW846	TAL CF
7470A	Mercury (CVAA)	SW846	TAL CF
9040B	pH	SW846	TAL DEN
9056A	Anions, Ion Chromatography	SW846	TAL DEN
SM 2320B	Alkalinity	SM	TAL DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL DEN
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL CF
7470A	Preparation, Mercury	SW846	TAL CF
Filtration	Sample Filtration	None	TAL CF

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.

Laboratory References:

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

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

Sample Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-159246-1	W-4	Water	03/02/22 11:40	03/02/22 16:34
280-159246-2	MW-7	Water	03/02/22 09:45	03/02/22 16:34
280-159246-3	W-12	Water	03/01/22 16:30	03/02/22 16:34
280-159246-4	W-9	Water	03/01/22 13:40	03/02/22 16:34
280-159246-5	W-7	Water	03/01/22 11:30	03/02/22 16:34
280-159246-6	W-3B	Water	02/23/22 16:20	03/02/22 16:34
280-159246-7	W-3BEB	Water	02/23/22 16:40	03/02/22 16:34
280-159246-8	W-3	Water	02/23/22 12:45	03/02/22 16:34
280-159246-9	W-3D	Water	02/23/22 12:50	03/02/22 16:34
280-159246-10	W-2C	Water	02/23/22 10:20	03/02/22 16:34
280-159246-11	W-2A	Water	02/22/22 14:50	03/02/22 16:34
280-159246-12	W-6	Water	02/24/22 14:20	03/02/22 16:34
280-159246-13	W-6B	Water	02/24/22 12:40	03/02/22 16:34
280-159246-14	W-5	Water	02/24/22 16:25	03/02/22 16:34
280-159246-15	W-5B	Water	02/25/22 11:30	03/02/22 16:34
280-159246-16	W-1	Water	02/25/22 12:25	03/02/22 16:34
280-159246-17	W-11	Water	02/25/22 16:35	03/02/22 16:34

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Method: 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: W-4
Date Collected: 03/02/22 11:40
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	2.2	J	4.0	1.1	mg/L		03/17/22 09:00	03/18/22 11:03	20

Client Sample ID: MW-7
Date Collected: 03/02/22 09:45
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.76	J	1.0	0.28	mg/L		03/17/22 09:00	03/18/22 11:05	5

Client Sample ID: W-12
Date Collected: 03/01/22 16:30
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.98	J	2.0	0.56	mg/L		03/17/22 09:00	03/18/22 11:11	10

Client Sample ID: W-9
Date Collected: 03/01/22 13:40
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.9		1.4	0.39	mg/L		03/17/22 09:00	03/18/22 11:13	7

Client Sample ID: W-7
Date Collected: 03/01/22 11:30
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		6.0	1.7	mg/L		03/17/22 09:00	03/18/22 11:15	30

Client Sample ID: W-3B
Date Collected: 02/23/22 16:20
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.7	J	6.0	1.7	mg/L		03/17/22 09:00	03/18/22 11:17	30

Client Sample ID: W-3BEB
Date Collected: 02/23/22 16:40
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.20	0.056	mg/L		03/17/22 09:00	03/17/22 21:53	1

Client Sample ID: W-3
Date Collected: 02/23/22 12:45
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.0		0.20	0.056	mg/L		03/17/22 09:00	03/17/22 21:59	1

Client Sample ID: W-3D
Date Collected: 02/23/22 12:50
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.0		0.20	0.056	mg/L		03/17/22 09:00	03/17/22 22:01	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Method: 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: W-2C
Date Collected: 02/23/22 10:20
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.7	J	6.0	1.7	mg/L		03/17/22 09:00	03/18/22 11:18	30

Client Sample ID: W-2A
Date Collected: 02/22/22 14:50
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.9	J	6.0	1.7	mg/L		03/17/22 09:00	03/18/22 11:24	30

Client Sample ID: W-6
Date Collected: 02/24/22 14:20
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	8.0		6.0	1.7	mg/L		03/17/22 09:00	03/18/22 11:28	30

Client Sample ID: W-6B
Date Collected: 02/24/22 12:40
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.9	J	6.0	1.7	mg/L		03/17/22 09:00	03/18/22 11:30	30

Client Sample ID: W-5
Date Collected: 02/24/22 16:25
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	3.3	J	6.0	1.7	mg/L		03/17/22 09:00	03/18/22 11:32	30

Client Sample ID: W-5B
Date Collected: 02/25/22 11:30
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		6.0	1.7	mg/L		03/17/22 09:00	03/18/22 11:34	30

Client Sample ID: W-1
Date Collected: 02/25/22 12:25
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	3.6	J	6.0	1.7	mg/L		03/17/22 09:00	03/18/22 11:36	30

Client Sample ID: W-11
Date Collected: 02/25/22 16:35
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-17
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		6.0	1.7	mg/L		03/17/22 09:00	03/18/22 11:38	30

Method: 6010C - Metals (ICP) - Dissolved

Client Sample ID: W-11
Date Collected: 02/25/22 16:35
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-17
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.81	J	1.4	0.39	mg/L		03/14/22 09:00	03/17/22 19:15	7

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Client Sample ID: W-4
Date Collected: 03/02/22 11:40
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0069	mg/L		03/18/22 08:15	04/02/22 00:54	10
Arsenic	ND		0.020	0.0075	mg/L		03/18/22 08:15	04/02/22 00:54	10
Barium	0.032		0.020	0.0088	mg/L		03/18/22 08:15	04/02/22 00:54	10
Beryllium	ND		0.010	0.0027	mg/L		03/18/22 08:15	04/02/22 00:54	10
Cadmium	0.00064	J	0.0010	0.00055	mg/L		03/18/22 08:15	04/02/22 00:54	10
Calcium	350		5.0	1.9	mg/L		03/18/22 08:15	04/02/22 00:54	10
Chromium	ND		0.050	0.011	mg/L		03/18/22 08:15	04/02/22 00:54	10
Cobalt	0.0049	J	0.0050	0.0019	mg/L		03/18/22 08:15	04/02/22 00:54	10
Lead	ND		0.0050	0.0024	mg/L		03/18/22 08:15	04/02/22 00:54	10
Lithium	1.7		0.10	0.025	mg/L		03/18/22 08:15	04/02/22 00:54	10
Molybdenum	0.098		0.020	0.012	mg/L		03/18/22 08:15	04/02/22 00:54	10
Selenium	0.022	J	0.050	0.0096	mg/L		03/18/22 08:15	04/02/22 00:54	10
Thallium	ND		0.010	0.0026	mg/L		03/18/22 08:15	04/02/22 00:54	10

Client Sample ID: MW-7
Date Collected: 03/02/22 09:45
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0069	mg/L		03/18/22 08:15	04/02/22 00:58	10
Arsenic	ND		0.020	0.0075	mg/L		03/18/22 08:15	04/02/22 00:58	10
Barium	0.012	J	0.020	0.0088	mg/L		03/18/22 08:15	04/02/22 00:58	10
Beryllium	ND		0.010	0.0027	mg/L		03/18/22 08:15	04/02/22 00:58	10
Cadmium	0.00063	J	0.0010	0.00055	mg/L		03/18/22 08:15	04/02/22 00:58	10
Calcium	530		5.0	1.9	mg/L		03/18/22 08:15	04/02/22 00:58	10
Chromium	ND		0.050	0.011	mg/L		03/18/22 08:15	04/02/22 00:58	10
Cobalt	0.0077		0.0050	0.0019	mg/L		03/18/22 08:15	04/02/22 00:58	10
Lead	ND		0.0050	0.0024	mg/L		03/18/22 08:15	04/02/22 00:58	10
Lithium	1.6		0.10	0.025	mg/L		03/18/22 08:15	04/02/22 00:58	10
Molybdenum	ND		0.020	0.012	mg/L		03/18/22 08:15	04/02/22 00:58	10
Selenium	0.47		0.050	0.0096	mg/L		03/18/22 08:15	04/02/22 00:58	10
Thallium	ND		0.010	0.0026	mg/L		03/18/22 08:15	04/02/22 00:58	10

Client Sample ID: W-12
Date Collected: 03/01/22 16:30
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0069	mg/L		03/18/22 08:15	04/02/22 01:10	10
Arsenic	ND		0.0020	0.00075	mg/L		03/18/22 08:15	03/23/22 17:55	1
Barium	0.019	J	0.020	0.0088	mg/L		03/18/22 08:15	04/02/22 01:10	10
Beryllium	ND		0.010	0.0027	mg/L		03/18/22 08:15	04/02/22 01:10	10
Cadmium	0.0013		0.0010	0.00055	mg/L		03/18/22 08:15	04/02/22 01:10	10
Calcium	420		0.50	0.19	mg/L		03/18/22 08:15	03/23/22 17:55	1
Chromium	0.0020	J	0.0050	0.0011	mg/L		03/18/22 08:15	03/23/22 17:55	1
Cobalt	0.022		0.00050	0.00019	mg/L		03/18/22 08:15	03/23/22 17:55	1
Lead	ND		0.0050	0.0024	mg/L		03/18/22 08:15	04/02/22 01:10	10
Lithium	2.8		0.10	0.025	mg/L		03/18/22 08:15	04/02/22 01:10	10
Molybdenum	0.0039		0.0020	0.0012	mg/L		03/18/22 08:15	03/23/22 17:55	1
Selenium	0.043		0.0050	0.00096	mg/L		03/18/22 08:15	03/23/22 17:55	1
Thallium	0.0051	J	0.010	0.0026	mg/L		03/18/22 08:15	04/02/22 01:10	10

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Client Sample ID: W-9
Date Collected: 03/01/22 13:40
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0076	J	0.020	0.0069	mg/L		03/18/22 08:15	04/02/22 01:30	10
Arsenic	ND		0.0020	0.00075	mg/L		03/18/22 08:15	03/23/22 17:58	1
Barium	0.021		0.0020	0.00088	mg/L		03/18/22 08:15	03/23/22 17:58	1
Beryllium	ND		0.010	0.0027	mg/L		03/18/22 08:15	04/02/22 01:30	10
Cadmium	ND		0.0010	0.00055	mg/L		03/18/22 08:15	04/02/22 01:30	10
Calcium	450		0.50	0.19	mg/L		03/18/22 08:15	03/23/22 17:58	1
Chromium	ND		0.0050	0.0011	mg/L		03/18/22 08:15	03/23/22 17:58	1
Cobalt	0.00084		0.00050	0.00019	mg/L		03/18/22 08:15	03/23/22 17:58	1
Lead	ND		0.00050	0.00024	mg/L		03/18/22 08:15	03/23/22 17:58	1
Lithium	1.2		0.10	0.025	mg/L		03/18/22 08:15	04/02/22 01:30	10
Molybdenum	0.0031		0.0020	0.0012	mg/L		03/18/22 08:15	03/23/22 17:58	1
Selenium	0.0037	J	0.0050	0.00096	mg/L		03/18/22 08:15	03/23/22 17:58	1
Thallium	ND		0.0010	0.00026	mg/L		03/18/22 08:15	03/23/22 17:58	1

Client Sample ID: W-7
Date Collected: 03/01/22 11:30
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0069	mg/L		03/18/22 08:15	04/02/22 01:34	10
Arsenic	ND		0.0020	0.00075	mg/L		03/18/22 08:15	03/23/22 18:02	1
Barium	0.016	J	0.020	0.0088	mg/L		03/18/22 08:15	04/02/22 01:34	10
Beryllium	ND		0.010	0.0027	mg/L		03/18/22 08:15	04/02/22 01:34	10
Cadmium	0.0084		0.0010	0.00055	mg/L		03/18/22 08:15	04/02/22 01:34	10
Calcium	250		0.50	0.19	mg/L		03/18/22 08:15	03/23/22 18:02	1
Chromium	0.0018	J	0.0050	0.0011	mg/L		03/18/22 08:15	03/23/22 18:02	1
Cobalt	0.014		0.00050	0.00019	mg/L		03/18/22 08:15	03/23/22 18:02	1
Lead	ND		0.0050	0.0024	mg/L		03/18/22 08:15	04/02/22 01:34	10
Lithium	5.5		0.10	0.025	mg/L		03/18/22 08:15	04/02/22 01:34	10
Molybdenum	ND		0.020	0.012	mg/L		03/18/22 08:15	04/02/22 01:34	10
Selenium	2.1		0.050	0.0096	mg/L		03/18/22 08:15	04/02/22 01:34	10
Thallium	0.0063	J	0.010	0.0026	mg/L		03/18/22 08:15	04/02/22 01:34	10

Client Sample ID: W-3B
Date Collected: 02/23/22 16:20
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0069	mg/L		03/18/22 08:15	04/02/22 01:38	10
Arsenic	ND		0.0020	0.00075	mg/L		03/18/22 08:15	03/23/22 18:05	1
Barium	0.013	J	0.020	0.0088	mg/L		03/18/22 08:15	04/02/22 01:38	10
Beryllium	ND		0.010	0.0027	mg/L		03/18/22 08:15	04/02/22 01:38	10
Cadmium	0.023		0.0010	0.00055	mg/L		03/18/22 08:15	04/02/22 01:38	10
Calcium	210		0.50	0.19	mg/L		03/18/22 08:15	03/23/22 18:05	1
Chromium	ND		0.0050	0.0011	mg/L		03/18/22 08:15	03/23/22 18:05	1
Cobalt	0.083		0.00050	0.00019	mg/L		03/18/22 08:15	03/23/22 18:05	1
Lead	ND		0.0050	0.0024	mg/L		03/18/22 08:15	04/02/22 01:38	10
Lithium	3.1		0.10	0.025	mg/L		03/18/22 08:15	04/02/22 01:38	10
Molybdenum	ND		0.020	0.012	mg/L		03/18/22 08:15	04/02/22 01:38	10
Selenium	0.0047	J	0.0050	0.00096	mg/L		03/18/22 08:15	03/23/22 18:05	1
Thallium	0.0032	J	0.010	0.0026	mg/L		03/18/22 08:15	04/02/22 01:38	10

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Client Sample ID: W-3BEB
Date Collected: 02/23/22 16:40
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00069	mg/L		03/18/22 08:15	04/02/22 01:42	1
Arsenic	ND		0.0020	0.00075	mg/L		03/18/22 08:15	03/23/22 18:08	1
Barium	ND		0.0020	0.00088	mg/L		03/18/22 08:15	03/23/22 18:08	1
Beryllium	ND		0.0010	0.00027	mg/L		03/18/22 08:15	04/02/22 01:42	1
Cadmium	ND		0.00010	0.000055	mg/L		03/18/22 08:15	04/02/22 01:42	1
Calcium	ND		0.50	0.19	mg/L		03/18/22 08:15	03/23/22 18:08	1
Chromium	ND		0.0050	0.0011	mg/L		03/18/22 08:15	03/23/22 18:08	1
Cobalt	ND		0.00050	0.00019	mg/L		03/18/22 08:15	03/23/22 18:08	1
Lead	ND		0.00050	0.00024	mg/L		03/18/22 08:15	03/23/22 18:08	1
Lithium	ND		0.010	0.0025	mg/L		03/18/22 08:15	04/02/22 01:42	1
Molybdenum	ND		0.0020	0.0012	mg/L		03/18/22 08:15	03/23/22 18:08	1
Selenium	ND		0.0050	0.00096	mg/L		03/18/22 08:15	03/23/22 18:08	1
Thallium	ND		0.0010	0.00026	mg/L		03/18/22 08:15	03/23/22 18:08	1

Client Sample ID: W-3
Date Collected: 02/23/22 12:45
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0080	0.0028	mg/L		03/18/22 08:15	04/02/22 01:46	4
Arsenic	0.0010	J	0.0020	0.00075	mg/L		03/18/22 08:15	03/23/22 18:12	1
Barium	0.049		0.0020	0.00088	mg/L		03/18/22 08:15	03/23/22 18:12	1
Beryllium	ND		0.0040	0.0011	mg/L		03/18/22 08:15	04/02/22 01:46	4
Cadmium	ND		0.00040	0.00022	mg/L		03/18/22 08:15	04/02/22 01:46	4
Calcium	440		0.50	0.19	mg/L		03/18/22 08:15	03/23/22 18:12	1
Chromium	ND		0.0050	0.0011	mg/L		03/18/22 08:15	03/23/22 18:12	1
Cobalt	0.00028	J	0.00050	0.00019	mg/L		03/18/22 08:15	03/23/22 18:12	1
Lead	0.00024	J	0.00050	0.00024	mg/L		03/18/22 08:15	03/23/22 18:12	1
Lithium	0.078		0.040	0.010	mg/L		03/18/22 08:15	04/02/22 01:46	4
Molybdenum	0.022		0.0020	0.0012	mg/L		03/18/22 08:15	03/23/22 18:12	1
Selenium	0.020		0.0050	0.00096	mg/L		03/18/22 08:15	03/23/22 18:12	1
Thallium	ND		0.0010	0.00026	mg/L		03/18/22 08:15	03/23/22 18:12	1

Client Sample ID: W-3D
Date Collected: 02/23/22 12:50
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0080	0.0028	mg/L		03/18/22 08:15	04/02/22 01:50	4
Arsenic	ND		0.0080	0.0030	mg/L		03/18/22 08:15	04/02/22 01:50	4
Barium	0.049		0.0020	0.00088	mg/L		03/18/22 08:15	03/23/22 18:28	1
Beryllium	ND		0.0040	0.0011	mg/L		03/18/22 08:15	04/02/22 01:50	4
Cadmium	ND		0.00040	0.00022	mg/L		03/18/22 08:15	04/02/22 01:50	4
Calcium	300		2.0	0.76	mg/L		03/18/22 08:15	04/02/22 01:50	4
Chromium	ND		0.0050	0.0011	mg/L		03/18/22 08:15	03/23/22 18:28	1
Cobalt	ND		0.0020	0.00076	mg/L		03/18/22 08:15	04/02/22 01:50	4
Lead	ND		0.0020	0.00096	mg/L		03/18/22 08:15	04/02/22 01:50	4
Lithium	0.059		0.040	0.010	mg/L		03/18/22 08:15	04/02/22 01:50	4
Molybdenum	0.013		0.0080	0.0048	mg/L		03/18/22 08:15	04/02/22 01:50	4
Selenium	0.015	J	0.020	0.0038	mg/L		03/18/22 08:15	04/02/22 01:50	4
Thallium	ND		0.0040	0.0010	mg/L		03/18/22 08:15	04/02/22 01:50	4

Eurofins Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Client Sample ID: W-2C
Date Collected: 02/23/22 10:20
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0069	mg/L		03/18/22 08:15	04/02/22 01:54	10
Arsenic	ND		0.020	0.0075	mg/L		03/18/22 08:15	04/02/22 01:54	10
Barium	0.015	J	0.020	0.0088	mg/L		03/18/22 08:15	04/02/22 01:54	10
Beryllium	ND		0.010	0.0027	mg/L		03/18/22 08:15	04/02/22 01:54	10
Cadmium	0.0047		0.0010	0.00055	mg/L		03/18/22 08:15	04/02/22 01:54	10
Calcium	320		5.0	1.9	mg/L		03/18/22 08:15	04/02/22 01:54	10
Chromium	0.0015	J	0.0050	0.0011	mg/L		03/18/22 08:15	03/23/22 18:31	1
Cobalt	0.0033	J	0.0050	0.0019	mg/L		03/18/22 08:15	04/02/22 01:54	10
Lead	ND		0.0050	0.0024	mg/L		03/18/22 08:15	04/02/22 01:54	10
Lithium	4.6		0.10	0.025	mg/L		03/18/22 08:15	04/02/22 01:54	10
Molybdenum	ND		0.020	0.012	mg/L		03/18/22 08:15	04/02/22 01:54	10
Selenium	2.8		0.050	0.0096	mg/L		03/18/22 08:15	04/02/22 01:54	10
Thallium	0.0040	J	0.010	0.0026	mg/L		03/18/22 08:15	04/02/22 01:54	10

Client Sample ID: W-2A
Date Collected: 02/22/22 14:50
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0069	mg/L		03/18/22 08:15	04/02/22 01:57	10
Arsenic	ND		0.020	0.0075	mg/L		03/18/22 08:15	04/02/22 01:57	10
Barium	0.010	J	0.020	0.0088	mg/L		03/18/22 08:15	04/02/22 01:57	10
Beryllium	ND		0.010	0.0027	mg/L		03/18/22 08:15	04/02/22 01:57	10
Cadmium	0.0047		0.0010	0.00055	mg/L		03/18/22 08:15	04/02/22 01:57	10
Calcium	310		5.0	1.9	mg/L		03/18/22 08:15	04/02/22 01:57	10
Chromium	ND		0.050	0.011	mg/L		03/18/22 08:15	04/02/22 01:57	10
Cobalt	0.012		0.0050	0.0019	mg/L		03/18/22 08:15	04/02/22 01:57	10
Lead	ND		0.0050	0.0024	mg/L		03/18/22 08:15	04/02/22 01:57	10
Lithium	4.8		0.10	0.025	mg/L		03/18/22 08:15	04/02/22 01:57	10
Molybdenum	ND		0.020	0.012	mg/L		03/18/22 08:15	04/02/22 01:57	10
Selenium	2.2		0.050	0.0096	mg/L		03/18/22 08:15	04/02/22 01:57	10
Thallium	0.0042	J	0.010	0.0026	mg/L		03/18/22 08:15	04/02/22 01:57	10

Client Sample ID: W-6
Date Collected: 02/24/22 14:20
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0069	mg/L		03/18/22 08:15	04/02/22 02:05	10
Arsenic	ND		0.020	0.0075	mg/L		03/18/22 08:15	04/02/22 02:05	10
Barium	0.033		0.020	0.0088	mg/L		03/18/22 08:15	04/02/22 02:05	10
Beryllium	ND		0.010	0.0027	mg/L		03/18/22 08:15	04/02/22 02:05	10
Cadmium	ND		0.0010	0.00055	mg/L		03/18/22 08:15	04/02/22 02:05	10
Calcium	550		5.0	1.9	mg/L		03/18/22 08:15	04/02/22 02:05	10
Chromium	ND		0.050	0.011	mg/L		03/18/22 08:15	04/02/22 02:05	10
Cobalt	0.0021	J	0.0050	0.0019	mg/L		03/18/22 08:15	04/02/22 02:05	10
Lead	ND		0.0050	0.0024	mg/L		03/18/22 08:15	04/02/22 02:05	10
Lithium	0.17		0.10	0.025	mg/L		03/18/22 08:15	04/02/22 02:05	10
Molybdenum	0.35		0.020	0.012	mg/L		03/18/22 08:15	04/02/22 02:05	10
Selenium	0.014	J	0.050	0.0096	mg/L		03/18/22 08:15	04/02/22 02:05	10
Thallium	ND		0.010	0.0026	mg/L		03/18/22 08:15	04/02/22 02:05	10

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Client Sample ID: W-6B
Date Collected: 02/24/22 12:40
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0073	J	0.020	0.0069	mg/L		03/18/22 08:15	04/02/22 02:25	10
Arsenic	ND		0.020	0.0075	mg/L		03/18/22 08:15	04/02/22 02:25	10
Barium	0.017	J	0.020	0.0088	mg/L		03/18/22 08:15	04/02/22 02:25	10
Beryllium	ND		0.010	0.0027	mg/L		03/18/22 08:15	04/02/22 02:25	10
Cadmium	0.012		0.0010	0.00055	mg/L		03/18/22 08:15	04/02/22 02:25	10
Calcium	290		5.0	1.9	mg/L		03/18/22 08:15	04/02/22 02:25	10
Chromium	ND		0.050	0.011	mg/L		03/18/22 08:15	04/02/22 02:25	10
Cobalt	0.10		0.0050	0.0019	mg/L		03/18/22 08:15	04/02/22 02:25	10
Lead	ND		0.0050	0.0024	mg/L		03/18/22 08:15	04/02/22 02:25	10
Lithium	3.8		0.10	0.025	mg/L		03/18/22 08:15	04/02/22 02:25	10
Molybdenum	ND		0.020	0.012	mg/L		03/18/22 08:15	04/02/22 02:25	10
Selenium	0.016	J	0.050	0.0096	mg/L		03/18/22 08:15	04/02/22 02:25	10
Thallium	0.0027	J	0.010	0.0026	mg/L		03/18/22 08:15	04/02/22 02:25	10

Client Sample ID: W-5
Date Collected: 02/24/22 16:25
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0069	mg/L		03/18/22 08:15	04/02/22 02:29	10
Arsenic	ND		0.020	0.0075	mg/L		03/18/22 08:15	04/02/22 02:29	10
Barium	0.023		0.020	0.0088	mg/L		03/18/22 08:15	04/02/22 02:29	10
Beryllium	ND		0.010	0.0027	mg/L		03/18/22 08:15	04/02/22 02:29	10
Cadmium	ND		0.0010	0.00055	mg/L		03/18/22 08:15	04/02/22 02:29	10
Calcium	390		5.0	1.9	mg/L		03/18/22 08:15	04/02/22 02:29	10
Chromium	ND		0.050	0.011	mg/L		03/18/22 08:15	04/02/22 02:29	10
Cobalt	0.0066		0.0050	0.0019	mg/L		03/18/22 08:15	04/02/22 02:29	10
Lead	ND		0.0050	0.0024	mg/L		03/18/22 08:15	04/02/22 02:29	10
Lithium	1.6		0.10	0.025	mg/L		03/18/22 08:15	04/02/22 02:29	10
Molybdenum	0.055		0.020	0.012	mg/L		03/18/22 08:15	04/02/22 02:29	10
Selenium	0.012	J	0.050	0.0096	mg/L		03/18/22 08:15	04/02/22 02:29	10
Thallium	ND		0.010	0.0026	mg/L		03/18/22 08:15	04/02/22 02:29	10

Client Sample ID: W-5B
Date Collected: 02/25/22 11:30
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0069	mg/L		03/18/22 08:15	04/02/22 02:33	10
Arsenic	ND		0.020	0.0075	mg/L		03/18/22 08:15	04/02/22 02:33	10
Barium	0.018	J	0.020	0.0088	mg/L		03/18/22 08:15	04/02/22 02:33	10
Beryllium	ND		0.010	0.0027	mg/L		03/18/22 08:15	04/02/22 02:33	10
Cadmium	0.00061	J	0.0010	0.00055	mg/L		03/18/22 08:15	04/02/22 02:33	10
Calcium	500		5.0	1.9	mg/L		03/18/22 08:15	04/02/22 02:33	10
Chromium	ND		0.050	0.011	mg/L		03/18/22 08:15	04/02/22 02:33	10
Cobalt	0.0031	J	0.0050	0.0019	mg/L		03/18/22 08:15	04/02/22 02:33	10
Lead	ND		0.0050	0.0024	mg/L		03/18/22 08:15	04/02/22 02:33	10
Lithium	0.25		0.10	0.025	mg/L		03/18/22 08:15	04/02/22 02:33	10
Molybdenum	ND		0.020	0.012	mg/L		03/18/22 08:15	04/02/22 02:33	10
Selenium	ND		0.050	0.0096	mg/L		03/18/22 08:15	04/02/22 02:33	10
Thallium	ND		0.010	0.0026	mg/L		03/18/22 08:15	04/02/22 02:33	10

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Client Sample ID: W-1
Date Collected: 02/25/22 12:25
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0069	mg/L		03/18/22 08:15	04/02/22 02:37	10
Arsenic	ND		0.020	0.0075	mg/L		03/18/22 08:15	04/02/22 02:37	10
Barium	0.015	J	0.020	0.0088	mg/L		03/18/22 08:15	04/02/22 02:37	10
Beryllium	ND		0.010	0.0027	mg/L		03/18/22 08:15	04/02/22 02:37	10
Cadmium	ND		0.0010	0.00055	mg/L		03/18/22 08:15	04/02/22 02:37	10
Calcium	360		5.0	1.9	mg/L		03/18/22 08:15	04/02/22 02:37	10
Chromium	ND		0.050	0.011	mg/L		03/18/22 08:15	04/02/22 02:37	10
Cobalt	ND		0.0050	0.0019	mg/L		03/18/22 08:15	04/02/22 02:37	10
Lead	ND		0.0050	0.0024	mg/L		03/18/22 08:15	04/02/22 02:37	10
Lithium	2.5		0.10	0.025	mg/L		03/18/22 08:15	04/02/22 02:37	10
Molybdenum	0.018	J	0.020	0.012	mg/L		03/18/22 08:15	04/02/22 02:37	10
Selenium	0.79		0.050	0.0096	mg/L		03/18/22 08:15	04/02/22 02:37	10
Thallium	ND		0.010	0.0026	mg/L		03/18/22 08:15	04/02/22 02:37	10

Client Sample ID: W-11
Date Collected: 02/25/22 16:35
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-17
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0069	mg/L		03/18/22 08:15	04/02/22 02:41	10
Arsenic	ND		0.020	0.0075	mg/L		03/18/22 08:15	04/02/22 02:41	10
Barium	0.019	J	0.020	0.0088	mg/L		03/18/22 08:15	04/02/22 02:41	10
Beryllium	ND		0.010	0.0027	mg/L		03/18/22 08:15	04/02/22 02:41	10
Cadmium	0.0019		0.0010	0.00055	mg/L		03/18/22 08:15	04/02/22 02:41	10
Calcium	720		5.0	1.9	mg/L		03/18/22 08:15	04/02/22 02:41	10
Chromium	ND		0.050	0.011	mg/L		03/18/22 08:15	04/02/22 02:41	10
Cobalt	0.023		0.0050	0.0019	mg/L		03/18/22 08:15	04/02/22 02:41	10
Lead	ND		0.0050	0.0024	mg/L		03/18/22 08:15	04/02/22 02:41	10
Lithium	4.5		0.10	0.025	mg/L		03/18/22 08:15	04/02/22 02:41	10
Molybdenum	ND		0.020	0.012	mg/L		03/18/22 08:15	04/02/22 02:41	10
Selenium	3.1		0.050	0.0096	mg/L		03/18/22 08:15	04/02/22 02:41	10
Thallium	0.0047	J	0.010	0.0026	mg/L		03/18/22 08:15	04/02/22 02:41	10

Method: 6020A - Metals (ICP/MS) - Dissolved

Client Sample ID: W-11
Date Collected: 02/25/22 16:35
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-17
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.011		0.0080	0.0028	mg/L		03/14/22 09:00	03/16/22 01:11	4
Arsenic	0.0090		0.0080	0.0030	mg/L		03/14/22 09:00	03/16/22 01:11	4
Barium	0.012	J	0.020	0.0088	mg/L		03/14/22 09:00	03/16/22 16:08	10
Beryllium	0.0045		0.0040	0.0011	mg/L		03/14/22 09:00	03/16/22 01:11	4
Cadmium	0.0054		0.00040	0.00022	mg/L		03/14/22 09:00	03/16/22 01:11	4
Calcium	390		5.0	1.9	mg/L		03/14/22 09:00	03/16/22 16:08	10
Chromium	0.0053	J	0.020	0.0044	mg/L		03/14/22 09:00	03/16/22 01:11	4
Cobalt	0.020		0.0020	0.00076	mg/L		03/14/22 09:00	03/16/22 01:11	4
Lead	0.0079		0.0020	0.00096	mg/L		03/14/22 09:00	03/16/22 01:11	4
Lithium	2.9		0.10	0.025	mg/L		03/14/22 09:00	03/16/22 16:08	10
Molybdenum	0.016		0.0080	0.0048	mg/L		03/14/22 09:00	03/16/22 01:11	4
Selenium	2.0		0.050	0.0096	mg/L		03/14/22 09:00	03/16/22 16:08	10

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Method: 6020A - Metals (ICP/MS) - Dissolved (Continued)

Client Sample ID: W-11
Date Collected: 02/25/22 16:35
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-17
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	0.018		0.0040	0.0010	mg/L		03/14/22 09:00	03/16/22 01:11	4

Method: 7470A - Mercury (CVAA)

Client Sample ID: W-4
Date Collected: 03/02/22 11:40
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		03/21/22 15:06	03/22/22 13:29	1

Client Sample ID: MW-7
Date Collected: 03/02/22 09:45
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		03/21/22 15:06	03/22/22 13:31	1

Client Sample ID: W-12
Date Collected: 03/01/22 16:30
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		03/21/22 15:06	03/22/22 13:38	1

Client Sample ID: W-9
Date Collected: 03/01/22 13:40
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		03/21/22 15:06	03/22/22 13:45	1

Client Sample ID: W-7
Date Collected: 03/01/22 11:30
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		03/21/22 15:06	03/22/22 13:47	1

Client Sample ID: W-3B
Date Collected: 02/23/22 16:20
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		03/21/22 15:06	03/22/22 13:49	1

Client Sample ID: W-3BEB
Date Collected: 02/23/22 16:40
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		03/21/22 15:06	03/22/22 13:51	1

Client Sample ID: W-3
Date Collected: 02/23/22 12:45
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		03/21/22 15:06	03/22/22 13:53	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Method: 7470A - Mercury (CVAA)

Client Sample ID: W-3D
Date Collected: 02/23/22 12:50
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		03/21/22 15:06	03/22/22 13:55	1

Client Sample ID: W-2C
Date Collected: 02/23/22 10:20
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		03/21/22 15:06	03/22/22 13:58	1

Client Sample ID: W-2A
Date Collected: 02/22/22 14:50
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		03/21/22 15:06	03/22/22 14:00	1

Client Sample ID: W-6
Date Collected: 02/24/22 14:20
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		03/21/22 15:06	03/22/22 14:02	1

Client Sample ID: W-6B
Date Collected: 02/24/22 12:40
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		03/21/22 15:06	03/22/22 14:09	1

Client Sample ID: W-5
Date Collected: 02/24/22 16:25
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		03/21/22 15:06	03/22/22 14:11	1

Client Sample ID: W-5B
Date Collected: 02/25/22 11:30
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		03/21/22 15:06	03/22/22 14:13	1

Client Sample ID: W-1
Date Collected: 02/25/22 12:25
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		03/21/22 15:06	03/22/22 14:15	1

Client Sample ID: W-11
Date Collected: 02/25/22 16:35
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-17
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		03/21/22 15:06	03/22/22 14:17	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Method: 7470A - Mercury (CVAA) - Dissolved

Client Sample ID: W-11
Date Collected: 02/25/22 16:35
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-17
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		03/14/22 15:17	03/15/22 14:42	1

General Chemistry

Client Sample ID: W-4
Date Collected: 03/02/22 11:40
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.9	HF	0.1	0.1	SU			03/08/22 12:57	1
Temperature	20.7	HF	1.0	1.0	Degrees C			03/08/22 12:57	1
Chloride	490		60	20	mg/L			03/15/22 16:14	20
Fluoride	4.8		0.50	0.17	mg/L			03/15/22 15:59	1
Sulfate	35000		1000	210	mg/L			03/15/22 16:29	200
Total Dissolved Solids (TDS)	43000		1000	470	mg/L			03/08/22 14:36	1

Client Sample ID: MW-7
Date Collected: 03/02/22 09:45
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU			03/03/22 14:16	1
Temperature	21.0	HF	1.0	1.0	Degrees C			03/03/22 14:16	1
Chloride	290		15	5.1	mg/L			03/15/22 16:59	5
Fluoride	0.32	J	0.50	0.17	mg/L			03/15/22 16:44	1
Sulfate	6700		1000	210	mg/L			03/15/22 17:14	200
Alkalinity	690		10	3.1	mg/L			03/03/22 15:59	1
Bicarbonate Alkalinity as CaCO3	690		10	3.1	mg/L			03/03/22 15:59	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			03/03/22 15:59	1
Total Dissolved Solids (TDS)	13000		1000	470	mg/L			03/08/22 14:36	1
Total Suspended Solids	5.2		4.0	1.1	mg/L			03/03/22 14:03	1

Client Sample ID: W-12
Date Collected: 03/01/22 16:30
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.1	HF	0.1	0.1	SU			03/03/22 14:20	1
Temperature	21.1	HF	1.0	1.0	Degrees C			03/03/22 14:20	1
Chloride	860		15	5.1	mg/L			03/15/22 20:14	5
Fluoride	0.43	J	0.50	0.17	mg/L			03/15/22 19:59	1
Sulfate	16000		1000	210	mg/L			03/15/22 20:29	200
Alkalinity	1400		10	3.1	mg/L			03/03/22 16:25	1
Bicarbonate Alkalinity as CaCO3	1400		10	3.1	mg/L			03/03/22 16:25	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			03/03/22 16:25	1
Total Dissolved Solids (TDS)	25000		1000	470	mg/L			03/04/22 14:36	1
Total Suspended Solids	14		4.0	1.1	mg/L			03/03/22 14:03	1

Client Sample ID: W-9
Date Collected: 03/01/22 13:40
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.3	HF	0.1	0.1	SU			03/03/22 14:26	1
Temperature	21.4	HF	1.0	1.0	Degrees C			03/03/22 14:26	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

General Chemistry (Continued)

Client Sample ID: W-9
Date Collected: 03/01/22 13:40
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	400		15	5.1	mg/L			03/15/22 20:59	5
Fluoride	0.61		0.50	0.17	mg/L			03/15/22 20:44	1
Sulfate	11000		1000	210	mg/L			03/15/22 21:14	200
Alkalinity	640		10	3.1	mg/L			03/03/22 16:36	1
Bicarbonate Alkalinity as CaCO3	640		10	3.1	mg/L			03/03/22 16:36	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			03/03/22 16:36	1
Total Dissolved Solids (TDS)	18000		1000	470	mg/L			03/04/22 14:36	1
Total Suspended Solids	3.2	J	4.0	1.1	mg/L			03/03/22 14:03	1

Client Sample ID: W-7
Date Collected: 03/01/22 11:30
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	6.9	HF	0.1	0.1	SU			03/03/22 14:30	1
Temperature	21.9	HF	1.0	1.0	Degrees C			03/03/22 14:30	1
Chloride	740		15	5.1	mg/L			03/15/22 22:14	5
Fluoride	1.1	J	2.5	0.83	mg/L			03/15/22 22:14	5
Sulfate	47000		5000	1000	mg/L			03/15/22 22:29	1000
Alkalinity	1000		10	3.1	mg/L			03/03/22 16:49	1
Bicarbonate Alkalinity as CaCO3	1000		10	3.1	mg/L			03/03/22 16:49	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			03/03/22 16:49	1
Total Dissolved Solids (TDS)	65000		1000	470	mg/L			03/04/22 14:36	1
Total Suspended Solids	11		4.0	1.1	mg/L			03/03/22 14:03	1

Client Sample ID: W-3B
Date Collected: 02/23/22 16:20
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	6.7	HF	0.1	0.1	SU			03/03/22 14:34	1
Temperature	22.4	HF	1.0	1.0	Degrees C			03/03/22 14:34	1
Chloride	1100		30	10	mg/L			03/15/22 22:59	10
Fluoride	ND		0.50	0.17	mg/L			03/15/22 22:44	1
Sulfate	69000		2500	520	mg/L			03/15/22 23:14	500
Alkalinity	880		10	3.1	mg/L			03/03/22 17:01	1
Bicarbonate Alkalinity as CaCO3	880		10	3.1	mg/L			03/03/22 17:01	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			03/03/22 17:01	1
Total Dissolved Solids (TDS)	ND	H	1000	470	mg/L			03/04/22 14:22	1
Total Suspended Solids	4.0	H	4.0	1.1	mg/L			03/07/22 15:40	1

Client Sample ID: W-3BEB
Date Collected: 02/23/22 16:40
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	6.6	HF	0.1	0.1	SU			03/04/22 14:33	1
Temperature	20.4	HF	1.0	1.0	Degrees C			03/04/22 14:33	1
Chloride	1.1	J	3.0	1.0	mg/L			03/15/22 23:29	1
Fluoride	ND		0.50	0.17	mg/L			03/15/22 23:29	1
Sulfate	ND		5.0	1.0	mg/L			03/15/22 23:29	1
Alkalinity	ND		10	3.1	mg/L			03/03/22 17:07	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			03/03/22 17:07	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

General Chemistry (Continued)

Client Sample ID: W-3BEB
Date Collected: 02/23/22 16:40
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbonate Alkalinity as CaCO ₃	ND		10	3.1	mg/L			03/03/22 17:07	1
Total Dissolved Solids (TDS)	ND	H	10	4.7	mg/L			03/04/22 14:22	1
Total Suspended Solids	ND	H	4.0	1.1	mg/L			03/03/22 14:03	1

Client Sample ID: W-3
Date Collected: 02/23/22 12:45
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.7	HF	0.1	0.1	SU			03/03/22 14:46	1
Temperature	22.0	HF	1.0	1.0	Degrees C			03/03/22 14:46	1
Chloride	42		3.0	1.0	mg/L			03/16/22 00:44	1
Fluoride	0.90		0.50	0.17	mg/L			03/16/22 00:44	1
Sulfate	1600		1000	210	mg/L			03/16/22 01:14	200
Alkalinity	210		10	3.1	mg/L			03/03/22 17:14	1
Bicarbonate Alkalinity as CaCO ₃	210		10	3.1	mg/L			03/03/22 17:14	1
Carbonate Alkalinity as CaCO ₃	ND		10	3.1	mg/L			03/03/22 17:14	1
Total Dissolved Solids (TDS)	1100	H	20	9.4	mg/L			03/04/22 14:22	1
Total Suspended Solids	3.6	J H	4.0	1.1	mg/L			03/03/22 14:03	1

Client Sample ID: W-3D
Date Collected: 02/23/22 12:50
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.8	HF	0.1	0.1	SU			03/03/22 14:50	1
Temperature	21.7	HF	1.0	1.0	Degrees C			03/03/22 14:50	1
Chloride	42		3.0	1.0	mg/L			03/15/22 17:29	1
Fluoride	0.91		0.50	0.17	mg/L			03/15/22 17:29	1
Sulfate	1700		50	10	mg/L			03/15/22 18:59	10
Alkalinity	210		10	3.1	mg/L			03/03/22 17:21	1
Bicarbonate Alkalinity as CaCO ₃	210		10	3.1	mg/L			03/03/22 17:21	1
Carbonate Alkalinity as CaCO ₃	ND		10	3.1	mg/L			03/03/22 17:21	1
Total Dissolved Solids (TDS)	15000	H	100	47	mg/L			03/04/22 14:22	1
Total Suspended Solids	ND	H	4.0	1.1	mg/L			03/07/22 15:40	1

Client Sample ID: W-2C
Date Collected: 02/23/22 10:20
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	6.8	HF	0.1	0.1	SU			03/03/22 14:54	1
Temperature	21.6	HF	1.0	1.0	Degrees C			03/03/22 14:54	1
Chloride	820		15	5.1	mg/L			03/16/22 01:44	5
Fluoride	1.1	J	2.5	0.83	mg/L			03/16/22 01:44	5
Sulfate	53000		2500	520	mg/L			03/16/22 20:20	500
Alkalinity	660		10	3.1	mg/L			03/03/22 17:31	1
Bicarbonate Alkalinity as CaCO ₃	660		10	3.1	mg/L			03/03/22 17:31	1
Carbonate Alkalinity as CaCO ₃	ND		10	3.1	mg/L			03/03/22 17:31	1
Total Dissolved Solids (TDS)	65000	H	1000	470	mg/L			03/04/22 14:22	1
Total Suspended Solids	47	H	4.0	1.1	mg/L			03/07/22 15:40	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

General Chemistry

Client Sample ID: W-2A
Date Collected: 02/22/22 14:50
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	6.8	HF	0.1	0.1	SU			03/03/22 14:57	1
Temperature	21.7	HF	1.0	1.0	Degrees C			03/03/22 14:57	1
Chloride	850		15	5.1	mg/L			03/16/22 03:59	5
Fluoride	1.1	J	2.5	0.83	mg/L			03/16/22 03:59	5
Sulfate	55000		5000	1000	mg/L			03/16/22 04:14	1000
Alkalinity	700		10	3.1	mg/L			03/03/22 17:54	1
Bicarbonate Alkalinity as CaCO3	700		10	3.1	mg/L			03/03/22 17:54	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			03/03/22 17:54	1
Total Dissolved Solids (TDS)	74000	H H3	1000	470	mg/L			03/03/22 12:46	1
Total Suspended Solids	23	H H3	4.0	1.1	mg/L			03/03/22 14:03	1

Client Sample ID: W-6
Date Collected: 02/24/22 14:20
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.7	HF	0.1	0.1	SU			03/03/22 15:01	1
Temperature	21.7	HF	1.0	1.0	Degrees C			03/03/22 15:01	1
Chloride	180		3.0	1.0	mg/L			03/16/22 04:29	1
Fluoride	1.8		0.50	0.17	mg/L			03/16/22 04:29	1
Sulfate	4300		2500	520	mg/L			03/16/22 04:59	500
Alkalinity	670		10	3.1	mg/L			03/03/22 18:04	1
Bicarbonate Alkalinity as CaCO3	670		10	3.1	mg/L			03/03/22 18:04	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			03/03/22 18:04	1
Total Dissolved Solids (TDS)	9200		100	47	mg/L			03/03/22 12:46	1
Total Suspended Solids	3.2	J	4.0	1.1	mg/L			03/03/22 14:03	1

Client Sample ID: W-6B
Date Collected: 02/24/22 12:40
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	6.8	HF	0.1	0.1	SU			03/03/22 15:05	1
Temperature	21.9	HF	1.0	1.0	Degrees C			03/03/22 15:05	1
Chloride	1200		30	10	mg/L			03/16/22 05:29	10
Fluoride	ND		0.50	0.17	mg/L			03/16/22 05:14	1
Sulfate	53000		2500	520	mg/L			03/16/22 05:44	500
Alkalinity	870		10	3.1	mg/L			03/03/22 18:16	1
Bicarbonate Alkalinity as CaCO3	870		10	3.1	mg/L			03/03/22 18:16	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			03/03/22 18:16	1
Total Dissolved Solids (TDS)	72000		1000	470	mg/L			03/03/22 12:46	1
Total Suspended Solids	14		4.0	1.1	mg/L			03/03/22 14:03	1

Client Sample ID: W-5
Date Collected: 02/24/22 16:25
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.3	HF	0.1	0.1	SU			03/03/22 15:15	1
Temperature	22.5	HF	1.0	1.0	Degrees C			03/03/22 15:15	1
Chloride	800		15	5.1	mg/L			03/16/22 06:44	5
Fluoride	6.4		0.50	0.17	mg/L			03/16/22 06:29	1
Sulfate	33000		2500	520	mg/L			03/16/22 06:59	500

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

General Chemistry (Continued)

Client Sample ID: W-5
Date Collected: 02/24/22 16:25
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	590		10	3.1	mg/L			03/03/22 18:26	1
Bicarbonate Alkalinity as CaCO3	590		10	3.1	mg/L			03/03/22 18:26	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			03/03/22 18:26	1
Total Dissolved Solids (TDS)	41000		1000	470	mg/L			03/03/22 12:46	1
Total Suspended Solids	27		4.0	1.1	mg/L			03/03/22 14:03	1

Client Sample ID: W-5B
Date Collected: 02/25/22 11:30
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.4	HF	0.1	0.1	SU			03/03/22 15:22	1
Temperature	22.4	HF	1.0	1.0	Degrees C			03/03/22 15:22	1
Chloride	97		3.0	1.0	mg/L			03/16/22 07:14	1
Fluoride	0.39	J	0.50	0.17	mg/L			03/16/22 07:14	1
Sulfate	3200		500	100	mg/L			03/16/22 07:44	100
Alkalinity	190		10	3.1	mg/L			03/03/22 18:33	1
Bicarbonate Alkalinity as CaCO3	190		10	3.1	mg/L			03/03/22 18:33	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			03/03/22 18:33	1
Total Dissolved Solids (TDS)	4900		40	19	mg/L			03/03/22 12:46	1
Total Suspended Solids	ND		4.0	1.1	mg/L			03/03/22 14:03	1

Client Sample ID: W-1
Date Collected: 02/25/22 12:25
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.4	HF	0.1	0.1	SU			03/03/22 15:26	1
Temperature	22.3	HF	1.0	1.0	Degrees C			03/03/22 15:26	1
Chloride	680		30	10	mg/L			03/16/22 08:14	10
Fluoride	2.7		0.50	0.17	mg/L			03/16/22 07:59	1
Sulfate	31000		1000	210	mg/L			03/16/22 20:50	200
Alkalinity	680		10	3.1	mg/L			03/03/22 18:43	1
Bicarbonate Alkalinity as CaCO3	680		10	3.1	mg/L			03/03/22 18:43	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			03/03/22 18:43	1
Total Dissolved Solids (TDS)	38000		1000	470	mg/L			03/03/22 12:46	1
Total Suspended Solids	3.6	J	4.0	1.1	mg/L			03/03/22 14:03	1

Client Sample ID: W-11
Date Collected: 02/25/22 16:35
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-17
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU			03/03/22 15:30	1
Temperature	22.4	HF	1.0	1.0	Degrees C			03/03/22 15:30	1
Chloride	330		15	5.1	mg/L			03/16/22 09:29	5
Fluoride	0.40	J	0.50	0.17	mg/L			03/16/22 09:14	1
Sulfate	13000		1000	210	mg/L			03/16/22 09:44	200
Alkalinity	1100		10	3.1	mg/L			03/04/22 21:39	1
Bicarbonate Alkalinity as CaCO3	1100		10	3.1	mg/L			03/04/22 21:39	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			03/04/22 21:39	1
Total Dissolved Solids (TDS)	23000		1000	470	mg/L			03/03/22 12:46	1
Total Suspended Solids	18	H	4.0	1.1	mg/L			03/07/22 15:40	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 310-346524/1-A
Matrix: Water
Analysis Batch: 346969

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 346524

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.20	0.056	mg/L		03/17/22 09:00	03/17/22 21:25	1

Lab Sample ID: LCS 310-346524/2-A
Matrix: Water
Analysis Batch: 346969

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 346524

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	2.11		mg/L		106	80 - 120

Lab Sample ID: 280-159246-2 MS
Matrix: Water
Analysis Batch: 347027

Client Sample ID: MW-7
Prep Type: Total Recoverable
Prep Batch: 346524

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	0.76	J	2.00	2.83		mg/L		103	75 - 125

Lab Sample ID: 280-159246-2 MSD
Matrix: Water
Analysis Batch: 347027

Client Sample ID: MW-7
Prep Type: Total Recoverable
Prep Batch: 346524

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	0.76	J	2.00	2.94		mg/L		109	75 - 125	4	20

Lab Sample ID: 280-159246-11 DU
Matrix: Water
Analysis Batch: 347027

Client Sample ID: W-2A
Prep Type: Total Recoverable
Prep Batch: 346524

Analyte	Sample Result	Sample Qualifier	Spike Added	DU Result	DU Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	1.9	J		1.88	J	mg/L				2	20

Lab Sample ID: MB 310-346387/1-B
Matrix: Water
Analysis Batch: 346873

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 346417

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.20	0.056	mg/L		03/14/22 09:00	03/16/22 19:47	1

Lab Sample ID: LCS 310-346387/2-B
Matrix: Water
Analysis Batch: 346873

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 346417

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	2.32		mg/L		116	80 - 120

Lab Sample ID: 280-159246-17 MS
Matrix: Water
Analysis Batch: 346968

Client Sample ID: W-11
Prep Type: Dissolved
Prep Batch: 346417

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	0.81	J	2.00	2.87		mg/L		103	75 - 125

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Method: 6010C - Metals (ICP)

Lab Sample ID: 280-159246-17 MSD
Matrix: Water
Analysis Batch: 346968

Client Sample ID: W-11
Prep Type: Dissolved
Prep Batch: 346417

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	0.81	J	2.00	2.91		mg/L		105	75 - 125	1	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-346523/1-A
Matrix: Water
Analysis Batch: 348591

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 346523

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00069	mg/L		03/18/22 08:15	04/02/22 00:46	1
Arsenic	ND		0.0020	0.00075	mg/L		03/18/22 08:15	04/02/22 00:46	1
Barium	ND		0.0020	0.00088	mg/L		03/18/22 08:15	04/02/22 00:46	1
Beryllium	ND		0.0010	0.00027	mg/L		03/18/22 08:15	04/02/22 00:46	1
Cadmium	ND		0.00010	0.000055	mg/L		03/18/22 08:15	04/02/22 00:46	1
Calcium	ND		0.50	0.19	mg/L		03/18/22 08:15	04/02/22 00:46	1
Chromium	ND		0.0050	0.0011	mg/L		03/18/22 08:15	04/02/22 00:46	1
Cobalt	ND		0.00050	0.00019	mg/L		03/18/22 08:15	04/02/22 00:46	1
Lead	ND		0.00050	0.00024	mg/L		03/18/22 08:15	04/02/22 00:46	1
Lithium	ND		0.010	0.0025	mg/L		03/18/22 08:15	04/02/22 00:46	1
Molybdenum	ND		0.0020	0.0012	mg/L		03/18/22 08:15	04/02/22 00:46	1
Selenium	ND		0.0050	0.00096	mg/L		03/18/22 08:15	04/02/22 00:46	1
Thallium	ND		0.0010	0.00026	mg/L		03/18/22 08:15	04/02/22 00:46	1

Lab Sample ID: LCS 310-346523/2-A
Matrix: Water
Analysis Batch: 348591

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 346523

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.200	0.197		mg/L		98	80 - 120
Arsenic	0.200	0.192		mg/L		96	80 - 120
Barium	0.100	0.100		mg/L		100	80 - 120
Beryllium	0.100	0.0966		mg/L		97	80 - 120
Cadmium	0.100	0.0953		mg/L		95	80 - 120
Calcium	2.00	1.80		mg/L		90	80 - 120
Chromium	0.100	0.0979		mg/L		98	80 - 120
Cobalt	0.100	0.101		mg/L		101	80 - 120
Lead	0.200	0.204		mg/L		102	80 - 120
Lithium	0.200	0.197		mg/L		98	80 - 120
Molybdenum	0.200	0.201		mg/L		101	80 - 120
Selenium	0.400	0.382		mg/L		95	80 - 120
Thallium	0.200	0.206		mg/L		103	80 - 120

Lab Sample ID: 280-159246-2 MS
Matrix: Water
Analysis Batch: 348591

Client Sample ID: MW-7
Prep Type: Total Recoverable
Prep Batch: 346523

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	ND		0.200	0.243		mg/L		121	75 - 125
Arsenic	ND		0.200	0.228		mg/L		114	75 - 125

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

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

Lab Sample ID: 280-159246-2 MS

Matrix: Water

Analysis Batch: 348591

Client Sample ID: MW-7
Prep Type: Total Recoverable

Prep Batch: 346523

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Barium	0.012	J	0.100	0.130		mg/L		118	75 - 125
Beryllium	ND		0.100	0.103		mg/L		103	75 - 125
Cadmium	0.00063	J	0.100	0.113		mg/L		113	75 - 125
Calcium	530		2.00	519	4	mg/L		-348	75 - 125
Chromium	ND		0.100	0.113		mg/L		113	75 - 125
Cobalt	0.0077		0.100	0.121		mg/L		113	75 - 125
Lead	ND		0.200	0.217		mg/L		108	75 - 125
Lithium	1.6		0.200	1.85	4	mg/L		103	75 - 125
Molybdenum	ND		0.200	0.231		mg/L		116	75 - 125
Selenium	0.47		0.400	0.912		mg/L		111	75 - 125
Thallium	ND		0.200	0.210		mg/L		105	75 - 125

Lab Sample ID: 280-159246-2 MSD

Matrix: Water

Analysis Batch: 348591

Client Sample ID: MW-7
Prep Type: Total Recoverable

Prep Batch: 346523

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	ND		0.200	0.230		mg/L		115	75 - 125	5	20
Arsenic	ND		0.200	0.213		mg/L		107	75 - 125	7	20
Barium	0.012	J	0.100	0.122		mg/L		110	75 - 125	7	20
Beryllium	ND		0.100	0.102		mg/L		102	75 - 125	1	20
Cadmium	0.00063	J	0.100	0.108		mg/L		108	75 - 125	4	20
Calcium	530		2.00	493	4	mg/L		-1646	75 - 125	5	20
Chromium	ND		0.100	0.106		mg/L		106	75 - 125	7	20
Cobalt	0.0077		0.100	0.115		mg/L		107	75 - 125	6	20
Lead	ND		0.200	0.204		mg/L		102	75 - 125	6	20
Lithium	1.6		0.200	1.74	4	mg/L		47	75 - 125	6	20
Molybdenum	ND		0.200	0.215		mg/L		107	75 - 125	8	20
Selenium	0.47		0.400	0.873		mg/L		101	75 - 125	4	20
Thallium	ND		0.200	0.196		mg/L		98	75 - 125	7	20

Lab Sample ID: 280-159246-11 DU

Matrix: Water

Analysis Batch: 348591

Client Sample ID: W-2A
Prep Type: Total Recoverable

Prep Batch: 346523

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Antimony	ND		ND		mg/L		NC	20
Arsenic	ND		ND		mg/L		NC	20
Barium	0.010	J	0.00931	J	mg/L		11	20
Beryllium	ND		ND		mg/L		NC	20
Cadmium	0.0047		0.00410		mg/L		13	20
Calcium	310		267		mg/L		16	20
Chromium	ND		ND		mg/L		NC	20
Cobalt	0.012		0.0116		mg/L		7	20
Lead	ND		ND		mg/L		NC	20
Lithium	4.8		4.53		mg/L		7	20
Molybdenum	ND		ND		mg/L		NC	20
Selenium	2.2		2.03		mg/L		10	20
Thallium	0.0042	J	0.00389	J	mg/L		8	20

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

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

Lab Sample ID: MB 310-346382/1-B

Matrix: Water

Analysis Batch: 346726

Client Sample ID: Method Blank

Prep Type: Dissolved

Prep Batch: 346488

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00069	mg/L		03/14/22 09:00	03/16/22 01:04	1
Arsenic	ND		0.0020	0.00075	mg/L		03/14/22 09:00	03/16/22 01:04	1
Barium	ND		0.0020	0.00088	mg/L		03/14/22 09:00	03/16/22 01:04	1
Beryllium	ND		0.0010	0.00027	mg/L		03/14/22 09:00	03/16/22 01:04	1
Cadmium	ND		0.00010	0.000055	mg/L		03/14/22 09:00	03/16/22 01:04	1
Calcium	ND		0.50	0.19	mg/L		03/14/22 09:00	03/16/22 01:04	1
Chromium	ND		0.0050	0.0011	mg/L		03/14/22 09:00	03/16/22 01:04	1
Cobalt	ND		0.00050	0.00019	mg/L		03/14/22 09:00	03/16/22 01:04	1
Lead	ND		0.00050	0.00024	mg/L		03/14/22 09:00	03/16/22 01:04	1
Lithium	ND		0.010	0.0025	mg/L		03/14/22 09:00	03/16/22 01:04	1
Molybdenum	ND		0.0020	0.0012	mg/L		03/14/22 09:00	03/16/22 01:04	1
Selenium	ND		0.0050	0.00096	mg/L		03/14/22 09:00	03/16/22 01:04	1
Thallium	ND		0.0010	0.00026	mg/L		03/14/22 09:00	03/16/22 01:04	1

Lab Sample ID: LCS 310-346382/2-B

Matrix: Water

Analysis Batch: 346726

Client Sample ID: Lab Control Sample

Prep Type: Dissolved

Prep Batch: 346488

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.200	0.200		mg/L		100	80 - 120
Arsenic	0.200	0.194		mg/L		97	80 - 120
Barium	0.100	0.103		mg/L		103	80 - 120
Beryllium	0.100	0.0939		mg/L		94	80 - 120
Cadmium	0.100	0.0982		mg/L		98	80 - 120
Chromium	0.100	0.0957		mg/L		96	80 - 120
Cobalt	0.100	0.0989		mg/L		99	80 - 120
Lead	0.200	0.198		mg/L		99	80 - 120
Molybdenum	0.200	0.196		mg/L		98	80 - 120
Selenium	0.400	0.383		mg/L		96	80 - 120
Thallium	0.200	0.196		mg/L		98	80 - 120

Lab Sample ID: LCS 310-346382/2-B

Matrix: Water

Analysis Batch: 346870

Client Sample ID: Lab Control Sample

Prep Type: Dissolved

Prep Batch: 346488

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	2.00	1.96		mg/L		98	80 - 120
Lithium	0.200	0.210		mg/L		105	80 - 120

Lab Sample ID: 280-159246-17 MS

Matrix: Water

Analysis Batch: 346726

Client Sample ID: W-11

Prep Type: Dissolved

Prep Batch: 346488

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.011		0.200	0.185		mg/L		87	75 - 125
Arsenic	0.0090		0.200	0.192		mg/L		92	75 - 125
Beryllium	0.0045		0.100	0.0971		mg/L		93	75 - 125
Cadmium	0.0054		0.100	0.0895		mg/L		84	75 - 125
Chromium	0.0053	J	0.100	0.0921		mg/L		87	75 - 125

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

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

Lab Sample ID: 280-159246-17 MS

Matrix: Water

Analysis Batch: 346726

Client Sample ID: W-11

Prep Type: Dissolved

Prep Batch: 346488

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cobalt	0.020		0.100	0.105		mg/L		85	75 - 125
Lead	0.0079		0.200	0.169		mg/L		81	75 - 125
Molybdenum	0.016		0.200	0.199		mg/L		91	75 - 125
Thallium	0.018		0.200	0.174		mg/L		78	75 - 125

Lab Sample ID: 280-159246-17 MS

Matrix: Water

Analysis Batch: 346870

Client Sample ID: W-11

Prep Type: Dissolved

Prep Batch: 346488

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Barium	0.012	J	0.100	0.0956		mg/L		84	75 - 125
Calcium	390		2.00	375	4	mg/L		-616	75 - 125
Lithium	2.9		0.200	2.95	4	mg/L		46	75 - 125
Selenium	2.0		0.400	2.26	4	mg/L		60	75 - 125

Lab Sample ID: 280-159246-17 MSD

Matrix: Water

Analysis Batch: 346726

Client Sample ID: W-11

Prep Type: Dissolved

Prep Batch: 346488

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Antimony	0.011		0.200	0.191		mg/L		90	75 - 125	3	20
Arsenic	0.0090		0.200	0.200		mg/L		96	75 - 125	4	20
Beryllium	0.0045		0.100	0.101		mg/L		96	75 - 125	4	20
Cadmium	0.0054		0.100	0.0928		mg/L		87	75 - 125	4	20
Chromium	0.0053	J	0.100	0.0953		mg/L		90	75 - 125	3	20
Cobalt	0.020		0.100	0.109		mg/L		89	75 - 125	4	20
Lead	0.0079		0.200	0.179		mg/L		85	75 - 125	5	20
Molybdenum	0.016		0.200	0.208		mg/L		96	75 - 125	5	20
Thallium	0.018		0.200	0.184		mg/L		83	75 - 125	6	20

Lab Sample ID: 280-159246-17 MSD

Matrix: Water

Analysis Batch: 346870

Client Sample ID: W-11

Prep Type: Dissolved

Prep Batch: 346488

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Barium	0.012	J	0.100	0.106		mg/L		94	75 - 125	10	20
Calcium	390		2.00	408	4	mg/L		1024	75 - 125	8	20
Lithium	2.9		0.200	3.15	4	mg/L		143	75 - 125	6	20
Selenium	2.0		0.400	2.45	4	mg/L		106	75 - 125	8	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-347231/1-A

Matrix: Water

Analysis Batch: 347405

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 347231

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		03/21/22 15:06	03/22/22 13:20	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

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

Lab Sample ID: LCS 310-347231/2-A
Matrix: Water
Analysis Batch: 347405

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 347231

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00167	0.00157		mg/L		94	80 - 120

Lab Sample ID: MB 310-346383/1-B
Matrix: Water
Analysis Batch: 346699

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 346545

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		03/14/22 15:17	03/15/22 14:38	1

Lab Sample ID: LCS 310-346383/2-B
Matrix: Water
Analysis Batch: 346699

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 346545

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00167	0.00159		mg/L		96	80 - 120

Lab Sample ID: 280-159246-17 MS
Matrix: Water
Analysis Batch: 346699

Client Sample ID: W-11
Prep Type: Dissolved
Prep Batch: 346545

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		0.00167	0.00158		mg/L		95	80 - 120

Lab Sample ID: 280-159246-17 MSD
Matrix: Water
Analysis Batch: 346699

Client Sample ID: W-11
Prep Type: Dissolved
Prep Batch: 346545

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Mercury	ND		0.00167	0.00163		mg/L		98	80 - 120	3	20

Method: 9040B - pH

Lab Sample ID: LCS 280-567668/27
Matrix: Water
Analysis Batch: 567668

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH adj. to 25 deg C	7.00	7.0		SU		100	99 - 101

Lab Sample ID: LCS 280-567668/50
Matrix: Water
Analysis Batch: 567668

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH adj. to 25 deg C	7.00	7.0		SU		100	99 - 101

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Method: 9040B - pH (Continued)

Lab Sample ID: 280-159246-14 DU

Matrix: Water

Analysis Batch: 567668

Client Sample ID: W-5

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH adj. to 25 deg C	7.3	HF	7.4		SU		0.3	5
Temperature	22.5	HF	22.4		Degrees C		0.4	10

Lab Sample ID: LCS 280-567782/4

Matrix: Water

Analysis Batch: 567782

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH adj. to 25 deg C	7.00	7.0		SU		101	99 - 101

Lab Sample ID: LCS 280-568053/4

Matrix: Water

Analysis Batch: 568053

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH adj. to 25 deg C	7.00	7.1		SU		101	99 - 101

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-568665/6

Matrix: Water

Analysis Batch: 568665

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			03/15/22 11:22	1
Fluoride	ND		0.50	0.17	mg/L			03/15/22 11:22	1
Sulfate	ND		5.0	1.0	mg/L			03/15/22 11:22	1

Lab Sample ID: LCS 280-568665/4

Matrix: Water

Analysis Batch: 568665

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	96.6		mg/L		97	90 - 110
Fluoride	5.00	4.69		mg/L		94	90 - 110
Sulfate	100	97.0		mg/L		97	90 - 110

Lab Sample ID: LCSD 280-568665/5

Matrix: Water

Analysis Batch: 568665

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	96.5		mg/L		97	90 - 110	0	10
Fluoride	5.00	4.67		mg/L		93	90 - 110	1	10
Sulfate	100	96.5		mg/L		97	90 - 110	0	10

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

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

Lab Sample ID: MRL 280-568665/3

Matrix: Water

Analysis Batch: 568665

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.00	4.50		mg/L		90	50 - 150
Fluoride	0.500	0.447	J	mg/L		89	50 - 150
Sulfate	5.00	4.26	J	mg/L		85	50 - 150

Lab Sample ID: 280-159246-9 MS

Matrix: Water

Analysis Batch: 568665

Client Sample ID: W-3D

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	42		50.0	95.7		mg/L		107	80 - 120
Fluoride	0.91		5.00	5.87		mg/L		99	80 - 120

Lab Sample ID: 280-159246-9 MS

Matrix: Water

Analysis Batch: 568665

Client Sample ID: W-3D

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	1700		500	2200	E	mg/L		89	80 - 120

Lab Sample ID: 280-159246-9 MSD

Matrix: Water

Analysis Batch: 568665

Client Sample ID: W-3D

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	42		50.0	95.6		mg/L		107	80 - 120	0	20
Fluoride	0.91		5.00	5.89		mg/L		100	80 - 120	0	20

Lab Sample ID: 280-159246-9 MSD

Matrix: Water

Analysis Batch: 568665

Client Sample ID: W-3D

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	1700		500	2200	E	mg/L		91	80 - 120	0	20

Lab Sample ID: 280-159246-9 DU

Matrix: Water

Analysis Batch: 568665

Client Sample ID: W-3D

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	42		41.9		mg/L		0.4	15
Fluoride	0.91		0.896		mg/L		2	15

Lab Sample ID: 280-159246-9 DU

Matrix: Water

Analysis Batch: 568665

Client Sample ID: W-3D

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfate	1700		1730		mg/L		1	15

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

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

Lab Sample ID: MB 280-568842/13

Matrix: Water

Analysis Batch: 568842

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			03/16/22 17:04	1
Fluoride	ND		0.50	0.17	mg/L			03/16/22 17:04	1
Sulfate	ND		5.0	1.0	mg/L			03/16/22 17:04	1

Lab Sample ID: LCS 280-568842/11

Matrix: Water

Analysis Batch: 568842

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	100		mg/L		100	90 - 110
Fluoride	5.00	4.98		mg/L		100	90 - 110
Sulfate	100	101		mg/L		101	90 - 110

Lab Sample ID: LCSD 280-568842/12

Matrix: Water

Analysis Batch: 568842

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	99.8		mg/L		100	90 - 110	1	10
Fluoride	5.00	4.76		mg/L		95	90 - 110	5	10
Sulfate	100	100		mg/L		100	90 - 110	1	10

Lab Sample ID: MRL 280-568842/10

Matrix: Water

Analysis Batch: 568842

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.00	4.67		mg/L		93	50 - 150
Fluoride	0.500	0.506		mg/L		101	50 - 150
Sulfate	5.00	4.85	J	mg/L		97	50 - 150

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-567719/32

Matrix: Water

Analysis Batch: 567719

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	ND		10	3.1	mg/L			03/03/22 15:48	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			03/03/22 15:48	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			03/03/22 15:48	1

Lab Sample ID: MB 280-567719/6

Matrix: Water

Analysis Batch: 567719

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	ND		10	3.1	mg/L			03/03/22 11:48	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			03/03/22 11:48	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			03/03/22 11:48	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Method: SM 2320B - Alkalinity

Lab Sample ID: LCS 280-567719/31

Matrix: Water

Analysis Batch: 567719

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	200	199		mg/L		99	89 - 109

Lab Sample ID: LCSD 280-567719/5

Matrix: Water

Analysis Batch: 567719

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Alkalinity	200	196		mg/L		98	89 - 109	0	10

Lab Sample ID: 280-159246-2 DU

Matrix: Water

Analysis Batch: 567719

Client Sample ID: MW-7

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity	690		688		mg/L		0.2	10
Bicarbonate Alkalinity as CaCO3	690		688		mg/L		0.2	20
Carbonate Alkalinity as CaCO3	ND		ND		mg/L		NC	20

Lab Sample ID: MB 280-567837/31

Matrix: Water

Analysis Batch: 567837

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	ND		10	3.1	mg/L			03/04/22 18:25	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			03/04/22 18:25	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			03/04/22 18:25	1

Lab Sample ID: MB 280-567837/5

Matrix: Water

Analysis Batch: 567837

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	ND		10	3.1	mg/L			03/04/22 14:25	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			03/04/22 14:25	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			03/04/22 14:25	1

Lab Sample ID: LCS 280-567837/30

Matrix: Water

Analysis Batch: 567837

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	200	197		mg/L		99	89 - 109

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

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

Lab Sample ID: MB 280-567642/1
Matrix: Water
Analysis Batch: 567642

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 (TDS)	ND		10	4.7	mg/L			03/03/22 12:45	1

Lab Sample ID: LCS 280-567642/2
Matrix: Water
Analysis Batch: 567642

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 (TDS)	505	493		mg/L		98	88 - 114

Lab Sample ID: LCSD 280-567642/3
Matrix: Water
Analysis Batch: 567642

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids (TDS)	505	509		mg/L		101	88 - 114	3	20

Lab Sample ID: 280-159246-11 DU
Matrix: Water
Analysis Batch: 567642

Client Sample ID: W-2A
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids (TDS)	74000	H H3	71500		mg/L		3	10

Lab Sample ID: MB 280-567765/1
Matrix: Water
Analysis Batch: 567765

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 (TDS)	ND		10	4.7	mg/L			03/04/22 13:21	1

Lab Sample ID: LCS 280-567765/2
Matrix: Water
Analysis Batch: 567765

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 (TDS)	505	490		mg/L		97	88 - 114

Lab Sample ID: MB 280-567768/1
Matrix: Water
Analysis Batch: 567768

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 (TDS)	ND		10	4.7	mg/L			03/04/22 13:35	1

Lab Sample ID: LCS 280-567768/2
Matrix: Water
Analysis Batch: 567768

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 (TDS)	505	482		mg/L		95	88 - 114

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

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

Lab Sample ID: MB 280-568036/1
Matrix: Water
Analysis Batch: 568036

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 (TDS)	ND		10	4.7	mg/L			03/08/22 14:35	1

Lab Sample ID: LCS 280-568036/2
Matrix: Water
Analysis Batch: 568036

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 (TDS)	503	485		mg/L		96	88 - 114

Lab Sample ID: LCSD 280-568036/3
Matrix: Water
Analysis Batch: 568036

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids (TDS)	503	484		mg/L		96	88 - 114	0	20

Lab Sample ID: 280-159246-2 DU
Matrix: Water
Analysis Batch: 568036

Client Sample ID: MW-7
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids (TDS)	13000		12700		mg/L		0	10

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 280-567658/1
Matrix: Water
Analysis Batch: 567658

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			03/03/22 14:03	1

Lab Sample ID: LCS 280-567658/2
Matrix: Water
Analysis Batch: 567658

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	92.4		mg/L		92	79 - 114

Lab Sample ID: LCSD 280-567658/3
Matrix: Water
Analysis Batch: 567658

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	100	94.8		mg/L		95	79 - 114	3	20

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

Lab Sample ID: 280-159246-2 DU

Matrix: Water

Analysis Batch: 567658

Client Sample ID: MW-7

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	5.2		2.40	J F5	mg/L		74	10

Lab Sample ID: MB 280-567918/2

Matrix: Water

Analysis Batch: 567918

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			03/07/22 15:40	1

Lab Sample ID: LCS 280-567918/1

Matrix: Water

Analysis Batch: 567918

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	82.8		mg/L		83	79 - 114

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Metals

Filtration Batch: 346382

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-17	W-11	Dissolved	Water	Filtration	
MB 310-346382/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 310-346382/2-B	Lab Control Sample	Dissolved	Water	Filtration	
280-159246-17 MS	W-11	Dissolved	Water	Filtration	
280-159246-17 MSD	W-11	Dissolved	Water	Filtration	

Filtration Batch: 346383

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-17	W-11	Dissolved	Water	Filtration	
MB 310-346383/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 310-346383/2-B	Lab Control Sample	Dissolved	Water	Filtration	
280-159246-17 MS	W-11	Dissolved	Water	Filtration	
280-159246-17 MSD	W-11	Dissolved	Water	Filtration	

Filtration Batch: 346387

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-17	W-11	Dissolved	Water	Filtration	
MB 310-346387/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 310-346387/2-B	Lab Control Sample	Dissolved	Water	Filtration	
280-159246-17 MS	W-11	Dissolved	Water	Filtration	
280-159246-17 MSD	W-11	Dissolved	Water	Filtration	

Prep Batch: 346417

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-17	W-11	Dissolved	Water	3005A	346387
MB 310-346387/1-B	Method Blank	Dissolved	Water	3005A	346387
LCS 310-346387/2-B	Lab Control Sample	Dissolved	Water	3005A	346387
280-159246-17 MS	W-11	Dissolved	Water	3005A	346387
280-159246-17 MSD	W-11	Dissolved	Water	3005A	346387

Prep Batch: 346488

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-17	W-11	Dissolved	Water	3005A	346382
MB 310-346382/1-B	Method Blank	Dissolved	Water	3005A	346382
LCS 310-346382/2-B	Lab Control Sample	Dissolved	Water	3005A	346382
280-159246-17 MS	W-11	Dissolved	Water	3005A	346382
280-159246-17 MSD	W-11	Dissolved	Water	3005A	346382

Prep Batch: 346523

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-1	W-4	Total Recoverable	Water	3005A	
280-159246-2	MW-7	Total Recoverable	Water	3005A	
280-159246-3	W-12	Total Recoverable	Water	3005A	
280-159246-4	W-9	Total Recoverable	Water	3005A	
280-159246-5	W-7	Total Recoverable	Water	3005A	
280-159246-6	W-3B	Total Recoverable	Water	3005A	
280-159246-7	W-3BEB	Total Recoverable	Water	3005A	
280-159246-8	W-3	Total Recoverable	Water	3005A	
280-159246-9	W-3D	Total Recoverable	Water	3005A	
280-159246-10	W-2C	Total Recoverable	Water	3005A	
280-159246-11	W-2A	Total Recoverable	Water	3005A	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Metals (Continued)

Prep Batch: 346523 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-12	W-6	Total Recoverable	Water	3005A	
280-159246-13	W-6B	Total Recoverable	Water	3005A	
280-159246-14	W-5	Total Recoverable	Water	3005A	
280-159246-15	W-5B	Total Recoverable	Water	3005A	
280-159246-16	W-1	Total Recoverable	Water	3005A	
280-159246-17	W-11	Total Recoverable	Water	3005A	
MB 310-346523/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 310-346523/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-159246-2 MS	MW-7	Total Recoverable	Water	3005A	
280-159246-2 MSD	MW-7	Total Recoverable	Water	3005A	
280-159246-11 DU	W-2A	Total Recoverable	Water	3005A	

Prep Batch: 346524

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-1	W-4	Total Recoverable	Water	3005A	
280-159246-2	MW-7	Total Recoverable	Water	3005A	
280-159246-3	W-12	Total Recoverable	Water	3005A	
280-159246-4	W-9	Total Recoverable	Water	3005A	
280-159246-5	W-7	Total Recoverable	Water	3005A	
280-159246-6	W-3B	Total Recoverable	Water	3005A	
280-159246-7	W-3BEB	Total Recoverable	Water	3005A	
280-159246-8	W-3	Total Recoverable	Water	3005A	
280-159246-9	W-3D	Total Recoverable	Water	3005A	
280-159246-10	W-2C	Total Recoverable	Water	3005A	
280-159246-11	W-2A	Total Recoverable	Water	3005A	
280-159246-12	W-6	Total Recoverable	Water	3005A	
280-159246-13	W-6B	Total Recoverable	Water	3005A	
280-159246-14	W-5	Total Recoverable	Water	3005A	
280-159246-15	W-5B	Total Recoverable	Water	3005A	
280-159246-16	W-1	Total Recoverable	Water	3005A	
280-159246-17	W-11	Total Recoverable	Water	3005A	
MB 310-346524/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 310-346524/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-159246-2 MS	MW-7	Total Recoverable	Water	3005A	
280-159246-2 MSD	MW-7	Total Recoverable	Water	3005A	
280-159246-11 DU	W-2A	Total Recoverable	Water	3005A	

Prep Batch: 346545

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-17	W-11	Dissolved	Water	7470A	346383
MB 310-346383/1-B	Method Blank	Dissolved	Water	7470A	346383
LCS 310-346383/2-B	Lab Control Sample	Dissolved	Water	7470A	346383
280-159246-17 MS	W-11	Dissolved	Water	7470A	346383
280-159246-17 MSD	W-11	Dissolved	Water	7470A	346383

Analysis Batch: 346699

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-17	W-11	Dissolved	Water	7470A	346545
MB 310-346383/1-B	Method Blank	Dissolved	Water	7470A	346545
LCS 310-346383/2-B	Lab Control Sample	Dissolved	Water	7470A	346545
280-159246-17 MS	W-11	Dissolved	Water	7470A	346545

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Metals (Continued)

Analysis Batch: 346699 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-17 MSD	W-11	Dissolved	Water	7470A	346545

Analysis Batch: 346726

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-17	W-11	Dissolved	Water	6020A	346488
MB 310-346382/1-B	Method Blank	Dissolved	Water	6020A	346488
LCS 310-346382/2-B	Lab Control Sample	Dissolved	Water	6020A	346488
280-159246-17 MS	W-11	Dissolved	Water	6020A	346488
280-159246-17 MSD	W-11	Dissolved	Water	6020A	346488

Analysis Batch: 346870

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-17	W-11	Dissolved	Water	6020A	346488
LCS 310-346382/2-B	Lab Control Sample	Dissolved	Water	6020A	346488
280-159246-17 MS	W-11	Dissolved	Water	6020A	346488
280-159246-17 MSD	W-11	Dissolved	Water	6020A	346488

Analysis Batch: 346873

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 310-346387/1-B	Method Blank	Dissolved	Water	6010C	346417
LCS 310-346387/2-B	Lab Control Sample	Dissolved	Water	6010C	346417

Analysis Batch: 346968

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-17	W-11	Dissolved	Water	6010C	346417
280-159246-17 MS	W-11	Dissolved	Water	6010C	346417
280-159246-17 MSD	W-11	Dissolved	Water	6010C	346417

Analysis Batch: 346969

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-7	W-3BEB	Total Recoverable	Water	6010C	346524
280-159246-8	W-3	Total Recoverable	Water	6010C	346524
280-159246-9	W-3D	Total Recoverable	Water	6010C	346524
MB 310-346524/1-A	Method Blank	Total Recoverable	Water	6010C	346524
LCS 310-346524/2-A	Lab Control Sample	Total Recoverable	Water	6010C	346524

Analysis Batch: 347027

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-1	W-4	Total Recoverable	Water	6010C	346524
280-159246-2	MW-7	Total Recoverable	Water	6010C	346524
280-159246-3	W-12	Total Recoverable	Water	6010C	346524
280-159246-4	W-9	Total Recoverable	Water	6010C	346524
280-159246-5	W-7	Total Recoverable	Water	6010C	346524
280-159246-6	W-3B	Total Recoverable	Water	6010C	346524
280-159246-10	W-2C	Total Recoverable	Water	6010C	346524
280-159246-11	W-2A	Total Recoverable	Water	6010C	346524
280-159246-12	W-6	Total Recoverable	Water	6010C	346524
280-159246-13	W-6B	Total Recoverable	Water	6010C	346524
280-159246-14	W-5	Total Recoverable	Water	6010C	346524
280-159246-15	W-5B	Total Recoverable	Water	6010C	346524
280-159246-16	W-1	Total Recoverable	Water	6010C	346524

Eurofins Denver

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Metals (Continued)

Analysis Batch: 347027 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-17	W-11	Total Recoverable	Water	6010C	346524
280-159246-2 MS	MW-7	Total Recoverable	Water	6010C	346524
280-159246-2 MSD	MW-7	Total Recoverable	Water	6010C	346524
280-159246-11 DU	W-2A	Total Recoverable	Water	6010C	346524

Prep Batch: 347231

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-1	W-4	Total/NA	Water	7470A	
280-159246-2	MW-7	Total/NA	Water	7470A	
280-159246-3	W-12	Total/NA	Water	7470A	
280-159246-4	W-9	Total/NA	Water	7470A	
280-159246-5	W-7	Total/NA	Water	7470A	
280-159246-6	W-3B	Total/NA	Water	7470A	
280-159246-7	W-3BEB	Total/NA	Water	7470A	
280-159246-8	W-3	Total/NA	Water	7470A	
280-159246-9	W-3D	Total/NA	Water	7470A	
280-159246-10	W-2C	Total/NA	Water	7470A	
280-159246-11	W-2A	Total/NA	Water	7470A	
280-159246-12	W-6	Total/NA	Water	7470A	
280-159246-13	W-6B	Total/NA	Water	7470A	
280-159246-14	W-5	Total/NA	Water	7470A	
280-159246-15	W-5B	Total/NA	Water	7470A	
280-159246-16	W-1	Total/NA	Water	7470A	
280-159246-17	W-11	Total/NA	Water	7470A	
MB 310-347231/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-347231/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 347405

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-1	W-4	Total/NA	Water	7470A	347231
280-159246-2	MW-7	Total/NA	Water	7470A	347231
280-159246-3	W-12	Total/NA	Water	7470A	347231
280-159246-4	W-9	Total/NA	Water	7470A	347231
280-159246-5	W-7	Total/NA	Water	7470A	347231
280-159246-6	W-3B	Total/NA	Water	7470A	347231
280-159246-7	W-3BEB	Total/NA	Water	7470A	347231
280-159246-8	W-3	Total/NA	Water	7470A	347231
280-159246-9	W-3D	Total/NA	Water	7470A	347231
280-159246-10	W-2C	Total/NA	Water	7470A	347231
280-159246-11	W-2A	Total/NA	Water	7470A	347231
280-159246-12	W-6	Total/NA	Water	7470A	347231
280-159246-13	W-6B	Total/NA	Water	7470A	347231
280-159246-14	W-5	Total/NA	Water	7470A	347231
280-159246-15	W-5B	Total/NA	Water	7470A	347231
280-159246-16	W-1	Total/NA	Water	7470A	347231
280-159246-17	W-11	Total/NA	Water	7470A	347231
MB 310-347231/1-A	Method Blank	Total/NA	Water	7470A	347231
LCS 310-347231/2-A	Lab Control Sample	Total/NA	Water	7470A	347231

Eurofins Denver

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Metals

Analysis Batch: 347587

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-3	W-12	Total Recoverable	Water	6020A	346523
280-159246-4	W-9	Total Recoverable	Water	6020A	346523
280-159246-5	W-7	Total Recoverable	Water	6020A	346523
280-159246-6	W-3B	Total Recoverable	Water	6020A	346523
280-159246-7	W-3BEB	Total Recoverable	Water	6020A	346523
280-159246-8	W-3	Total Recoverable	Water	6020A	346523
280-159246-9	W-3D	Total Recoverable	Water	6020A	346523
280-159246-10	W-2C	Total Recoverable	Water	6020A	346523

Analysis Batch: 348591

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-1	W-4	Total Recoverable	Water	6020A	346523
280-159246-2	MW-7	Total Recoverable	Water	6020A	346523
280-159246-3	W-12	Total Recoverable	Water	6020A	346523
280-159246-4	W-9	Total Recoverable	Water	6020A	346523
280-159246-5	W-7	Total Recoverable	Water	6020A	346523
280-159246-6	W-3B	Total Recoverable	Water	6020A	346523
280-159246-7	W-3BEB	Total Recoverable	Water	6020A	346523
280-159246-8	W-3	Total Recoverable	Water	6020A	346523
280-159246-9	W-3D	Total Recoverable	Water	6020A	346523
280-159246-10	W-2C	Total Recoverable	Water	6020A	346523
280-159246-11	W-2A	Total Recoverable	Water	6020A	346523
280-159246-12	W-6	Total Recoverable	Water	6020A	346523
280-159246-13	W-6B	Total Recoverable	Water	6020A	346523
280-159246-14	W-5	Total Recoverable	Water	6020A	346523
280-159246-15	W-5B	Total Recoverable	Water	6020A	346523
280-159246-16	W-1	Total Recoverable	Water	6020A	346523
280-159246-17	W-11	Total Recoverable	Water	6020A	346523
MB 310-346523/1-A	Method Blank	Total Recoverable	Water	6020A	346523
LCS 310-346523/2-A	Lab Control Sample	Total Recoverable	Water	6020A	346523
280-159246-2 MS	MW-7	Total Recoverable	Water	6020A	346523
280-159246-2 MSD	MW-7	Total Recoverable	Water	6020A	346523
280-159246-11 DU	W-2A	Total Recoverable	Water	6020A	346523

General Chemistry

Analysis Batch: 567642

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-11	W-2A	Total/NA	Water	SM 2540C	
280-159246-12	W-6	Total/NA	Water	SM 2540C	
280-159246-13	W-6B	Total/NA	Water	SM 2540C	
280-159246-14	W-5	Total/NA	Water	SM 2540C	
280-159246-15	W-5B	Total/NA	Water	SM 2540C	
280-159246-16	W-1	Total/NA	Water	SM 2540C	
280-159246-17	W-11	Total/NA	Water	SM 2540C	
MB 280-567642/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-567642/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-567642/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
280-159246-11 DU	W-2A	Total/NA	Water	SM 2540C	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

General Chemistry

Analysis Batch: 567658

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-2	MW-7	Total/NA	Water	SM 2540D	
280-159246-3	W-12	Total/NA	Water	SM 2540D	
280-159246-4	W-9	Total/NA	Water	SM 2540D	
280-159246-5	W-7	Total/NA	Water	SM 2540D	
280-159246-7	W-3BEB	Total/NA	Water	SM 2540D	
280-159246-8	W-3	Total/NA	Water	SM 2540D	
280-159246-11	W-2A	Total/NA	Water	SM 2540D	
280-159246-12	W-6	Total/NA	Water	SM 2540D	
280-159246-13	W-6B	Total/NA	Water	SM 2540D	
280-159246-14	W-5	Total/NA	Water	SM 2540D	
280-159246-15	W-5B	Total/NA	Water	SM 2540D	
280-159246-16	W-1	Total/NA	Water	SM 2540D	
MB 280-567658/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-567658/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-567658/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	
280-159246-2 DU	MW-7	Total/NA	Water	SM 2540D	

Analysis Batch: 567668

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-2	MW-7	Total/NA	Water	9040B	
280-159246-3	W-12	Total/NA	Water	9040B	
280-159246-4	W-9	Total/NA	Water	9040B	
280-159246-5	W-7	Total/NA	Water	9040B	
280-159246-6	W-3B	Total/NA	Water	9040B	
280-159246-8	W-3	Total/NA	Water	9040B	
280-159246-9	W-3D	Total/NA	Water	9040B	
280-159246-10	W-2C	Total/NA	Water	9040B	
280-159246-11	W-2A	Total/NA	Water	9040B	
280-159246-12	W-6	Total/NA	Water	9040B	
280-159246-13	W-6B	Total/NA	Water	9040B	
280-159246-14	W-5	Total/NA	Water	9040B	
280-159246-15	W-5B	Total/NA	Water	9040B	
280-159246-16	W-1	Total/NA	Water	9040B	
280-159246-17	W-11	Total/NA	Water	9040B	
LCS 280-567668/27	Lab Control Sample	Total/NA	Water	9040B	
LCS 280-567668/50	Lab Control Sample	Total/NA	Water	9040B	
280-159246-14 DU	W-5	Total/NA	Water	9040B	

Analysis Batch: 567719

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-2	MW-7	Total/NA	Water	SM 2320B	
280-159246-3	W-12	Total/NA	Water	SM 2320B	
280-159246-4	W-9	Total/NA	Water	SM 2320B	
280-159246-5	W-7	Total/NA	Water	SM 2320B	
280-159246-6	W-3B	Total/NA	Water	SM 2320B	
280-159246-7	W-3BEB	Total/NA	Water	SM 2320B	
280-159246-8	W-3	Total/NA	Water	SM 2320B	
280-159246-9	W-3D	Total/NA	Water	SM 2320B	
280-159246-10	W-2C	Total/NA	Water	SM 2320B	
280-159246-11	W-2A	Total/NA	Water	SM 2320B	
280-159246-12	W-6	Total/NA	Water	SM 2320B	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

General Chemistry (Continued)

Analysis Batch: 567719 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-13	W-6B	Total/NA	Water	SM 2320B	
280-159246-14	W-5	Total/NA	Water	SM 2320B	
280-159246-15	W-5B	Total/NA	Water	SM 2320B	
280-159246-16	W-1	Total/NA	Water	SM 2320B	
MB 280-567719/32	Method Blank	Total/NA	Water	SM 2320B	
MB 280-567719/6	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-567719/31	Lab Control Sample	Total/NA	Water	SM 2320B	
LCSD 280-567719/5	Lab Control Sample Dup	Total/NA	Water	SM 2320B	
280-159246-2 DU	MW-7	Total/NA	Water	SM 2320B	

Analysis Batch: 567765

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-6	W-3B	Total/NA	Water	SM 2540C	
280-159246-7	W-3BEB	Total/NA	Water	SM 2540C	
280-159246-8	W-3	Total/NA	Water	SM 2540C	
280-159246-9	W-3D	Total/NA	Water	SM 2540C	
280-159246-10	W-2C	Total/NA	Water	SM 2540C	
MB 280-567765/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-567765/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 567768

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-3	W-12	Total/NA	Water	SM 2540C	
280-159246-4	W-9	Total/NA	Water	SM 2540C	
280-159246-5	W-7	Total/NA	Water	SM 2540C	
MB 280-567768/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-567768/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 567782

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-7	W-3BEB	Total/NA	Water	9040B	
LCS 280-567782/4	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 567837

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-17	W-11	Total/NA	Water	SM 2320B	
MB 280-567837/31	Method Blank	Total/NA	Water	SM 2320B	
MB 280-567837/5	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-567837/30	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 567918

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-6	W-3B	Total/NA	Water	SM 2540D	
280-159246-9	W-3D	Total/NA	Water	SM 2540D	
280-159246-10	W-2C	Total/NA	Water	SM 2540D	
280-159246-17	W-11	Total/NA	Water	SM 2540D	
MB 280-567918/2	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-567918/1	Lab Control Sample	Total/NA	Water	SM 2540D	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

General Chemistry

Analysis Batch: 568036

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-1	W-4	Total/NA	Water	SM 2540C	
280-159246-2	MW-7	Total/NA	Water	SM 2540C	
MB 280-568036/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-568036/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-568036/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
280-159246-2 DU	MW-7	Total/NA	Water	SM 2540C	

Analysis Batch: 568053

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-1	W-4	Total/NA	Water	9040B	
LCS 280-568053/4	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 568665

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-1	W-4	Total/NA	Water	9056A	
280-159246-1	W-4	Total/NA	Water	9056A	
280-159246-1	W-4	Total/NA	Water	9056A	
280-159246-2	MW-7	Total/NA	Water	9056A	
280-159246-2	MW-7	Total/NA	Water	9056A	
280-159246-2	MW-7	Total/NA	Water	9056A	
280-159246-3	W-12	Total/NA	Water	9056A	
280-159246-3	W-12	Total/NA	Water	9056A	
280-159246-3	W-12	Total/NA	Water	9056A	
280-159246-4	W-9	Total/NA	Water	9056A	
280-159246-4	W-9	Total/NA	Water	9056A	
280-159246-4	W-9	Total/NA	Water	9056A	
280-159246-5	W-7	Total/NA	Water	9056A	
280-159246-5	W-7	Total/NA	Water	9056A	
280-159246-6	W-3B	Total/NA	Water	9056A	
280-159246-6	W-3B	Total/NA	Water	9056A	
280-159246-6	W-3B	Total/NA	Water	9056A	
280-159246-7	W-3BEB	Total/NA	Water	9056A	
280-159246-8	W-3	Total/NA	Water	9056A	
280-159246-8	W-3	Total/NA	Water	9056A	
280-159246-9	W-3D	Total/NA	Water	9056A	
280-159246-9	W-3D	Total/NA	Water	9056A	
280-159246-10	W-2C	Total/NA	Water	9056A	
280-159246-11	W-2A	Total/NA	Water	9056A	
280-159246-11	W-2A	Total/NA	Water	9056A	
280-159246-12	W-6	Total/NA	Water	9056A	
280-159246-12	W-6	Total/NA	Water	9056A	
280-159246-13	W-6B	Total/NA	Water	9056A	
280-159246-13	W-6B	Total/NA	Water	9056A	
280-159246-13	W-6B	Total/NA	Water	9056A	
280-159246-14	W-5	Total/NA	Water	9056A	
280-159246-14	W-5	Total/NA	Water	9056A	
280-159246-14	W-5	Total/NA	Water	9056A	
280-159246-15	W-5B	Total/NA	Water	9056A	
280-159246-15	W-5B	Total/NA	Water	9056A	
280-159246-16	W-1	Total/NA	Water	9056A	
280-159246-16	W-1	Total/NA	Water	9056A	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

General Chemistry (Continued)

Analysis Batch: 568665 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-17	W-11	Total/NA	Water	9056A	
280-159246-17	W-11	Total/NA	Water	9056A	
280-159246-17	W-11	Total/NA	Water	9056A	
MB 280-568665/6	Method Blank	Total/NA	Water	9056A	
LCS 280-568665/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-568665/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-568665/3	Lab Control Sample	Total/NA	Water	9056A	
280-159246-9 MS	W-3D	Total/NA	Water	9056A	
280-159246-9 MS	W-3D	Total/NA	Water	9056A	
280-159246-9 MSD	W-3D	Total/NA	Water	9056A	
280-159246-9 MSD	W-3D	Total/NA	Water	9056A	
280-159246-9 DU	W-3D	Total/NA	Water	9056A	
280-159246-9 DU	W-3D	Total/NA	Water	9056A	

Analysis Batch: 568842

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-10	W-2C	Total/NA	Water	9056A	
280-159246-16	W-1	Total/NA	Water	9056A	
MB 280-568842/13	Method Blank	Total/NA	Water	9056A	
LCS 280-568842/11	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-568842/12	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-568842/10	Lab Control Sample	Total/NA	Water	9056A	

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Client Sample ID: W-4

Date Collected: 03/02/22 11:40

Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	346524	03/17/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6010C		20			347027	03/18/22 11:03	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	346523	03/18/22 08:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			348591	04/02/22 00:54	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	347231	03/21/22 15:06	EAM	TAL CF
Total/NA	Analysis	7470A		1			347405	03/22/22 13:29	EAM	TAL CF
Total/NA	Analysis	9040B		1			568053	03/08/22 12:57	KEG	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	568665	03/15/22 15:59	RAF	TAL DEN
Total/NA	Analysis	9056A		20	10 mL	10 mL	568665	03/15/22 16:14	RAF	TAL DEN
Total/NA	Analysis	9056A		200	10 mL	10 mL	568665	03/15/22 16:29	RAF	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	568036	03/08/22 14:36	ECC	TAL DEN

Client Sample ID: MW-7

Date Collected: 03/02/22 09:45

Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	346524	03/17/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6010C		5			347027	03/18/22 11:05	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	346523	03/18/22 08:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			348591	04/02/22 00:58	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	347231	03/21/22 15:06	EAM	TAL CF
Total/NA	Analysis	7470A		1			347405	03/22/22 13:31	EAM	TAL CF
Total/NA	Analysis	9040B		1			567668	03/03/22 14:16	KEG	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	568665	03/15/22 16:44	RAF	TAL DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	568665	03/15/22 16:59	RAF	TAL DEN
Total/NA	Analysis	9056A		200	10 mL	10 mL	568665	03/15/22 17:14	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			567719	03/03/22 15:59	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	568036	03/08/22 14:36	ECC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	567658	03/03/22 14:03	ECC	TAL DEN

Client Sample ID: W-12

Date Collected: 03/01/22 16:30

Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	346524	03/17/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6010C		10			347027	03/18/22 11:11	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	346523	03/18/22 08:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			348591	04/02/22 01:10	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	346523	03/18/22 08:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		1			347587	03/23/22 17:55	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	347231	03/21/22 15:06	EAM	TAL CF
Total/NA	Analysis	7470A		1			347405	03/22/22 13:38	EAM	TAL CF

Eurofins Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Client Sample ID: W-12

Lab Sample ID: 280-159246-3

Date Collected: 03/01/22 16:30

Matrix: Water

Date Received: 03/02/22 16:34

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9040B		1			567668	03/03/22 14:20	KEG	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	568665	03/15/22 19:59	RAF	TAL DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	568665	03/15/22 20:14	RAF	TAL DEN
Total/NA	Analysis	9056A		200	10 mL	10 mL	568665	03/15/22 20:29	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			567719	03/03/22 16:25	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	567768	03/04/22 14:36	ECC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	567658	03/03/22 14:03	ECC	TAL DEN

Client Sample ID: W-9

Lab Sample ID: 280-159246-4

Date Collected: 03/01/22 13:40

Matrix: Water

Date Received: 03/02/22 16:34

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	346524	03/17/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6010C		7			347027	03/18/22 11:13	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	346523	03/18/22 08:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			348591	04/02/22 01:30	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	346523	03/18/22 08:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		1			347587	03/23/22 17:58	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	347231	03/21/22 15:06	EAM	TAL CF
Total/NA	Analysis	7470A		1			347405	03/22/22 13:45	EAM	TAL CF
Total/NA	Analysis	9040B		1			567668	03/03/22 14:26	KEG	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	568665	03/15/22 20:44	RAF	TAL DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	568665	03/15/22 20:59	RAF	TAL DEN
Total/NA	Analysis	9056A		200	10 mL	10 mL	568665	03/15/22 21:14	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			567719	03/03/22 16:36	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	567768	03/04/22 14:36	ECC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	567658	03/03/22 14:03	ECC	TAL DEN

Client Sample ID: W-7

Lab Sample ID: 280-159246-5

Date Collected: 03/01/22 11:30

Matrix: Water

Date Received: 03/02/22 16:34

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	346524	03/17/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6010C		30			347027	03/18/22 11:15	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	346523	03/18/22 08:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			348591	04/02/22 01:34	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	346523	03/18/22 08:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		1			347587	03/23/22 18:02	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	347231	03/21/22 15:06	EAM	TAL CF
Total/NA	Analysis	7470A		1			347405	03/22/22 13:47	EAM	TAL CF
Total/NA	Analysis	9040B		1			567668	03/03/22 14:30	KEG	TAL DEN

Eurofins Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Client Sample ID: W-7

Lab Sample ID: 280-159246-5

Date Collected: 03/01/22 11:30

Matrix: Water

Date Received: 03/02/22 16:34

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		5	10 mL	10 mL	568665	03/15/22 22:14	RAF	TAL DEN
Total/NA	Analysis	9056A		1000	10 mL	10 mL	568665	03/15/22 22:29	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			567719	03/03/22 16:49	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	567768	03/04/22 14:36	ECC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	567658	03/03/22 14:03	ECC	TAL DEN

Client Sample ID: W-3B

Lab Sample ID: 280-159246-6

Date Collected: 02/23/22 16:20

Matrix: Water

Date Received: 03/02/22 16:34

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	346524	03/17/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6010C		30			347027	03/18/22 11:17	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	346523	03/18/22 08:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			348591	04/02/22 01:38	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	346523	03/18/22 08:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		1			347587	03/23/22 18:05	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	347231	03/21/22 15:06	EAM	TAL CF
Total/NA	Analysis	7470A		1			347405	03/22/22 13:49	EAM	TAL CF
Total/NA	Analysis	9040B		1			567668	03/03/22 14:34	KEG	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	568665	03/15/22 22:44	RAF	TAL DEN
Total/NA	Analysis	9056A		10	10 mL	10 mL	568665	03/15/22 22:59	RAF	TAL DEN
Total/NA	Analysis	9056A		500	10 mL	10 mL	568665	03/15/22 23:14	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			567719	03/03/22 17:01	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	567765	03/04/22 14:22	ECC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	567918	03/07/22 15:40	LRB	TAL DEN

Client Sample ID: W-3BEB

Lab Sample ID: 280-159246-7

Date Collected: 02/23/22 16:40

Matrix: Water

Date Received: 03/02/22 16:34

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	346524	03/17/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6010C		1			346969	03/17/22 21:53	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	346523	03/18/22 08:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		1			348591	04/02/22 01:42	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	346523	03/18/22 08:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		1			347587	03/23/22 18:08	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	347231	03/21/22 15:06	EAM	TAL CF
Total/NA	Analysis	7470A		1			347405	03/22/22 13:51	EAM	TAL CF
Total/NA	Analysis	9040B		1			567782	03/04/22 14:33	KEG	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	568665	03/15/22 23:29	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			567719	03/03/22 17:07	KEG	TAL DEN

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Client Sample ID: W-3BEB

Date Collected: 02/23/22 16:40

Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	567765	03/04/22 14:22	ECC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	567658	03/03/22 14:03	ECC	TAL DEN

Client Sample ID: W-3

Date Collected: 02/23/22 12:45

Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	346524	03/17/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6010C		1			346969	03/17/22 21:59	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	346523	03/18/22 08:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		4			348591	04/02/22 01:46	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	346523	03/18/22 08:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		1			347587	03/23/22 18:12	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	347231	03/21/22 15:06	EAM	TAL CF
Total/NA	Analysis	7470A		1			347405	03/22/22 13:53	EAM	TAL CF
Total/NA	Analysis	9040B		1			567668	03/03/22 14:46	KEG	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	568665	03/16/22 00:44	RAF	TAL DEN
Total/NA	Analysis	9056A		200	10 mL	10 mL	568665	03/16/22 01:14	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			567719	03/03/22 17:14	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	567765	03/04/22 14:22	ECC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	567658	03/03/22 14:03	ECC	TAL DEN

Client Sample ID: W-3D

Date Collected: 02/23/22 12:50

Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	346524	03/17/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6010C		1			346969	03/17/22 22:01	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	346523	03/18/22 08:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		4			348591	04/02/22 01:50	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	346523	03/18/22 08:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		1			347587	03/23/22 18:28	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	347231	03/21/22 15:06	EAM	TAL CF
Total/NA	Analysis	7470A		1			347405	03/22/22 13:55	EAM	TAL CF
Total/NA	Analysis	9040B		1			567668	03/03/22 14:50	KEG	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	568665	03/15/22 17:29	RAF	TAL DEN
Total/NA	Analysis	9056A		10	10 mL	10 mL	568665	03/15/22 18:59	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			567719	03/03/22 17:21	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	567765	03/04/22 14:22	ECC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	567918	03/07/22 15:40	LRB	TAL DEN

Eurofins Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Client Sample ID: W-2C

Date Collected: 02/23/22 10:20

Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	346524	03/17/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6010C		30			347027	03/18/22 11:18	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	346523	03/18/22 08:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			348591	04/02/22 01:54	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	346523	03/18/22 08:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		1			347587	03/23/22 18:31	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	347231	03/21/22 15:06	EAM	TAL CF
Total/NA	Analysis	7470A		1			347405	03/22/22 13:58	EAM	TAL CF
Total/NA	Analysis	9040B		1			567668	03/03/22 14:54	KEG	TAL DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	568665	03/16/22 01:44	RAF	TAL DEN
Total/NA	Analysis	9056A		500	5 mL	5 mL	568842	03/16/22 20:20	CJ	TAL DEN
Total/NA	Analysis	SM 2320B		1			567719	03/03/22 17:31	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	567765	03/04/22 14:22	ECC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	567918	03/07/22 15:40	LRB	TAL DEN

Client Sample ID: W-2A

Date Collected: 02/22/22 14:50

Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-11

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	346524	03/17/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6010C		30			347027	03/18/22 11:24	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	346523	03/18/22 08:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			348591	04/02/22 01:57	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	347231	03/21/22 15:06	EAM	TAL CF
Total/NA	Analysis	7470A		1			347405	03/22/22 14:00	EAM	TAL CF
Total/NA	Analysis	9040B		1			567668	03/03/22 14:57	KEG	TAL DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	568665	03/16/22 03:59	RAF	TAL DEN
Total/NA	Analysis	9056A		1000	10 mL	10 mL	568665	03/16/22 04:14	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			567719	03/03/22 17:54	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	567642	03/03/22 12:46	ECC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	567658	03/03/22 14:03	ECC	TAL DEN

Client Sample ID: W-6

Date Collected: 02/24/22 14:20

Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-12

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	346524	03/17/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6010C		30			347027	03/18/22 11:28	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	346523	03/18/22 08:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			348591	04/02/22 02:05	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	347231	03/21/22 15:06	EAM	TAL CF
Total/NA	Analysis	7470A		1			347405	03/22/22 14:02	EAM	TAL CF

Eurofins Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Client Sample ID: W-6

Lab Sample ID: 280-159246-12

Date Collected: 02/24/22 14:20

Matrix: Water

Date Received: 03/02/22 16:34

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9040B		1			567668	03/03/22 15:01	KEG	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	568665	03/16/22 04:29	RAF	TAL DEN
Total/NA	Analysis	9056A		500	10 mL	10 mL	568665	03/16/22 04:59	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			567719	03/03/22 18:04	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	567642	03/03/22 12:46	ECC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	567658	03/03/22 14:03	ECC	TAL DEN

Client Sample ID: W-6B

Lab Sample ID: 280-159246-13

Date Collected: 02/24/22 12:40

Matrix: Water

Date Received: 03/02/22 16:34

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	346524	03/17/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6010C		30			347027	03/18/22 11:30	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	346523	03/18/22 08:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			348591	04/02/22 02:25	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	347231	03/21/22 15:06	EAM	TAL CF
Total/NA	Analysis	7470A		1			347405	03/22/22 14:09	EAM	TAL CF
Total/NA	Analysis	9040B		1			567668	03/03/22 15:05	KEG	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	568665	03/16/22 05:14	RAF	TAL DEN
Total/NA	Analysis	9056A		10	10 mL	10 mL	568665	03/16/22 05:29	RAF	TAL DEN
Total/NA	Analysis	9056A		500	10 mL	10 mL	568665	03/16/22 05:44	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			567719	03/03/22 18:16	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	567642	03/03/22 12:46	ECC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	567658	03/03/22 14:03	ECC	TAL DEN

Client Sample ID: W-5

Lab Sample ID: 280-159246-14

Date Collected: 02/24/22 16:25

Matrix: Water

Date Received: 03/02/22 16:34

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	346524	03/17/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6010C		30			347027	03/18/22 11:32	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	346523	03/18/22 08:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			348591	04/02/22 02:29	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	347231	03/21/22 15:06	EAM	TAL CF
Total/NA	Analysis	7470A		1			347405	03/22/22 14:11	EAM	TAL CF
Total/NA	Analysis	9040B		1			567668	03/03/22 15:15	KEG	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	568665	03/16/22 06:29	RAF	TAL DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	568665	03/16/22 06:44	RAF	TAL DEN
Total/NA	Analysis	9056A		500	10 mL	10 mL	568665	03/16/22 06:59	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			567719	03/03/22 18:26	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	567642	03/03/22 12:46	ECC	TAL DEN

Eurofins Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Client Sample ID: W-5

Date Collected: 02/24/22 16:25

Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-14

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	567658	03/03/22 14:03	ECC	TAL DEN

Client Sample ID: W-5B

Date Collected: 02/25/22 11:30

Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-15

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	346524	03/17/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6010C		30			347027	03/18/22 11:34	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	346523	03/18/22 08:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			348591	04/02/22 02:33	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	347231	03/21/22 15:06	EAM	TAL CF
Total/NA	Analysis	7470A		1			347405	03/22/22 14:13	EAM	TAL CF
Total/NA	Analysis	9040B		1			567668	03/03/22 15:22	KEG	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	568665	03/16/22 07:14	RAF	TAL DEN
Total/NA	Analysis	9056A		100	10 mL	10 mL	568665	03/16/22 07:44	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			567719	03/03/22 18:33	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	567642	03/03/22 12:46	ECC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	567658	03/03/22 14:03	ECC	TAL DEN

Client Sample ID: W-1

Date Collected: 02/25/22 12:25

Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-16

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	346524	03/17/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6010C		30			347027	03/18/22 11:36	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	346523	03/18/22 08:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			348591	04/02/22 02:37	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	347231	03/21/22 15:06	EAM	TAL CF
Total/NA	Analysis	7470A		1			347405	03/22/22 14:15	EAM	TAL CF
Total/NA	Analysis	9040B		1			567668	03/03/22 15:26	KEG	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	568665	03/16/22 07:59	RAF	TAL DEN
Total/NA	Analysis	9056A		10	10 mL	10 mL	568665	03/16/22 08:14	RAF	TAL DEN
Total/NA	Analysis	9056A		200	5 mL	5 mL	568842	03/16/22 20:50	CJ	TAL DEN
Total/NA	Analysis	SM 2320B		1			567719	03/03/22 18:43	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	567642	03/03/22 12:46	ECC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	567658	03/03/22 14:03	ECC	TAL DEN

Eurofins Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Client Sample ID: W-11

Lab Sample ID: 280-159246-17

Date Collected: 02/25/22 16:35

Matrix: Water

Date Received: 03/02/22 16:34

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	Filtration			50 mL	50 mL	346387	03/11/22 16:50	ACM2	TAL CF
Dissolved	Prep	3005A			50 mL	50 mL	346417	03/14/22 09:00	ACM2	TAL CF
Dissolved	Analysis	6010C		7			346968	03/17/22 19:15	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	346524	03/17/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6010C		30			347027	03/18/22 11:38	CTB	TAL CF
Dissolved	Filtration	Filtration			50 mL	50 mL	346382	03/11/22 16:50	ACM2	TAL CF
Dissolved	Prep	3005A			50 mL	50 mL	346488	03/14/22 09:00	ACM2	TAL CF
Dissolved	Analysis	6020A		4			346726	03/16/22 01:11	SAP	TAL CF
Dissolved	Filtration	Filtration			50 mL	50 mL	346382	03/11/22 16:50	ACM2	TAL CF
Dissolved	Prep	3005A			50 mL	50 mL	346488	03/14/22 09:00	ACM2	TAL CF
Dissolved	Analysis	6020A		10			346870	03/16/22 16:08	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	346523	03/18/22 08:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			348591	04/02/22 02:41	SAP	TAL CF
Dissolved	Filtration	Filtration			30 mL	30 mL	346383	03/11/22 16:50	ACM2	TAL CF
Dissolved	Prep	7470A			30 mL	40 mL	346545	03/14/22 15:17	EAM	TAL CF
Dissolved	Analysis	7470A		1			346699	03/15/22 14:42	EAM	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	347231	03/21/22 15:06	EAM	TAL CF
Total/NA	Analysis	7470A		1			347405	03/22/22 14:17	EAM	TAL CF
Total/NA	Analysis	9040B		1			567668	03/03/22 15:30	KEG	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	568665	03/16/22 09:14	RAF	TAL DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	568665	03/16/22 09:29	RAF	TAL DEN
Total/NA	Analysis	9056A		200	10 mL	10 mL	568665	03/16/22 09:44	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			567837	03/04/22 21:39	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	567642	03/03/22 12:46	ECC	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	567918	03/07/22 15:40	LRB	TAL DEN

Laboratory References:

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

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

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-1

Laboratory: Eurofins Denver

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

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-23
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
9040B		Water	Temperature

Laboratory: Eurofins Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Colorado	Petroleum Storage Tank Program	IA100001 (OR)	09-29-22
Georgia	State	IA100001 (OR)	09-29-22
Illinois	NELAP	200024	11-29-22
Iowa	State	007	12-01-21 *
Kansas	NELAP	E-10341	01-31-23
Minnesota	NELAP	019-999-319	12-31-22
Minnesota (Petrofund)	State	3349	04-06-23
North Dakota	State	R-186	09-29-22
Oregon	NELAP	IA100001	09-29-22

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

Eurofins Denver

Chain of Custody Record

Client Information		Sampler: <u>T. Snyder</u>		Lab PM: <u>Harrington, Danielle M</u>	Carrier Tracking No(s):	COC No: <u>280-110862-32017.2</u>	
Client Contact: <u>Molly Reeves</u>		Phone: <u>720 838 6065</u>		E-Mail: <u>Danielle.Harrington@Eurofinset.com</u>	State of Origin:	Page: <u>2 of 2</u>	
Company: <u>HDR Inc</u>		PWSID:		Job #:			
Address: <u>1670 Broadway Suite 3400</u>		Due Date Requested:		Analysis Requested			
City: <u>Denver</u>		TAT Requested (days): <u>ASAP</u>		Preservation Codes:			
State, Zip: <u>CO, 80202</u>		Compliance Project: <u>Δ Yes Δ No</u>		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO ₄ F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA M - Hexane N - None O - AshNaO ₂ P - Na ₂ O ₄ S Q - Na ₂ SO ₃ R - Na ₂ SO ₃ S - H ₂ SO ₄ T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)			
Phone: <u>734-263-7138(Tel)</u>		PO #: <u>DEN-021</u>		Other:			
Email: <u>Molly.Reeves@hdrinc.com</u>		WO #:					
Project Name: <u>Xcel Energy GW CCR Monitoring - Comanche</u>		Project #:					
Site: <u>COLORADO</u>		SSOW#:					
Groundwater- CCR (App III and App IV)							
Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)	
<u>W-4</u>		<u>3/2/22</u>		<u>1140</u>		<u>G</u>	
<u>W-7</u>		<u>3/2/22</u>		<u>0945</u>		<u>G</u>	
<u>W-12</u>		<u>3/1/22</u>		<u>1630</u>		<u>G</u>	
<u>W-9</u>		<u>3/1/22</u>		<u>1340</u>		<u>G</u>	
<u>W-7</u>		<u>3/1/22</u>		<u>1130</u>		<u>G</u>	
<u>W-3B</u>		<u>2/23/22</u>		<u>1620</u>		<u>G</u>	
<u>W-3BEB</u>		<u>2/23/22</u>		<u>1640</u>		<u>G</u>	
<u>W-3</u>		<u>2/23/22</u>		<u>1245</u>		<u>G</u>	
<u>W-3D</u>		<u>2/23/22</u>		<u>1250</u>		<u>G</u>	
<u>W-2C</u>		<u>2/23/22</u>		<u>1020</u>		<u>G</u>	
<u>W-2A</u>		<u>2/22/22</u>		<u>1450</u>		<u>G</u>	
Possible Hazard Identification		☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological		Special Disposal (A fee may be assessed if samples are retained longer than 1 month)			
Deliverable Requested: ☐ I, II, III, IV, Other (specify)		☐ Return To Client ☐ Disposal By Lab ☐ Archive For		Months			
Empty Kit Relinquished by:		Date:		Method of Shipment:			
Relinquished by: <u>[Signature]</u>		Date/Time: <u>3/2/22 1630</u>		Company: <u>ETADEN</u>			
Relinquished by:		Date/Time:		Company:			
Relinquished by:		Date/Time:		Company:			
Custody Seals Intact: <u>Δ Yes Δ No</u>		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: <u>1.3, 3.9, 0.3, 0.4, 2.9, 2.4, 0.5 CF 0.2</u>			

Chain of Custody Record

[illegible]



Environment Testing
America



280-159246 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>Eurofins Denver</u>			
City/State:	<u>Arvada</u>	STATE: <u>CO</u>	Project: <u>Xcel Energy GW CCR</u>
Receipt Information			
Date/Time Received:	DATE: <u>3/5/22</u>	TIME: <u>905</u>	Received By: <u>LJR</u>
Delivery Type: ☐ UPS ☒ FedEx <u>SAT</u> ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?		☒ Yes ☐ No	If yes: Cooler ID: _____
Multiple Coolers?		☐ Yes ☒ No	If yes: Cooler # _____ of _____
Cooler Custody Seals Present?		☒ Yes ☐ No	If yes: Cooler custody seals intact? ☒ Yes ☐ No
Sample Custody Seals Present?		☐ Yes ☒ No	If yes: Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?		☐ Yes ☒ No	If yes: Which VOA samples are in cooler? ↓
Temperature Record			
Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: _____ ☐ NONE			
Thermometer ID: <u>W</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): _____		Corrected Temp (°C): _____	
• Sample Container Temperature			
Container(s) used:	<u>CONTAINER 1</u> <u>500 mL PI Nitric</u>		<u>CONTAINER 2</u>
Uncorrected Temp (°C):	<u>1.3</u>		
Corrected Temp (°C):	<u>1.3</u>		
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No a) If yes: Is there evidence that the chilling process began? ☐ Yes ☐ No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			

Chain of Custody Record

Client Information (Sub Contract Lab)						Sampler	Lab PM	Harrington, Danielle M	Carrier Tracking No(s)	COC No									
Client Contact:						Phone	E-Mail	Danielle Harrington@Eurofinset.com	State of Origin	Page									
Shipping/Receiving										Colorado	Page 2 of 2								
Company										Job #									
Address										Accreditations Required (See note)									
City										DoD - A2LA									
State, Zip																			
IA, 50613																			
Phone																			
319-277-2401(Tel) 319-277-2425(Fax)																			
Email																			
Project Name																			
Xcel Energy GW CCR Monitoring - Comanche																			
Site																			
Xcel Energy CCR - Comanche Station																			
Sample Identification - Client ID (Lab ID)						Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=swab/tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020A/3005A (MOD) 13 Total Metals (w/collision cell)	7470A/7470A_Prep Mercury	6010C/3005A (MOD) Boron	6020A/Filtration_ME (MOD) 13 Total Metals	(w/collision cell)	7470A/Filtration_ME Mercury	Total Number of containers	Special Instructions/Note:
W-2C (280-159246-10)						2/23/22	Mountain	Water	Water	X	X	X	X	X	X	X	X	1	
W-2A (280-159246-11)						2/22/22	Mountain	Water	Water	X	X	X	X	X	X	X	1		
W-6 (280-159246-12)						2/24/22	Mountain	Water	Water	X	X	X	X	X	X	X	1		
W-6B (280-159246-13)						2/24/22	Mountain	Water	Water	X	X	X	X	X	X	X	1		
W-5 (280-159246-14)						2/24/22	Mountain	Water	Water	X	X	X	X	X	X	X	1		
W-5B (280-159246-15)						2/25/22	Mountain	Water	Water	X	X	X	X	X	X	X	1		
W-1 (280-159246-16)						2/25/22	Mountain	Water	Water	X	X	X	X	X	X	X	1		
W-11 (280-159246-17)						2/25/22	Mountain	Water	Water	X	X	X	X	X	X	X	2		

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

Possible Hazard Identification

Unconfirmed

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

Primary Deliverable Rank 2

Date: _____

Relinquished by _____

Relinquished by _____

Relinquished by _____

Relinquished by _____

Custody Seal No.: _____

A Yes A No

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Return To Client ☐ Disposal By Lab ☐

Archive For _____ Months

Special Instructions/QC Requirements:

Method of Shipment:

Date: _____

Received by _____

Received by _____

Received by _____

Company _____

Company _____

Company _____

Cooler Temperature(s) °C and Other Remarks

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-159246-1

Login Number: 159246

List Source: Eurofins Denver

List Number: 1

Creator: Roehsner, Karen P

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

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-159246-1

Login Number: 159246

List Number: 2

Creator: Kizer, Preston V

List Source: Eurofins Cedar Falls

List Creation: 03/05/22 10:42 AM

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?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

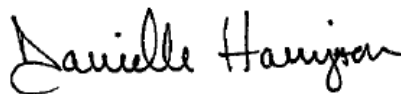
Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-159246-2

Client Project/Site: Xcel Energy GW CCR Monitoring -
Comanche

For:
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Attn: Molly Reeves



Authorized for release by:
4/4/2022 12:48:43 PM

Danielle Harrington, Project Manager II
(303)736-0176
Danielle.Harrington@Eurofinset.com

LINKS

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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-2

Qualifiers

Rad

Qualifier	Qualifier Description
G	The Sample MDC is greater than the requested RL.
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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-2

Job ID: 280-159246-2

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-159246-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 03/02/2022; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt were 0.1°C, 0.2°C, 0.3°C, 1.1°C, 2.2°C, 2.7°C and 3.7°C.

This report just contains the RAD work analyses. All other analyses are reported under lobin 280-159246-1.

RADIUM-226 (GFPC)- Method 9315

The following samples were prepared at a reduced aliquot due to Matrix: MW-7 (280-159246-2), W-9 (280-159246-4), W-7 (280-159246-5), W-3B (280-159246-6), W-3 (280-159246-8), W-3D (280-159246-9), W-2C (280-159246-10), W-2A (280-159246-11), W-6 (280-159246-12), W-6B (280-159246-13), W-5 (280-159246-14), W-5B (280-159246-15), W-1 (280-159246-16) and W-11 (280-159246-17).

Method 9315_Ra226: Radium-226 Prep Batch 160-554341The following samples were prepared at a reduced aliquot due to Matrix: W-12 (280-159246-3).

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

RADIUM-228- Method 9320

The following samples were prepared at a reduced aliquot due to Matrix: MW-7 (280-159246-2), W-9 (280-159246-4), W-7 (280-159246-5), W-3B (280-159246-6), W-3 (280-159246-8), W-3D (280-159246-9), W-2C (280-159246-10), W-2A (280-159246-11), W-6 (280-159246-12), W-6B (280-159246-13), W-5 (280-159246-14), W-5B (280-159246-15), W-1 (280-159246-16) and W-11 (280-159246-17).

Method 9320_Ra228: Radium-228 Prep Batch 160-554430The following samples were prepared at a reduced aliquot due to Matrix: W-12 (280-159246-3).

Method 9320_Ra228: Radium 228 batch 554430The detection goal was not met for the following sample(s). Sample was prepped at a reduced volume due to the presence of matrix interferences: W-12 (280-159246-3). Analytical results are reported with the detection limit achieved.

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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-2

Job ID: 280-159246-2 (Continued)

Laboratory: Eurofins Denver (Continued)

RADIUM-226/RADIUM-228 (GFPC)

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

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Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-2

Client Sample ID: MW-7	Lab Sample ID: 280-159246-2
☐ No Detections.	
Client Sample ID: W-12	Lab Sample ID: 280-159246-3
☐ No Detections.	
Client Sample ID: W-9	Lab Sample ID: 280-159246-4
☐ No Detections.	
Client Sample ID: W-7	Lab Sample ID: 280-159246-5
☐ No Detections.	
Client Sample ID: W-3B	Lab Sample ID: 280-159246-6
☐ No Detections.	
Client Sample ID: W-3BEB	Lab Sample ID: 280-159246-7
☐ No Detections.	
Client Sample ID: W-3	Lab Sample ID: 280-159246-8
☐ No Detections.	
Client Sample ID: W-3D	Lab Sample ID: 280-159246-9
☐ No Detections.	
Client Sample ID: W-2C	Lab Sample ID: 280-159246-10
☐ No Detections.	
Client Sample ID: W-2A	Lab Sample ID: 280-159246-11
☐ No Detections.	
Client Sample ID: W-6	Lab Sample ID: 280-159246-12
☐ No Detections.	
Client Sample ID: W-6B	Lab Sample ID: 280-159246-13
☐ No Detections.	
Client Sample ID: W-5	Lab Sample ID: 280-159246-14
☐ No Detections.	
Client Sample ID: W-5B	Lab Sample ID: 280-159246-15
☐ No Detections.	
Client Sample ID: W-1	Lab Sample ID: 280-159246-16
☐ No Detections.	
Client Sample ID: W-11	Lab Sample ID: 280-159246-17
☐ No Detections.	

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Method Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-2

Method	Method Description	Protocol	Laboratory
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

Protocol References:

None = None

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:

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

Sample Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-159246-2	MW-7	Water	03/02/22 09:45	03/02/22 16:34
280-159246-3	W-12	Water	03/01/22 16:30	03/02/22 16:34
280-159246-4	W-9	Water	03/01/22 13:40	03/02/22 16:34
280-159246-5	W-7	Water	03/01/22 11:30	03/02/22 16:34
280-159246-6	W-3B	Water	02/23/22 16:20	03/02/22 16:34
280-159246-7	W-3BEB	Water	02/23/22 16:40	03/02/22 16:34
280-159246-8	W-3	Water	02/23/22 12:45	03/02/22 16:34
280-159246-9	W-3D	Water	02/23/22 12:50	03/02/22 16:34
280-159246-10	W-2C	Water	02/23/22 10:20	03/02/22 16:34
280-159246-11	W-2A	Water	02/22/22 14:50	03/02/22 16:34
280-159246-12	W-6	Water	02/24/22 14:20	03/02/22 16:34
280-159246-13	W-6B	Water	02/24/22 12:40	03/02/22 16:34
280-159246-14	W-5	Water	02/24/22 16:25	03/02/22 16:34
280-159246-15	W-5B	Water	02/25/22 11:30	03/02/22 16:34
280-159246-16	W-1	Water	02/25/22 12:25	03/02/22 16:34
280-159246-17	W-11	Water	02/25/22 16:35	03/02/22 16:34

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-2

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: MW-7
Date Collected: 03/02/22 09:45
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.01		0.431	0.441	1.00	0.514	pCi/L	03/08/22 10:19	03/30/22 08:36	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	71.7		40 - 110					03/08/22 10:19	03/30/22 08:36	1

Client Sample ID: W-12
Date Collected: 03/01/22 16:30
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.786		0.467	0.473	1.00	0.614	pCi/L	03/09/22 14:37	03/31/22 18:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	55.2		40 - 110					03/09/22 14:37	03/31/22 18:47	1

Client Sample ID: W-9
Date Collected: 03/01/22 13:40
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.436		0.276	0.279	1.00	0.370	pCi/L	03/08/22 10:19	03/30/22 08:36	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	84.2		40 - 110					03/08/22 10:19	03/30/22 08:36	1

Client Sample ID: W-7
Date Collected: 03/01/22 11:30
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	2.26		0.555	0.591	1.00	0.421	pCi/L	03/08/22 10:19	03/30/22 08:37	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	70.2		40 - 110					03/08/22 10:19	03/30/22 08:37	1

Client Sample ID: W-3B
Date Collected: 02/23/22 16:20
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	4.21		0.663	0.764	1.00	0.283	pCi/L	03/08/22 10:19	03/30/22 08:38	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.0		40 - 110					03/08/22 10:19	03/30/22 08:38	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-2

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: W-3BEB
Date Collected: 02/23/22 16:40
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.150	U	0.153	0.154	1.00	0.239	pCi/L	03/08/22 10:19	03/30/22 08:38	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.4		40 - 110					03/08/22 10:19	03/30/22 08:38	1

Client Sample ID: W-3
Date Collected: 02/23/22 12:45
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.308	U	0.242	0.244	1.00	0.345	pCi/L	03/08/22 10:19	03/30/22 08:38	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	83.3		40 - 110					03/08/22 10:19	03/30/22 08:38	1

Client Sample ID: W-3D
Date Collected: 02/23/22 12:50
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.192	U	0.197	0.198	1.00	0.310	pCi/L	03/08/22 10:19	03/30/22 20:28	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.0		40 - 110					03/08/22 10:19	03/30/22 20:28	1

Client Sample ID: W-2C
Date Collected: 02/23/22 10:20
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-10
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	2.05		0.479	0.513	1.00	0.349	pCi/L	03/08/22 10:19	03/30/22 10:49	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.9		40 - 110					03/08/22 10:19	03/30/22 10:49	1

Client Sample ID: W-2A
Date Collected: 02/22/22 14:50
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-11
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.44		0.508	0.524	1.00	0.574	pCi/L	03/08/22 10:19	03/30/22 10:49	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	68.5		40 - 110					03/08/22 10:19	03/30/22 10:49	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-2

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: W-6
Date Collected: 02/24/22 14:20
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-12
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.408	U	0.301	0.303	1.00	0.445	pCi/L	03/08/22 10:19	03/30/22 10:49	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.4		40 - 110					03/08/22 10:19	03/30/22 10:49	1

Client Sample ID: W-6B
Date Collected: 02/24/22 12:40
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-13
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	2.94		0.606	0.661	1.00	0.465	pCi/L	03/08/22 10:19	03/30/22 10:50	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	77.1		40 - 110					03/08/22 10:19	03/30/22 10:50	1

Client Sample ID: W-5
Date Collected: 02/24/22 16:25
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-14
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.437		0.267	0.270	1.00	0.351	pCi/L	03/08/22 10:19	03/30/22 10:50	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.7		40 - 110					03/08/22 10:19	03/30/22 10:50	1

Client Sample ID: W-5B
Date Collected: 02/25/22 11:30
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-15
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.681		0.297	0.303	1.00	0.329	pCi/L	03/08/22 10:19	03/30/22 10:50	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.6		40 - 110					03/08/22 10:19	03/30/22 10:50	1

Client Sample ID: W-1
Date Collected: 02/25/22 12:25
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-16
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.611		0.271	0.277	1.00	0.271	pCi/L	03/08/22 10:19	03/30/22 10:51	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.2		40 - 110					03/08/22 10:19	03/30/22 10:51	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-2

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: W-11
Date Collected: 02/25/22 16:35
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-17
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.972		0.405	0.414	1.00	0.423	pCi/L	03/08/22 10:19	03/30/22 10:51	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	63.1		40 - 110					03/08/22 10:19	03/30/22 10:51	1

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: MW-7
Date Collected: 03/02/22 09:45
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.53		0.548	0.566	1.00	0.742	pCi/L	03/08/22 11:00	03/29/22 14:22	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	71.7		40 - 110					03/08/22 11:00	03/29/22 14:22	1
Y Carrier	80.7		40 - 110					03/08/22 11:00	03/29/22 14:22	1

Client Sample ID: W-12
Date Collected: 03/01/22 16:30
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.15	U G	0.996	1.00	1.00	1.60	pCi/L	03/09/22 15:09	03/29/22 17:44	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	55.2		40 - 110					03/09/22 15:09	03/29/22 17:44	1
Y Carrier	81.9		40 - 110					03/09/22 15:09	03/29/22 17:44	1

Client Sample ID: W-9
Date Collected: 03/01/22 13:40
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.08		0.408	0.419	1.00	0.549	pCi/L	03/08/22 11:00	03/29/22 14:22	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	84.2		40 - 110					03/08/22 11:00	03/29/22 14:22	1
Y Carrier	86.4		40 - 110					03/08/22 11:00	03/29/22 14:22	1

Client Sample ID: W-7
Date Collected: 03/01/22 11:30
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	4.64		0.818	0.923	1.00	0.904	pCi/L	03/08/22 11:00	03/29/22 14:22	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-2

Method: 9320 - Radium-228 (GFPC)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	70.2		40 - 110	03/08/22 11:00	03/29/22 14:22	1
Y Carrier	81.1		40 - 110	03/08/22 11:00	03/29/22 14:22	1

Client Sample ID: W-3B
Date Collected: 02/23/22 16:20
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-6
Matrix: Water

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	8.31		0.820	1.12	1.00	0.602	pCi/L	03/08/22 11:00	03/29/22 14:22	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.0		40 - 110					03/08/22 11:00	03/29/22 14:22	1
Y Carrier	84.5		40 - 110					03/08/22 11:00	03/29/22 14:22	1

Client Sample ID: W-3BEB
Date Collected: 02/23/22 16:40
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-7
Matrix: Water

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0897	U	0.293	0.293	1.00	0.529	pCi/L	03/08/22 11:00	03/29/22 14:22	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.4		40 - 110					03/08/22 11:00	03/29/22 14:22	1
Y Carrier	85.2		40 - 110					03/08/22 11:00	03/29/22 14:22	1

Client Sample ID: W-3
Date Collected: 02/23/22 12:45
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-8
Matrix: Water

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.163	U	0.366	0.366	1.00	0.678	pCi/L	03/08/22 11:01	03/29/22 14:25	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	83.3		40 - 110					03/08/22 11:01	03/29/22 14:25	1
Y Carrier	83.7		40 - 110					03/08/22 11:01	03/29/22 14:25	1

Client Sample ID: W-3D
Date Collected: 02/23/22 12:50
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.437	U	0.411	0.413	1.00	0.664	pCi/L	03/08/22 11:01	03/29/22 14:25	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.0		40 - 110					03/08/22 11:01	03/29/22 14:25	1
Y Carrier	82.6		40 - 110					03/08/22 11:01	03/29/22 14:25	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-2

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: W-2C
Date Collected: 02/23/22 10:20
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-10
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	3.22		0.573	0.645	1.00	0.595	pCi/L	03/08/22 11:01	03/29/22 14:25	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.9		40 - 110					03/08/22 11:01	03/29/22 14:25	1
Y Carrier	81.9		40 - 110					03/08/22 11:01	03/29/22 14:25	1

Client Sample ID: W-2A
Date Collected: 02/22/22 14:50
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-11
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	3.42		0.678	0.748	1.00	0.736	pCi/L	03/08/22 11:01	03/29/22 14:25	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	68.5		40 - 110					03/08/22 11:01	03/29/22 14:25	1
Y Carrier	83.4		40 - 110					03/08/22 11:01	03/29/22 14:25	1

Client Sample ID: W-6
Date Collected: 02/24/22 14:20
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-12
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.627		0.384	0.388	1.00	0.583	pCi/L	03/08/22 11:01	03/29/22 14:25	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.4		40 - 110					03/08/22 11:01	03/29/22 14:25	1
Y Carrier	81.5		40 - 110					03/08/22 11:01	03/29/22 14:25	1

Client Sample ID: W-6B
Date Collected: 02/24/22 12:40
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-13
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	6.90		0.814	1.03	1.00	0.661	pCi/L	03/08/22 11:01	03/29/22 14:25	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	77.1		40 - 110					03/08/22 11:01	03/29/22 14:25	1
Y Carrier	83.7		40 - 110					03/08/22 11:01	03/29/22 14:25	1

Client Sample ID: W-5
Date Collected: 02/24/22 16:25
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-14
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.990		0.437	0.446	1.00	0.631	pCi/L	03/08/22 11:01	03/29/22 14:25	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-2

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	86.7		40 - 110	03/08/22 11:01	03/29/22 14:25	1
Y Carrier	84.5		40 - 110	03/08/22 11:01	03/29/22 14:25	1

Client Sample ID: W-5B
Date Collected: 02/25/22 11:30
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-15
Matrix: Water

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.19		0.426	0.440	1.00	0.580	pCi/L	03/08/22 11:01	03/29/22 14:27	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.6		40 - 110					03/08/22 11:01	03/29/22 14:27	1
Y Carrier	83.0		40 - 110					03/08/22 11:01	03/29/22 14:27	1

Client Sample ID: W-1
Date Collected: 02/25/22 12:25
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-16
Matrix: Water

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.922		0.409	0.418	1.00	0.586	pCi/L	03/08/22 11:01	03/29/22 14:27	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.2		40 - 110					03/08/22 11:01	03/29/22 14:27	1
Y Carrier	84.1		40 - 110					03/08/22 11:01	03/29/22 14:27	1

Client Sample ID: W-11
Date Collected: 02/25/22 16:35
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-17
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.20		0.593	0.603	1.00	0.876	pCi/L	03/08/22 11:01	03/29/22 14:28	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	63.1		40 - 110					03/08/22 11:01	03/29/22 14:28	1
Y Carrier	84.5		40 - 110					03/08/22 11:01	03/29/22 14:28	1

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

Client Sample ID: MW-7
Date Collected: 03/02/22 09:45
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.54		0.697	0.718	5.00	0.742	pCi/L		04/01/22 16:22	1

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-2

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

Client Sample ID: W-12
Date Collected: 03/01/22 16:30
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.94		1.10	1.11	5.00	1.60	pCi/L		04/01/22 16:21	1

Client Sample ID: W-9
Date Collected: 03/01/22 13:40
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.51		0.493	0.503	5.00	0.549	pCi/L		04/01/22 16:22	1

Client Sample ID: W-7
Date Collected: 03/01/22 11:30
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	6.90		0.989	1.10	5.00	0.904	pCi/L		04/01/22 16:22	1

Client Sample ID: W-3B
Date Collected: 02/23/22 16:20
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	12.5		1.05	1.36	5.00	0.602	pCi/L		04/01/22 16:22	1

Client Sample ID: W-3BEB
Date Collected: 02/23/22 16:40
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.0607	U	0.331	0.331	5.00	0.529	pCi/L		04/01/22 16:22	1

Client Sample ID: W-3
Date Collected: 02/23/22 12:45
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.145	U	0.439	0.440	5.00	0.678	pCi/L		04/01/22 16:22	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-2

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

Client Sample ID: W-3D
Date Collected: 02/23/22 12:50
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.628	U	0.456	0.458	5.00	0.664	pCi/L		04/01/22 16:22	1

Client Sample ID: W-2C
Date Collected: 02/23/22 10:20
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-10
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	5.26		0.747	0.824	5.00	0.595	pCi/L		04/01/22 16:22	1

Client Sample ID: W-2A
Date Collected: 02/22/22 14:50
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-11
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	4.86		0.847	0.913	5.00	0.736	pCi/L		04/01/22 16:22	1

Client Sample ID: W-6
Date Collected: 02/24/22 14:20
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-12
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.03		0.488	0.492	5.00	0.583	pCi/L		04/01/22 16:22	1

Client Sample ID: W-6B
Date Collected: 02/24/22 12:40
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-13
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	9.84		1.01	1.22	5.00	0.661	pCi/L		04/01/22 16:22	1

Client Sample ID: W-5
Date Collected: 02/24/22 16:25
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-14
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.43		0.512	0.521	5.00	0.631	pCi/L		04/01/22 16:22	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-2

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

Client Sample ID: W-5B
Date Collected: 02/25/22 11:30
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-15
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.88		0.519	0.534	5.00	0.580	pCi/L		04/01/22 16:22	1

Client Sample ID: W-1
Date Collected: 02/25/22 12:25
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-16
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.53		0.491	0.501	5.00	0.586	pCi/L		04/01/22 16:22	1

Client Sample ID: W-11
Date Collected: 02/25/22 16:35
Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-17
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.17		0.718	0.731	5.00	0.876	pCi/L		04/01/22 16:22	1

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-2

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-554075/20-A

Matrix: Water

Analysis Batch: 557861

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 554075

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.03715	U	0.148	0.148	1.00	0.281	pCi/L	03/08/22 10:19	03/30/22 10:48	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.3		40 - 110					03/08/22 10:19	03/30/22 10:48	1

Lab Sample ID: LCS 160-554075/1-A

Matrix: Water

Analysis Batch: 557856

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 554075

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226	11.3	9.942		1.30	1.00	0.406	pCi/L	88	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	76.4		40 - 110						

Lab Sample ID: LCSD 160-554075/2-A

Matrix: Water

Analysis Batch: 557856

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 554075

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-226	11.3	11.49		1.40	1.00	0.347	pCi/L	101	75 - 125	0.57	1
Carrier	LCSD %Yield	LCSD Qualifier	Limits								
Ba Carrier	88.4		40 - 110								

Lab Sample ID: MB 160-554341/20-A

Matrix: Water

Analysis Batch: 558239

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 554341

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.001142	U	0.0830	0.0830	1.00	0.171	pCi/L	03/09/22 14:37	03/31/22 18:49	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	106		40 - 110					03/09/22 14:37	03/31/22 18:49	1

Lab Sample ID: LCS 160-554341/1-A

Matrix: Water

Analysis Batch: 558072

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 554341

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226	11.3	10.26		1.20	1.00	0.186	pCi/L	90	75 - 125

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-2

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

Lab Sample ID: LCS 160-554341/1-A

Matrix: Water

Analysis Batch: 558072

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 554341

	LCS	LCS	
Carrier	%Yield	Qualifier	Limits
Ba Carrier	102		40 - 110

Lab Sample ID: LCSD 160-554341/2-A

Matrix: Water

Analysis Batch: 558072

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 554341

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-226	11.3	9.826		1.12	1.00	0.152	pCi/L	87	75 - 125	0.18	1

	LCSD	LCSD	
Carrier	%Yield	Qualifier	Limits
Ba Carrier	101		40 - 110

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-554088/20-A

Matrix: Water

Analysis Batch: 557637

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 554088

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.05492	U	0.193	0.193	1.00	0.341	pCi/L	03/08/22 11:01	03/29/22 14:28	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	94.3		40 - 110	03/08/22 11:01	03/29/22 14:28	1
Y Carrier	82.6		40 - 110	03/08/22 11:01	03/29/22 14:28	1

Lab Sample ID: LCS 160-554088/1-A

Matrix: Water

Analysis Batch: 557632

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 554088

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-228	8.75	10.07		1.23	1.00	0.509	pCi/L	115	75 - 125

	LCS	LCS	
Carrier	%Yield	Qualifier	Limits
Ba Carrier	76.4		40 - 110
Y Carrier	83.4		40 - 110

Lab Sample ID: LCSD 160-554088/2-A

Matrix: Water

Analysis Batch: 557632

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 554088

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-228	8.75	10.73		1.25	1.00	0.397	pCi/L	123	75 - 125	0.26	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-2

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

Lab Sample ID: LCSD 160-554088/2-A
Matrix: Water
Analysis Batch: 557632

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 554088

	LCSD	LCSD	
Carrier	%Yield	Qualifier	Limits
Ba Carrier	88.4		40 - 110
Y Carrier	85.6		40 - 110

Lab Sample ID: MB 160-554430/20-A
Matrix: Water
Analysis Batch: 557655

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 554430

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.09975	U	0.175	0.176	1.00	0.299	pCi/L	03/09/22 15:09	03/29/22 17:45	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	106		40 - 110					03/09/22 15:09	03/29/22 17:45	1
Y Carrier	87.5		40 - 110					03/09/22 15:09	03/29/22 17:45	1

Lab Sample ID: LCS 160-554430/1-A
Matrix: Water
Analysis Batch: 557757

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 554430

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-228	8.75	6.857		0.848	1.00	0.348	pCi/L	78	75 - 125
Carrier	%Yield	Qualifier	Limits						
Ba Carrier	102		40 - 110						
Y Carrier	84.1		40 - 110						

Lab Sample ID: LCSD 160-554430/2-A
Matrix: Water
Analysis Batch: 557757

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 554430

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-228	8.75	8.688		1.02	1.00	0.318	pCi/L	99	75 - 125	0.98	1
Carrier	%Yield	Qualifier	Limits								
Ba Carrier	101		40 - 110								
Y Carrier	83.7		40 - 110								

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-2

Rad

Prep Batch: 554075

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-2	MW-7	Total/NA	Water	PrecSep-21	
280-159246-4	W-9	Total/NA	Water	PrecSep-21	
280-159246-5	W-7	Total/NA	Water	PrecSep-21	
280-159246-6	W-3B	Total/NA	Water	PrecSep-21	
280-159246-7	W-3BEB	Total/NA	Water	PrecSep-21	
280-159246-8	W-3	Total/NA	Water	PrecSep-21	
280-159246-9	W-3D	Total/NA	Water	PrecSep-21	
280-159246-10	W-2C	Total/NA	Water	PrecSep-21	
280-159246-11	W-2A	Total/NA	Water	PrecSep-21	
280-159246-12	W-6	Total/NA	Water	PrecSep-21	
280-159246-13	W-6B	Total/NA	Water	PrecSep-21	
280-159246-14	W-5	Total/NA	Water	PrecSep-21	
280-159246-15	W-5B	Total/NA	Water	PrecSep-21	
280-159246-16	W-1	Total/NA	Water	PrecSep-21	
280-159246-17	W-11	Total/NA	Water	PrecSep-21	
MB 160-554075/20-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-554075/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-554075/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 554088

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-2	MW-7	Total/NA	Water	PrecSep_0	
280-159246-4	W-9	Total/NA	Water	PrecSep_0	
280-159246-5	W-7	Total/NA	Water	PrecSep_0	
280-159246-6	W-3B	Total/NA	Water	PrecSep_0	
280-159246-7	W-3BEB	Total/NA	Water	PrecSep_0	
280-159246-8	W-3	Total/NA	Water	PrecSep_0	
280-159246-9	W-3D	Total/NA	Water	PrecSep_0	
280-159246-10	W-2C	Total/NA	Water	PrecSep_0	
280-159246-11	W-2A	Total/NA	Water	PrecSep_0	
280-159246-12	W-6	Total/NA	Water	PrecSep_0	
280-159246-13	W-6B	Total/NA	Water	PrecSep_0	
280-159246-14	W-5	Total/NA	Water	PrecSep_0	
280-159246-15	W-5B	Total/NA	Water	PrecSep_0	
280-159246-16	W-1	Total/NA	Water	PrecSep_0	
280-159246-17	W-11	Total/NA	Water	PrecSep_0	
MB 160-554088/20-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-554088/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-554088/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Prep Batch: 554341

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-3	W-12	Total/NA	Water	PrecSep-21	
MB 160-554341/20-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-554341/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-554341/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 554430

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-159246-3	W-12	Total/NA	Water	PrecSep_0	
MB 160-554430/20-A	Method Blank	Total/NA	Water	PrecSep_0	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-2

Rad (Continued)

Prep Batch: 554430 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 160-554430/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-554430/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-2

Client Sample ID: MW-7

Date Collected: 03/02/22 09:45

Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			747.82 mL	1.0 g	554075	03/08/22 10:19	LPS	TAL SL
Total/NA	Analysis	9315		1			557856	03/30/22 08:36	FLC	TAL SL
Total/NA	Prep	PrecSep_0			747.82 mL	1.0 g	554088	03/08/22 11:00	LPS	TAL SL
Total/NA	Analysis	9320		1			557632	03/29/22 14:22	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			558293	04/01/22 16:22	EMH	TAL SL

Client Sample ID: W-12

Date Collected: 03/01/22 16:30

Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			502.43 mL	1.0 g	554341	03/09/22 14:37	BMP	TAL SL
Total/NA	Analysis	9315		1			558069	03/31/22 18:47	CLP	TAL SL
Total/NA	Prep	PrecSep_0			502.43 mL	1.0 g	554430	03/09/22 15:09	BMP	TAL SL
Total/NA	Analysis	9320		1			557757	03/29/22 17:44	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			558292	04/01/22 16:21	EMH	TAL SL

Client Sample ID: W-9

Date Collected: 03/01/22 13:40

Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			750.03 mL	1.0 g	554075	03/08/22 10:19	LPS	TAL SL
Total/NA	Analysis	9315		1			557856	03/30/22 08:36	FLC	TAL SL
Total/NA	Prep	PrecSep_0			750.03 mL	1.0 g	554088	03/08/22 11:00	LPS	TAL SL
Total/NA	Analysis	9320		1			557632	03/29/22 14:22	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			558293	04/01/22 16:22	EMH	TAL SL

Client Sample ID: W-7

Date Collected: 03/01/22 11:30

Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			748.72 mL	1.0 g	554075	03/08/22 10:19	LPS	TAL SL
Total/NA	Analysis	9315		1			557856	03/30/22 08:37	FLC	TAL SL
Total/NA	Prep	PrecSep_0			748.72 mL	1.0 g	554088	03/08/22 11:00	LPS	TAL SL
Total/NA	Analysis	9320		1			557632	03/29/22 14:22	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			558293	04/01/22 16:22	EMH	TAL SL

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-2

Client Sample ID: W-3B

Lab Sample ID: 280-159246-6

Date Collected: 02/23/22 16:20

Matrix: Water

Date Received: 03/02/22 16:34

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			753.80 mL	1.0 g	554075	03/08/22 10:19	LPS	TAL SL
Total/NA	Analysis	9315		1			557856	03/30/22 08:38	FLC	TAL SL
Total/NA	Prep	PrecSep_0			753.80 mL	1.0 g	554088	03/08/22 11:00	LPS	TAL SL
Total/NA	Analysis	9320		1			557632	03/29/22 14:22	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			558293	04/01/22 16:22	EMH	TAL SL

Client Sample ID: W-3BEB

Lab Sample ID: 280-159246-7

Date Collected: 02/23/22 16:40

Matrix: Water

Date Received: 03/02/22 16:34

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.84 mL	1.0 g	554075	03/08/22 10:19	LPS	TAL SL
Total/NA	Analysis	9315		1			557856	03/30/22 08:38	FLC	TAL SL
Total/NA	Prep	PrecSep_0			1000.84 mL	1.0 g	554088	03/08/22 11:00	LPS	TAL SL
Total/NA	Analysis	9320		1			557632	03/29/22 14:22	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			558293	04/01/22 16:22	EMH	TAL SL

Client Sample ID: W-3

Lab Sample ID: 280-159246-8

Date Collected: 02/23/22 12:45

Matrix: Water

Date Received: 03/02/22 16:34

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			752.48 mL	1.0 g	554075	03/08/22 10:19	LPS	TAL SL
Total/NA	Analysis	9315		1			557856	03/30/22 08:38	FLC	TAL SL
Total/NA	Prep	PrecSep_0			752.48 mL	1.0 g	554088	03/08/22 11:01	LPS	TAL SL
Total/NA	Analysis	9320		1			557637	03/29/22 14:25	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			558293	04/01/22 16:22	EMH	TAL SL

Client Sample ID: W-3D

Lab Sample ID: 280-159246-9

Date Collected: 02/23/22 12:50

Matrix: Water

Date Received: 03/02/22 16:34

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			750.59 mL	1.0 g	554075	03/08/22 10:19	LPS	TAL SL
Total/NA	Analysis	9315		1			557861	03/30/22 20:28	FLC	TAL SL
Total/NA	Prep	PrecSep_0			750.59 mL	1.0 g	554088	03/08/22 11:01	LPS	TAL SL
Total/NA	Analysis	9320		1			557637	03/29/22 14:25	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			558293	04/01/22 16:22	EMH	TAL SL

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-2

Client Sample ID: W-2C

Date Collected: 02/23/22 10:20

Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			747.30 mL	1.0 g	554075	03/08/22 10:19	LPS	TAL SL
Total/NA	Analysis	9315		1			557856	03/30/22 10:49	FLC	TAL SL
Total/NA	Prep	PrecSep_0			747.30 mL	1.0 g	554088	03/08/22 11:01	LPS	TAL SL
Total/NA	Analysis	9320		1			557637	03/29/22 14:25	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			558293	04/01/22 16:22	EMH	TAL SL

Client Sample ID: W-2A

Date Collected: 02/22/22 14:50

Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-11

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			751.37 mL	1.0 g	554075	03/08/22 10:19	LPS	TAL SL
Total/NA	Analysis	9315		1			557856	03/30/22 10:49	FLC	TAL SL
Total/NA	Prep	PrecSep_0			751.37 mL	1.0 g	554088	03/08/22 11:01	LPS	TAL SL
Total/NA	Analysis	9320		1			557637	03/29/22 14:25	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			558293	04/01/22 16:22	EMH	TAL SL

Client Sample ID: W-6

Date Collected: 02/24/22 14:20

Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-12

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			748.63 mL	1.0 g	554075	03/08/22 10:19	LPS	TAL SL
Total/NA	Analysis	9315		1			557856	03/30/22 10:49	FLC	TAL SL
Total/NA	Prep	PrecSep_0			748.63 mL	1.0 g	554088	03/08/22 11:01	LPS	TAL SL
Total/NA	Analysis	9320		1			557637	03/29/22 14:25	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			558293	04/01/22 16:22	EMH	TAL SL

Client Sample ID: W-6B

Date Collected: 02/24/22 12:40

Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-13

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			754.73 mL	1.0 g	554075	03/08/22 10:19	LPS	TAL SL
Total/NA	Analysis	9315		1			557856	03/30/22 10:50	FLC	TAL SL
Total/NA	Prep	PrecSep_0			754.73 mL	1.0 g	554088	03/08/22 11:01	LPS	TAL SL
Total/NA	Analysis	9320		1			557637	03/29/22 14:25	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			558293	04/01/22 16:22	EMH	TAL SL

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-2

Client Sample ID: W-5

Date Collected: 02/24/22 16:25

Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-14

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			749.14 mL	1.0 g	554075	03/08/22 10:19	LPS	TAL SL
Total/NA	Analysis	9315		1			557856	03/30/22 10:50	FLC	TAL SL
Total/NA	Prep	PrecSep_0			749.14 mL	1.0 g	554088	03/08/22 11:01	LPS	TAL SL
Total/NA	Analysis	9320		1			557637	03/29/22 14:25	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			558293	04/01/22 16:22	EMH	TAL SL

Client Sample ID: W-5B

Date Collected: 02/25/22 11:30

Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-15

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			744.92 mL	1.0 g	554075	03/08/22 10:19	LPS	TAL SL
Total/NA	Analysis	9315		1			557856	03/30/22 10:50	FLC	TAL SL
Total/NA	Prep	PrecSep_0			744.92 mL	1.0 g	554088	03/08/22 11:01	LPS	TAL SL
Total/NA	Analysis	9320		1			557637	03/29/22 14:27	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			558293	04/01/22 16:22	EMH	TAL SL

Client Sample ID: W-1

Date Collected: 02/25/22 12:25

Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-16

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			753.43 mL	1.0 g	554075	03/08/22 10:19	LPS	TAL SL
Total/NA	Analysis	9315		1			557856	03/30/22 10:51	FLC	TAL SL
Total/NA	Prep	PrecSep_0			753.43 mL	1.0 g	554088	03/08/22 11:01	LPS	TAL SL
Total/NA	Analysis	9320		1			557637	03/29/22 14:27	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			558293	04/01/22 16:22	EMH	TAL SL

Client Sample ID: W-11

Date Collected: 02/25/22 16:35

Date Received: 03/02/22 16:34

Lab Sample ID: 280-159246-17

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			746.34 mL	1.0 g	554075	03/08/22 10:19	LPS	TAL SL
Total/NA	Analysis	9315		1			557856	03/30/22 10:51	FLC	TAL SL
Total/NA	Prep	PrecSep_0			746.34 mL	1.0 g	554088	03/08/22 11:01	LPS	TAL SL
Total/NA	Analysis	9320		1			557637	03/29/22 14:28	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			558293	04/01/22 16:22	EMH	TAL SL

Laboratory References:

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

Eurofins Denver

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-2

Laboratory: Eurofins St. Louis

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

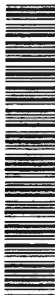
Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-22
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-07-23
Arizona	State	AZ0813	12-08-22
California	Los Angeles County Sanitation Districts	10259	06-30-22
California	State	2886	07-01-22
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-22
HI - RadChem Recognition	State	n/a	06-30-22
Illinois	NELAP	200023	11-30-22
Iowa	State	373	12-01-22
Kansas	NELAP	E-10236	10-31-22
Kentucky (DW)	State	KY90125	12-31-22
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-22
Louisiana	NELAP	04080	06-30-22
Louisiana (DW)	State	LA011	12-31-22
Maryland	State	310	09-30-22
MI - RadChem Recognition	State	9005	06-30-22
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-22
New Jersey	NELAP	MO002	06-30-22
New York	NELAP	11616	04-01-23
North Dakota	State	R-207	06-30-22
NRC	NRC	24-24817-01	12-31-22
Oklahoma	NELAP	9997	08-31-22
Oregon	NELAP	4157	09-01-22
Pennsylvania	NELAP	68-00540	02-28-23
South Carolina	State	85002001	06-30-22
Texas	NELAP	T104704193	07-31-22
US Fish & Wildlife	US Federal Programs	058448	07-31-22
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	08-01-22
Virginia	NELAP	10310	06-14-22
Washington	State	C592	08-30-22
West Virginia DEP	State	381	10-31-22

Chain of Custody Record

Client Information		Sampler: <u>T. Snyder</u>		Lab PM: <u>Harrington, Danielle M</u>	Carrier Tracking No(s):		COC No: <u>280-110862-32017.2</u>
Client Contact: <u>Molly Reeves</u>		Phone: <u>720 838 6065</u>		E-Mail: <u>Danielle.Harrington@Eurofinset.com</u>	State of Origin:		Page: <u>Page 2 of 2</u>
Company: <u>HDR Inc</u>		PWSID:		Job #:			
Address: <u>1670 Broadway Suite 3400</u>		Due Date Requested:		Analysis Requested			
City: <u>Denver</u>		TAT Requested (days): <u>ASAP</u>		Preservation Codes:			
State, Zip: <u>CO, 80202</u>		Compliance Project: <u>Δ Yes Δ No</u>		☐ A - HCL ☐ B - NaOH ☐ C - Zn Acetate ☐ D - Nitric Acid ☐ E - NaHSO ₄ ☐ F - MeOH ☐ G - Amchlor ☐ H - Ascorbic Acid ☐ I - Ice ☐ J - DI Water ☐ K - EDTA ☐ L - EDA ☐ Z - other (specify)			
Phone: <u>734-263-7138(Tel)</u>		PO #: <u>DEN-021</u>		☐ M - Hexane ☐ N - None ☐ O - AshNaO ₂ ☐ P - Na ₂ SO ₄ ☐ Q - Na ₂ SO ₃ ☐ R - Na ₂ SO ₃ ☐ S - H ₂ SO ₄ ☐ T - TSP Dodecahydrate ☐ U - Acetone ☐ V - MCAA ☐ W - pH 4-5 ☐ L - EDA ☐ Z - other (specify)			
Email: <u>Molly.Reeves@hdrinc.com</u>		WO #:		Other:			
Project Name: <u>Xcel Energy GW CCR Monitoring - Comanche</u>		Project #:		☐ Radium - 226 9135 and Radium - 228 Method 9320 ☐ 2540D - TSS/2540C TDS ☐ 6010C, 6020A, 7470A Total Metals - Cedar Falls ☐ 2320B alkalinity, 9040B pH, 9056A, 28DCChloride, Fluoride, Sulfate			
Site: <u>COLORADO</u>		SSOW#:		☐ Perform MS/MSD (Yes or No) ☐ Field Filtered Sample (Yes or No)			
Groundwater-CCR (App III and App IV)				☐ Total Number of containers ☐ Special Instructions/Note:			
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Weater, Solid, O=water/oil)	☐ Total Number of containers ☐ Special Instructions/Note:	
W-4		3/2/22	1140	G	Water	☒ 1 375 mL collected ☐ Ask PM for analysis's	
W-7		3/2/22	0945	G	Water		
W-12		3/1/22	1630	G	Water		
W-9		3/1/22	1340	G	Water		
W-7		3/1/22	1130	G	Water		
W-3B		2/23/22	1620	G	Water		
W-3BEB		2/23/22	1640	G	Water		
W-3		2/23/22	1245	G	Water		
W-3D		2/23/22	1250	G	Water		
W-2C		2/23/22	1020	G	Water		
W-2A		2/22/22	1450	G	Water		
Possible Hazard Identification ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological							
Deliverable Requested: ☐ I, II, III, IV, Other (specify)							
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months							
Special Instructions/QC Requirements:							
Empty Kit Relinquished by:		Date:		Method of Shipment:			
Relinquished by: <u>[Signature]</u>		Date/Time: <u>3/2/22 1630</u>		Company: <u>HDR</u>			
Relinquished by:		Date/Time:		Company:			
Relinquished by:		Date/Time:		Company:			
Custody Seals Intact: <u>Δ Yes Δ No</u>		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: <u>1.3, 3.9, 0.3, 0.4, 2.9, 2.4, 0.5 CF 0.2</u>			

Chain of Custody Record

[illegible]

[illegible]

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-159246-2

Login Number: 159246

List Source: Eurofins Denver

List Number: 1

Creator: Roehsner, Karen P

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

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-159246-2

Login Number: 159246

List Number: 3

Creator: Worthington, Sierra M

List Source: Eurofins St. Louis

List Creation: 03/07/22 12:48 PM

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

Tracer/Carrier Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-159246-2

Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)					
Lab Sample ID	Client Sample ID	Ba					
		(40-110)					
280-159246-2	MW-7	71.7					
280-159246-3	W-12	55.2					
280-159246-4	W-9	84.2					
280-159246-5	W-7	70.2					
280-159246-6	W-3B	86.0					
280-159246-7	W-3BEB	91.4					
280-159246-8	W-3	83.3					
280-159246-9	W-3D	85.0					
280-159246-10	W-2C	86.9					
280-159246-11	W-2A	68.5					
280-159246-12	W-6	89.4					
280-159246-13	W-6B	77.1					
280-159246-14	W-5	86.7					
280-159246-15	W-5B	91.6					
280-159246-16	W-1	87.2					
280-159246-17	W-11	63.1					
LCS 160-554075/1-A	Lab Control Sample	76.4					
LCS 160-554341/1-A	Lab Control Sample	102					
LCSD 160-554075/2-A	Lab Control Sample Dup	88.4					
LCSD 160-554341/2-A	Lab Control Sample Dup	101					
MB 160-554075/20-A	Method Blank	94.3					
MB 160-554341/20-A	Method Blank	106					

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 9320 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)					
Lab Sample ID	Client Sample ID	Ba	Y				
		(40-110)	(40-110)				
280-159246-2	MW-7	71.7	80.7				
280-159246-3	W-12	55.2	81.9				
280-159246-4	W-9	84.2	86.4				
280-159246-5	W-7	70.2	81.1				
280-159246-6	W-3B	86.0	84.5				
280-159246-7	W-3BEB	91.4	85.2				
280-159246-8	W-3	83.3	83.7				
280-159246-9	W-3D	85.0	82.6				
280-159246-10	W-2C	86.9	81.9				
280-159246-11	W-2A	68.5	83.4				
280-159246-12	W-6	89.4	81.5				
280-159246-13	W-6B	77.1	83.7				
280-159246-14	W-5	86.7	84.5				
280-159246-15	W-5B	91.6	83.0				
280-159246-16	W-1	87.2	84.1				
280-159246-17	W-11	63.1	84.5				
LCS 160-554088/1-A	Lab Control Sample	76.4	83.4				
LCS 160-554430/1-A	Lab Control Sample	102	84.1				

Eurofins Denver

Tracer/Carrier Summary

Client: HDR Inc

Job ID: 280-159246-2

Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba	Y
		(40-110)	(40-110)
LCSD 160-554088/2-A	Lab Control Sample Dup	88.4	85.6
LCSD 160-554430/2-A	Lab Control Sample Dup	101	83.7
MB 160-554088/20-A	Method Blank	94.3	82.6
MB 160-554430/20-A	Method Blank	106	87.5

Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier

ANALYTICAL REPORT

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-160467-1

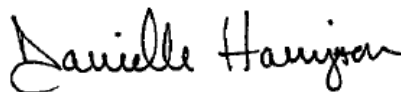
Client Project/Site: Xcel Energy GW CCR Monitoring -
Comanche

Revision: 2

For:

HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Attn: Molly Reeves



Authorized for release by:
5/2/2022 2:34:07 PM

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Qualifiers

Metals

Qualifier	Qualifier Description
^~	Continuing Calibration Verification (CCV) is outside acceptance limits, low biased.
^2	Calibration Blank (ICB and/or CCB) is outside acceptance limits.
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.
E	Result exceeded calibration range.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

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.
E	Result exceeded calibration range.
F3	Duplicate RPD exceeds the control limit
H	Sample was prepped or analyzed beyond the specified holding time
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Eurofins Denver

Definitions/Glossary

Client: HDR Inc

Job ID: 280-160467-1

Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
TNTC	Too Numerous To Count

1

2

3

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Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Job ID: 280-160467-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-160467-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 04/02/2022; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt were 0.7°C, 0.7°C, 0.8°C, 0.9°C, 0.9°C and 1.2°C.

Receipt Exceptions

The following sample was submitted for analysis; however, it was not listed on the Chain-of-Custody (COC): W-3EB (280-160467-18)

Volume was received for all analysis on the COC. However, the COC states 2 UP containers for sample MW-5 (280-160467-16)

The laboratory received these sample with a pH>2, so we used 1mL of nitric to preserve them.

W-2A (280-160467-1), W-2C (280-160467-2), W-3 (280-160467-3), W-3B (280-160467-4), W-5 (280-160467-5), W-5B (280-160467-6), W-6 (280-160467-7), W-6B (280-160467-8), W-6D (280-160467-9), W-7 (280-160467-10), W-9 (280-160467-11), W-12 (280-160467-12), W-14 (280-160467-13), W-16 (280-160467-14), MW-3 (280-160467-15), MW-5 (280-160467-16), W-11 (280-160467-17) and W-3EB (280-160467-18)

TOTAL RECOVERABLE METALS- Method 6010C/6020A

Several samples required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Thallium was detected in method blank MB 310-349370/1-A at a level that was above the method detection limit but below the reporting limit. flagged. Because the concentration in the method blank is not present at a level greater than the reporting limit, corrective action is deemed unnecessary.

MS/MSD analysis was performed on sample W-2A. The MS/MSD for method 6020A exhibited multiple spike compound recoveries outside the QC limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The accuracy and precision of the multiple compounds for Method 6020A MS/MSD performed on a sample W-2A could not be reliably evaluated, as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The reference method requires samples to be preserved to a pH of <2. The following samples were received with insufficient preservation at a pH of >2: MW-5 (280-160467-16) and W-11 (280-160467-17). The sample(s) was preserved to the appropriate pH in the laboratory.

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Job ID: 280-160467-1 (Continued)

Laboratory: Eurofins Denver (Continued)

The continuing calibration blank and continuing calibration verification failed for multiple analytes for batch 280-350746. The results have been reported at client's request. Results should be considered biased low.

Method 6020A: Due to sample matrix effect on the internal standard (ISTD), a dilution was required for the following samples: W-2A (280-160467-1), W-2C (280-160467-2), W-3 (280-160467-3), W-3B (280-160467-4), W-5 (280-160467-5), W-5B (280-160467-6), W-6 (280-160467-7), W-6B (280-160467-8), W-6D (280-160467-9), W-7 (280-160467-10), W-9 (280-160467-11), W-12 (280-160467-12), W-14 (280-160467-13), W-16 (280-160467-14), MW-3 (280-160467-15), MW-5 (280-160467-16), W-11 (280-160467-17) and W-3EB (280-160467-18).

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

TOTAL MERCURY- METHOD 7470A

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

GENERAL CHEMISTRY- VARIOUS

Several samples required dilution prior to analysis for various analyses. The reporting limits have been adjusted accordingly.

Due to a laboratory error, the holding time for method 2540C Total Dissolved Solids for samples W-5 (280-160467-5), W-5B (280-160467-6), W-6 (280-160467-7), W-6B (280-160467-8), and W-6D (280-160467-9) expired prior to analysis. Please note that the sample results should be considered estimated.

Due to a required dilution, samples MW-5 and W-11 were analyzed past the EPA-recommended holding time for method 2540C Total Dissolved Solids; the original analysis of the undiluted sample was performed within holding time. The out-of-hold, diluted result is confirmed by historical; only the diluted result has been reported.

The accuracy and precision of the Sulfate MS/MSD performed on a sample W-9 could not be reliably evaluated, as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The Total Alkalinity sample duplicate analysis performed on sample MW-3 exhibited RPD data outside the QC limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The Total Dissolved Solids sample duplicate analysis performed on sample W-16 exhibited RPD data outside the QC limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

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

REVISION

Sample dates did not match the chain of custody for several samples. The sample dates have been corrected.

REVISION2

Per client request, reported the lesser dilution for Method 6020A even though QC failed for several analytes.

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Client Sample ID: W-2A

Lab Sample ID: 280-160467-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.9	J	5.0	1.4	mg/L	25		6010C	Total
Antimony	0.052	F1 ^2	0.020	0.0069	mg/L	10		6020A	Recoverable Total
Arsenic	0.049	F1	0.020	0.0075	mg/L	10		6020A	Recoverable Total
Barium	0.034	F1	0.020	0.0088	mg/L	10		6020A	Recoverable Total
Beryllium	0.021	F1 ^-	0.010	0.0027	mg/L	10		6020A	Recoverable Total
Cadmium	0.029	F1 ^2	0.0010	0.00055	mg/L	10		6020A	Recoverable Total
Calcium	240	F2	5.0	1.9	mg/L	10		6020A	Recoverable Total
Calcium	230		100	38	mg/L	200		6020A	Recoverable Total
Chromium	0.022	J F1	0.050	0.011	mg/L	10		6020A	Recoverable Total
Cobalt	0.033	F1 ^2	0.0050	0.0019	mg/L	10		6020A	Recoverable Total
Lead	0.044	F1 ^2	0.0050	0.0024	mg/L	10		6020A	Recoverable Total
Lithium	4.3	F1 ^-	0.10	0.025	mg/L	10		6020A	Recoverable Total
Lithium	4.0		2.0	0.50	mg/L	200		6020A	Recoverable Total
Molybdenum	0.061	F1	0.020	0.012	mg/L	10		6020A	Recoverable Total
Selenium	2.6	F1 ^-	0.050	0.0096	mg/L	10		6020A	Recoverable Total
Selenium	1.9		1.0	0.19	mg/L	200		6020A	Recoverable Total
Thallium	0.071	F1	0.010	0.0026	mg/L	10		6020A	Recoverable Total
Sodium	5500	E ^-	10	6.1	mg/L	10		6020A	Recoverable Total
Sodium	5200		200	120	mg/L	200		6020A	Recoverable Total
Potassium	65	F1 ^-	5.0	1.5	mg/L	10		6020A	Recoverable Total
Potassium	59	J	100	30	mg/L	200		6020A	Recoverable Total
Magnesium	7800	E ^-	5.0	1.5	mg/L	10		6020A	Recoverable Total
Magnesium	7300		100	30	mg/L	200		6020A	Recoverable Total
pH adj. to 25 deg C	6.7	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	18.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	860		60	20	mg/L	20		9056A	Total/NA
Fluoride	1.3	J	2.5	0.83	mg/L	5		9056A	Total/NA
Sulfate	47000		5000	1000	mg/L	1000		9056A	Total/NA
Alkalinity	670		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	670		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	67000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	17		4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Client Sample ID: W-2C

Lab Sample ID: 280-160467-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.6	J	5.0	1.4	mg/L	25		6010C	Total
									Recoverable
Barium	0.014	J	0.020	0.0088	mg/L	10		6020A	Total
									Recoverable
Cadmium	0.0073	^2	0.0010	0.00055	mg/L	10		6020A	Total
									Recoverable
Calcium	180		5.0	1.9	mg/L	10		6020A	Total
									Recoverable
Calcium	230		50	19	mg/L	100		6020A	Total
									Recoverable
Cobalt	0.0057	^2	0.0050	0.0019	mg/L	10		6020A	Total
									Recoverable
Lead	0.0026	J ^2	0.0050	0.0024	mg/L	10		6020A	Total
									Recoverable
Lithium	3.2	^-	0.10	0.025	mg/L	10		6020A	Total
									Recoverable
Lithium	4.6		1.0	0.25	mg/L	100		6020A	Total
									Recoverable
Selenium	2.9	^-	0.050	0.0096	mg/L	10		6020A	Total
									Recoverable
Selenium	3.0		0.50	0.096	mg/L	100		6020A	Total
									Recoverable
Thallium	0.010		0.010	0.0026	mg/L	10		6020A	Total
									Recoverable
Sodium	4400	^-	10	6.1	mg/L	10		6020A	Total
									Recoverable
Sodium	6200		100	61	mg/L	100		6020A	Total
									Recoverable
Potassium	55	^-	5.0	1.5	mg/L	10		6020A	Total
									Recoverable
Potassium	73		50	15	mg/L	100		6020A	Total
									Recoverable
Magnesium	6200	E ^-	5.0	1.5	mg/L	10		6020A	Total
									Recoverable
Magnesium	8600		50	15	mg/L	100		6020A	Total
									Recoverable
pH adj. to 25 deg C	6.7	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	18.4	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	860		60	20	mg/L	20		9056A	Total/NA
Fluoride	59		5.0	1.7	mg/L	10		9056A	Total/NA
Sulfate	38000		2500	520	mg/L	500		9056A	Total/NA
Alkalinity	680		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	680		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	55000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	20		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-3

Lab Sample ID: 280-160467-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.68		0.20	0.056	mg/L	1		6010C	Total
									Recoverable
Barium	0.026		0.020	0.0088	mg/L	10		6020A	Total
									Recoverable
Barium	0.021		0.020	0.0088	mg/L	10		6020A	Total
									Recoverable
Calcium	200		5.0	1.9	mg/L	10		6020A	Total
									Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Client Sample ID: W-3 (Continued)

Lab Sample ID: 280-160467-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	180		5.0	1.9	mg/L	10		6020A	Total
									Recoverable
Lithium	0.10	^	0.10	0.025	mg/L	10		6020A	Total
									Recoverable
Lithium	0.057	J	0.10	0.025	mg/L	10		6020A	Total
									Recoverable
Molybdenum	0.019	J	0.020	0.012	mg/L	10		6020A	Total
									Recoverable
Molybdenum	0.015	J	0.020	0.012	mg/L	10		6020A	Total
									Recoverable
Selenium	0.055	^	0.050	0.0096	mg/L	10		6020A	Total
									Recoverable
Sodium	160	^	10	6.1	mg/L	10		6020A	Total
									Recoverable
Sodium	91		10	6.1	mg/L	10		6020A	Total
									Recoverable
Potassium	6.3	^	5.0	1.5	mg/L	10		6020A	Total
									Recoverable
Potassium	5.9		5.0	1.5	mg/L	10		6020A	Total
									Recoverable
Magnesium	180	^	5.0	1.5	mg/L	10		6020A	Total
									Recoverable
Magnesium	75		5.0	1.5	mg/L	10		6020A	Total
									Recoverable
pH adj. to 25 deg C	7.7	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	18.5	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	25		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	1.1		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	810	J	1000	210	mg/L	200		9056A	Total/NA
Alkalinity	170		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	170		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	1500		20	9.4	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	4.4		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-3B

Lab Sample ID: 280-160467-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	2.0	J	5.0	1.4	mg/L	25		6010C	Total
									Recoverable
Antimony	0.024	^2	0.020	0.0069	mg/L	10		6020A	Total
									Recoverable
Arsenic	0.012	J	0.020	0.0075	mg/L	10		6020A	Total
									Recoverable
Barium	0.022		0.020	0.0088	mg/L	10		6020A	Total
									Recoverable
Beryllium	0.0091	J ^	0.010	0.0027	mg/L	10		6020A	Total
									Recoverable
Cadmium	0.027	^2	0.0010	0.00055	mg/L	10		6020A	Total
									Recoverable
Cadmium	0.017		0.010	0.0055	mg/L	100		6020A	Total
									Recoverable
Calcium	160		5.0	1.9	mg/L	10		6020A	Total
									Recoverable
Calcium	220		50	19	mg/L	100		6020A	Total
									Recoverable
Cobalt	0.13	^2	0.0050	0.0019	mg/L	10		6020A	Total
									Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Client Sample ID: W-3B (Continued)

Lab Sample ID: 280-160467-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Cobalt	0.15		0.050	0.019	mg/L	100			6020A	Total
Lead	0.010	^2	0.0050	0.0024	mg/L	10			6020A	Total Recoverable
Lithium	2.4	^-	0.10	0.025	mg/L	10			6020A	Total Recoverable
Lithium	3.4		1.0	0.25	mg/L	100			6020A	Total Recoverable
Molybdenum	0.016	J	0.020	0.012	mg/L	10			6020A	Total Recoverable
Selenium	0.019	J ^-	0.050	0.0096	mg/L	10			6020A	Total Recoverable
Thallium	0.0052	J	0.010	0.0026	mg/L	10			6020A	Total Recoverable
Sodium	10000	E ^-	10	6.1	mg/L	10			6020A	Total Recoverable
Sodium	15000		100	61	mg/L	100			6020A	Total Recoverable
Potassium	41	^-	5.0	1.5	mg/L	10			6020A	Total Recoverable
Potassium	56		50	15	mg/L	100			6020A	Total Recoverable
Magnesium	4500	E ^-	5.0	1.5	mg/L	10			6020A	Total Recoverable
Magnesium	6500		50	15	mg/L	100			6020A	Total Recoverable
pH adj. to 25 deg C	6.6	HF	0.1	0.1	SU	1			9040B	Total/NA
Temperature	18.0	HF	1.0	1.0	Degrees C	1			9040B	Total/NA
Chloride	1100		60	20	mg/L	20			9056A	Total/NA
Fluoride	84		5.0	1.7	mg/L	10			9056A	Total/NA
Sulfate	49000		5000	1000	mg/L	1000			9056A	Total/NA
Alkalinity	830		10	3.1	mg/L	1			SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	830		10	3.1	mg/L	1			SM 2320B	Total/NA
Total Dissolved Solids (TDS)	68000		1000	470	mg/L	1			SM 2540C	Total/NA
Total Suspended Solids	27		4.0	1.1	mg/L	1			SM 2540D	Total/NA

Client Sample ID: W-5

Lab Sample ID: 280-160467-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Boron	3.7	J	5.0	1.4	mg/L	25			6010C	Total Recoverable
Antimony	0.0071	J ^2	0.020	0.0069	mg/L	10			6020A	Total Recoverable
Barium	0.019	J	0.020	0.0088	mg/L	10			6020A	Total Recoverable
Cadmium	0.00056	J ^2	0.0010	0.00055	mg/L	10			6020A	Total Recoverable
Calcium	280		5.0	1.9	mg/L	10			6020A	Total Recoverable
Calcium	410		50	19	mg/L	100			6020A	Total Recoverable
Cobalt	0.036	^2	0.0050	0.0019	mg/L	10			6020A	Total Recoverable
Cobalt	0.046	J	0.050	0.019	mg/L	100			6020A	Total Recoverable
Lithium	1.3	^-	0.10	0.025	mg/L	10			6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Client Sample ID: W-5 (Continued)

Lab Sample ID: 280-160467-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lithium	2.1		1.0	0.25	mg/L	100		6020A	Total Recoverable
Molybdenum	0.056		0.020	0.012	mg/L	10		6020A	Total Recoverable
Selenium	0.013	J ^-	0.050	0.0096	mg/L	10		6020A	Total Recoverable
Sodium	6000	E ^-	10	6.1	mg/L	10		6020A	Total Recoverable
Sodium	9300		100	61	mg/L	100		6020A	Total Recoverable
Potassium	10	^-	5.0	1.5	mg/L	10		6020A	Total Recoverable
Potassium	16	J	50	15	mg/L	100		6020A	Total Recoverable
Magnesium	3700	E ^-	5.0	1.5	mg/L	10		6020A	Total Recoverable
Magnesium	5800		50	15	mg/L	100		6020A	Total Recoverable
pH adj. to 25 deg C	7.3	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	18.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	810		60	20	mg/L	20		9056A	Total/NA
Fluoride	61		5.0	1.7	mg/L	10		9056A	Total/NA
Sulfate	32000		2500	520	mg/L	500		9056A	Total/NA
Alkalinity	580		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	580		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	48000	H	1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	24		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-5B

Lab Sample ID: 280-160467-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.2		0.40	0.11	mg/L	2		6010C	Total Recoverable
Barium	0.018	J	0.020	0.0088	mg/L	10		6020A	Total Recoverable
Barium	0.017	J	0.020	0.0088	mg/L	10		6020A	Total Recoverable
Cadmium	0.00065	J ^2	0.0010	0.00055	mg/L	10		6020A	Total Recoverable
Calcium	470		5.0	1.9	mg/L	10		6020A	Total Recoverable
Calcium	510		5.0	1.9	mg/L	10		6020A	Total Recoverable
Cobalt	0.0035	J ^2	0.0050	0.0019	mg/L	10		6020A	Total Recoverable
Cobalt	0.0030	J	0.0050	0.0019	mg/L	10		6020A	Total Recoverable
Lithium	0.19	^-	0.10	0.025	mg/L	10		6020A	Total Recoverable
Lithium	0.22		0.10	0.025	mg/L	10		6020A	Total Recoverable
Sodium	580	^-	10	6.1	mg/L	10		6020A	Total Recoverable
Sodium	580		10	6.1	mg/L	10		6020A	Total Recoverable
Potassium	12	^-	5.0	1.5	mg/L	10		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Client Sample ID: W-5B (Continued)

Lab Sample ID: 280-160467-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Potassium	14		5.0	1.5	mg/L	10		6020A	Total
									Recoverable
Magnesium	250	^	5.0	1.5	mg/L	10		6020A	Total
									Recoverable
Magnesium	220		5.0	1.5	mg/L	10		6020A	Total
									Recoverable
pH adj. to 25 deg C	7.4	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	17.8	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	97		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	0.18	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	3200		250	52	mg/L	50		9056A	Total/NA
Alkalinity	170		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	170		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	4800	H	40	19	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	2.8	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-6

Lab Sample ID: 280-160467-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	7.7		0.60	0.17	mg/L	3		6010C	Total
									Recoverable
Barium	0.025		0.020	0.0088	mg/L	10		6020A	Total
									Recoverable
Barium	0.028		0.020	0.0088	mg/L	10		6020A	Total
									Recoverable
Calcium	470		5.0	1.9	mg/L	10		6020A	Total
									Recoverable
Calcium	570		5.0	1.9	mg/L	10		6020A	Total
									Recoverable
Cobalt	0.0020	J ^2	0.0050	0.0019	mg/L	10		6020A	Total
									Recoverable
Cobalt	0.0023	J	0.0050	0.0019	mg/L	10		6020A	Total
									Recoverable
Lithium	0.16	^	0.10	0.025	mg/L	10		6020A	Total
									Recoverable
Lithium	0.23		0.10	0.025	mg/L	10		6020A	Total
									Recoverable
Molybdenum	0.32		0.020	0.012	mg/L	10		6020A	Total
									Recoverable
Molybdenum	0.35		0.020	0.012	mg/L	10		6020A	Total
									Recoverable
Sodium	910	^	10	6.1	mg/L	10		6020A	Total
									Recoverable
Sodium	1300		10	6.1	mg/L	10		6020A	Total
									Recoverable
Potassium	8.4	^	5.0	1.5	mg/L	10		6020A	Total
									Recoverable
Potassium	11		5.0	1.5	mg/L	10		6020A	Total
									Recoverable
Magnesium	480	^	5.0	1.5	mg/L	10		6020A	Total
									Recoverable
Magnesium	640		5.0	1.5	mg/L	10		6020A	Total
									Recoverable
pH adj. to 25 deg C	7.7	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	17.9	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	180		15	5.1	mg/L	5		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Client Sample ID: W-6 (Continued)

Lab Sample ID: 280-160467-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoride	9.7		2.5	0.83	mg/L	5		9056A	Total/NA
Sulfate	5100		250	52	mg/L	50		9056A	Total/NA
Alkalinity	800		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	800		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	7800	H	100	47	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	6.0		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-6B

Lab Sample ID: 280-160467-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	2.2	J	5.0	1.4	mg/L	25		6010C	Total Recoverable
Barium	0.016	J	0.020	0.0088	mg/L	10		6020A	Total Recoverable
Cadmium	0.0082	^2	0.0010	0.00055	mg/L	10		6020A	Total Recoverable
Cadmium	0.010		0.010	0.0055	mg/L	100		6020A	Total Recoverable
Calcium	250		5.0	1.9	mg/L	10		6020A	Total Recoverable
Calcium	350		50	19	mg/L	100		6020A	Total Recoverable
Cobalt	0.087	^2	0.0050	0.0019	mg/L	10		6020A	Total Recoverable
Cobalt	0.12		0.050	0.019	mg/L	100		6020A	Total Recoverable
Lithium	2.9	^-	0.10	0.025	mg/L	10		6020A	Total Recoverable
Lithium	4.6		1.0	0.25	mg/L	100		6020A	Total Recoverable
Molybdenum	0.012	J	0.020	0.012	mg/L	10		6020A	Total Recoverable
Sodium	11000	E ^-	10	6.1	mg/L	10		6020A	Total Recoverable
Sodium	16000		100	61	mg/L	100		6020A	Total Recoverable
Potassium	53	^-	5.0	1.5	mg/L	10		6020A	Total Recoverable
Potassium	76		50	15	mg/L	100		6020A	Total Recoverable
Magnesium	4900	E ^-	5.0	1.5	mg/L	10		6020A	Total Recoverable
Magnesium	7500		50	15	mg/L	100		6020A	Total Recoverable
pH adj. to 25 deg C	6.9	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	18.8	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1300		30	10	mg/L	10		9056A	Total/NA
Fluoride	85		5.0	1.7	mg/L	10		9056A	Total/NA
Sulfate	48000		2500	520	mg/L	500		9056A	Total/NA
Alkalinity	840		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	840		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	67000	H	1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	37		4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

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Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Client Sample ID: W-6D

Lab Sample ID: 280-160467-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	7.5		0.60	0.17	mg/L	3		6010C	Total
									Recoverable
Barium	0.021		0.020	0.0088	mg/L	10		6020A	Total
									Recoverable
Barium	0.028		0.020	0.0088	mg/L	10		6020A	Total
									Recoverable
Calcium	430		5.0	1.9	mg/L	10		6020A	Total
									Recoverable
Calcium	640		5.0	1.9	mg/L	10		6020A	Total
									Recoverable
Cobalt	0.0039	J ^2	0.0050	0.0019	mg/L	10		6020A	Total
									Recoverable
Cobalt	0.0032	J	0.0050	0.0019	mg/L	10		6020A	Total
									Recoverable
Lithium	0.20	^L	0.10	0.025	mg/L	10		6020A	Total
									Recoverable
Lithium	0.29		0.10	0.025	mg/L	10		6020A	Total
									Recoverable
Molybdenum	0.28		0.020	0.012	mg/L	10		6020A	Total
									Recoverable
Molybdenum	0.37		0.020	0.012	mg/L	10		6020A	Total
									Recoverable
Sodium	1000	^L	10	6.1	mg/L	10		6020A	Total
									Recoverable
Sodium	1400		10	6.1	mg/L	10		6020A	Total
									Recoverable
Potassium	8.5	^L	5.0	1.5	mg/L	10		6020A	Total
									Recoverable
Potassium	12		5.0	1.5	mg/L	10		6020A	Total
									Recoverable
Magnesium	530	^L	5.0	1.5	mg/L	10		6020A	Total
									Recoverable
Magnesium	740		5.0	1.5	mg/L	10		6020A	Total
									Recoverable
pH adj. to 25 deg C	7.6	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	19.2	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	180		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	10		2.5	0.83	mg/L	5		9056A	Total/NA
Sulfate	5200		250	52	mg/L	50		9056A	Total/NA
Alkalinity	600		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	600		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	7900	H	100	47	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	8.0		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-7

Lab Sample ID: 280-160467-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.5	J	5.0	1.4	mg/L	25		6010C	Total
									Recoverable
Antimony	0.075	J	0.20	0.069	mg/L	100		6020A	Total
									Recoverable
Barium	0.011	J	0.020	0.0088	mg/L	10		6020A	Total
									Recoverable
Cadmium	0.0069	^2	0.0010	0.00055	mg/L	10		6020A	Total
									Recoverable
Cadmium	0.0077	J	0.010	0.0055	mg/L	100		6020A	Total
									Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Client Sample ID: W-7 (Continued)

Lab Sample ID: 280-160467-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	270		5.0	1.9	mg/L	10		6020A	Total
									Recoverable
Calcium	330		50	19	mg/L	100		6020A	Total
									Recoverable
Cobalt	0.020	^2	0.0050	0.0019	mg/L	10		6020A	Total
									Recoverable
Cobalt	0.026	J	0.050	0.019	mg/L	100		6020A	Total
									Recoverable
Lithium	3.8	^	0.10	0.025	mg/L	10		6020A	Total
									Recoverable
Lithium	5.6		1.0	0.25	mg/L	100		6020A	Total
									Recoverable
Molybdenum	0.015	J	0.020	0.012	mg/L	10		6020A	Total
									Recoverable
Selenium	2.1	^	0.050	0.0096	mg/L	10		6020A	Total
									Recoverable
Selenium	2.1		0.50	0.096	mg/L	100		6020A	Total
									Recoverable
Thallium	0.0054	J	0.010	0.0026	mg/L	10		6020A	Total
									Recoverable
Sodium	7600	E ^	10	6.1	mg/L	10		6020A	Total
									Recoverable
Sodium	11000		100	61	mg/L	100		6020A	Total
									Recoverable
Potassium	66	^	5.0	1.5	mg/L	10		6020A	Total
									Recoverable
Potassium	84		50	15	mg/L	100		6020A	Total
									Recoverable
Magnesium	7100	E ^	5.0	1.5	mg/L	10		6020A	Total
									Recoverable
Magnesium	7300		100	30	mg/L	200		6020A	Total
									Recoverable
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	17.9	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	780		30	10	mg/L	10		9056A	Total/NA
Fluoride	72		10	3.3	mg/L	20		9056A	Total/NA
Sulfate	47000		2500	520	mg/L	500		9056A	Total/NA
Alkalinity	1100		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	1100		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	64000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	29		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-9

Lab Sample ID: 280-160467-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.8		1.2	0.34	mg/L	6		6010C	Total
									Recoverable
Barium	0.015	J	0.020	0.0088	mg/L	10		6020A	Total
									Recoverable
Cadmium	0.0012	^2	0.0010	0.00055	mg/L	10		6020A	Total
									Recoverable
Calcium	460		5.0	1.9	mg/L	10		6020A	Total
									Recoverable
Calcium	530		50	19	mg/L	100		6020A	Total
									Recoverable
Cobalt	0.0025	J ^2	0.0050	0.0019	mg/L	10		6020A	Total
									Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Client Sample ID: W-9 (Continued)

Lab Sample ID: 280-160467-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lithium	0.98	^	0.10	0.025	mg/L	10		6020A	Total Recoverable
Lithium	1.3		1.0	0.25	mg/L	100		6020A	Total Recoverable
Selenium	0.035	J ^	0.050	0.0096	mg/L	10		6020A	Total Recoverable
Sodium	2600	^	10	6.1	mg/L	10		6020A	Total Recoverable
Sodium	3400		100	61	mg/L	100		6020A	Total Recoverable
Potassium	22	^	5.0	1.5	mg/L	10		6020A	Total Recoverable
Potassium	29	J	50	15	mg/L	100		6020A	Total Recoverable
Magnesium	1400	E ^	5.0	1.5	mg/L	10		6020A	Total Recoverable
Magnesium	1700		50	15	mg/L	100		6020A	Total Recoverable
pH adj. to 25 deg C	7.3	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	18.3	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	370		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	20		2.5	0.83	mg/L	5		9056A	Total/NA
Sulfate	12000		500	100	mg/L	100		9056A	Total/NA
Alkalinity	620		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	620		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	19000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	12		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-12

Lab Sample ID: 280-160467-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.97	J	2.0	0.56	mg/L	10		6010C	Total Recoverable
Barium	0.016	J	0.020	0.0088	mg/L	10		6020A	Total Recoverable
Cadmium	0.0014	^2	0.0010	0.00055	mg/L	10		6020A	Total Recoverable
Calcium	450		5.0	1.9	mg/L	10		6020A	Total Recoverable
Calcium	500		50	19	mg/L	100		6020A	Total Recoverable
Cobalt	0.033	^2	0.0050	0.0019	mg/L	10		6020A	Total Recoverable
Cobalt	0.036	J	0.050	0.019	mg/L	100		6020A	Total Recoverable
Lithium	2.0	^	0.10	0.025	mg/L	10		6020A	Total Recoverable
Lithium	2.7		1.0	0.25	mg/L	100		6020A	Total Recoverable
Selenium	0.030	J ^	0.050	0.0096	mg/L	10		6020A	Total Recoverable
Thallium	0.0041	J	0.010	0.0026	mg/L	10		6020A	Total Recoverable
Sodium	5700	E ^	10	6.1	mg/L	10		6020A	Total Recoverable
Sodium	7300		100	61	mg/L	100		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Client Sample ID: W-12 (Continued)

Lab Sample ID: 280-160467-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Potassium	43	^	5.0	1.5	mg/L	10		6020A	Total
Potassium	51		50	15	mg/L	100		6020A	Recoverable
Magnesium	1200	E ^	5.0	1.5	mg/L	10		6020A	Total
Magnesium	1500		50	15	mg/L	100		6020A	Recoverable
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	18.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	880		30	10	mg/L	10		9056A	Total/NA
Fluoride	30		2.5	0.83	mg/L	5		9056A	Total/NA
Sulfate	17000		1000	210	mg/L	200		9056A	Total/NA
Alkalinity	1300		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	1300		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	27000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	11		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-14

Lab Sample ID: 280-160467-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.0	J	1.6	0.45	mg/L	8		6010C	Total
Antimony	0.024	^2	0.020	0.0069	mg/L	10		6020A	Recoverable
Arsenic	0.010	J	0.020	0.0075	mg/L	10		6020A	Total
Barium	0.035		0.020	0.0088	mg/L	10		6020A	Recoverable
Beryllium	0.0082	J ^	0.010	0.0027	mg/L	10		6020A	Total
Cadmium	0.011	^2	0.0010	0.00055	mg/L	10		6020A	Recoverable
Calcium	430		5.0	1.9	mg/L	10		6020A	Total
Calcium	480		50	19	mg/L	100		6020A	Recoverable
Cobalt	0.023	^2	0.0050	0.0019	mg/L	10		6020A	Total
Lead	0.0092	^2	0.0050	0.0024	mg/L	10		6020A	Recoverable
Lithium	2.6	^	0.10	0.025	mg/L	10		6020A	Total
Lithium	3.5		1.0	0.25	mg/L	100		6020A	Recoverable
Molybdenum	0.032		0.020	0.012	mg/L	10		6020A	Total
Selenium	1.2	^	0.050	0.0096	mg/L	10		6020A	Recoverable
Selenium	1.3		0.50	0.096	mg/L	100		6020A	Total
Thallium	0.0040	J	0.010	0.0026	mg/L	10		6020A	Recoverable
Sodium	4600	E ^	10	6.1	mg/L	10		6020A	Total
Sodium	6300		100	61	mg/L	100		6020A	Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Client Sample ID: W-14 (Continued)

Lab Sample ID: 280-160467-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Potassium	43	^	5.0	1.5	mg/L	10		6020A	Total
									Recoverable
Potassium	54		50	15	mg/L	100		6020A	Total
									Recoverable
Magnesium	1400	E ^	5.0	1.5	mg/L	10		6020A	Total
									Recoverable
Magnesium	1800		50	15	mg/L	100		6020A	Total
									Recoverable
pH adj. to 25 deg C	7.3	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	18.1	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	660		30	10	mg/L	10		9056A	Total/NA
Fluoride	30		2.5	0.83	mg/L	5		9056A	Total/NA
Sulfate	17000		500	100	mg/L	100		9056A	Total/NA
Alkalinity	1300		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	1300		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	27000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	8.0		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-16

Lab Sample ID: 280-160467-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.90	J	1.2	0.34	mg/L	6		6010C	Total
									Recoverable
Barium	0.015	J	0.020	0.0088	mg/L	10		6020A	Total
									Recoverable
Cadmium	0.0024	^2	0.0010	0.00055	mg/L	10		6020A	Total
									Recoverable
Calcium	410		5.0	1.9	mg/L	10		6020A	Total
									Recoverable
Calcium	490		50	19	mg/L	100		6020A	Total
									Recoverable
Cobalt	0.0093	^2	0.0050	0.0019	mg/L	10		6020A	Total
									Recoverable
Lithium	1.6	^	0.10	0.025	mg/L	10		6020A	Total
									Recoverable
Lithium	2.3		1.0	0.25	mg/L	100		6020A	Total
									Recoverable
Selenium	0.11	^	0.050	0.0096	mg/L	10		6020A	Total
									Recoverable
Selenium	0.14	J	0.50	0.096	mg/L	100		6020A	Total
									Recoverable
Thallium	0.0046	J	0.010	0.0026	mg/L	10		6020A	Total
									Recoverable
Sodium	1400	^	10	6.1	mg/L	10		6020A	Total
									Recoverable
Sodium	1900		100	61	mg/L	100		6020A	Total
									Recoverable
Potassium	28	^	5.0	1.5	mg/L	10		6020A	Total
									Recoverable
Potassium	38	J	50	15	mg/L	100		6020A	Total
									Recoverable
Magnesium	1700	E ^	5.0	1.5	mg/L	10		6020A	Total
									Recoverable
Magnesium	2300		50	15	mg/L	100		6020A	Total
									Recoverable
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	18.2	HF	1.0	1.0	Degrees C	1		9040B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Client Sample ID: W-16 (Continued)

Lab Sample ID: 280-160467-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	250		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	20		2.5	0.83	mg/L	5		9056A	Total/NA
Sulfate	13000		500	100	mg/L	100		9056A	Total/NA
Alkalinity	850		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	850		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	22000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	6.4		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-3

Lab Sample ID: 280-160467-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.011	J	0.020	0.0088	mg/L	10		6020A	Total Recoverable
Barium	0.011	J	0.020	0.0088	mg/L	10		6020A	Total Recoverable
Cadmium	0.0074	^2	0.0010	0.00055	mg/L	10		6020A	Total Recoverable
Cadmium	0.0072		0.0010	0.00055	mg/L	10		6020A	Total Recoverable
Calcium	250		5.0	1.9	mg/L	10		6020A	Total Recoverable
Calcium	300		5.0	1.9	mg/L	10		6020A	Total Recoverable
Cobalt	0.020	^2	0.0050	0.0019	mg/L	10		6020A	Total Recoverable
Cobalt	0.021		0.0050	0.0019	mg/L	10		6020A	Total Recoverable
Lithium	2.0	^~	0.10	0.025	mg/L	10		6020A	Total Recoverable
Lithium	2.7		0.10	0.025	mg/L	10		6020A	Total Recoverable
Selenium	0.45	^~	0.050	0.0096	mg/L	10		6020A	Total Recoverable
Selenium	0.46		0.050	0.0096	mg/L	10		6020A	Total Recoverable
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	18.8	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	390		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	68		5.0	1.7	mg/L	10		9056A	Total/NA
Sulfate	37000		2500	520	mg/L	500		9056A	Total/NA
Alkalinity	920		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	920		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	53000	H	1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	15		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-5

Lab Sample ID: 280-160467-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.1	J	2.0	0.56	mg/L	10		6010C	Total Recoverable
Barium	0.023		0.020	0.0088	mg/L	10		6020A	Total Recoverable
Cadmium	0.0011	^2	0.0010	0.00055	mg/L	10		6020A	Total Recoverable
Calcium	450		5.0	1.9	mg/L	10		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Client Sample ID: MW-5 (Continued)

Lab Sample ID: 280-160467-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	490		50	19	mg/L	100		6020A	Total
									Recoverable
Cobalt	0.0033	J ^2	0.0050	0.0019	mg/L	10		6020A	Total
									Recoverable
Lithium	2.6	^	0.10	0.025	mg/L	10		6020A	Total
									Recoverable
Lithium	3.4		1.0	0.25	mg/L	100		6020A	Total
									Recoverable
Selenium	0.13	^	0.050	0.0096	mg/L	10		6020A	Total
									Recoverable
Selenium	0.15	J	0.50	0.096	mg/L	100		6020A	Total
									Recoverable
Sodium	4600	E ^	10	6.1	mg/L	10		6020A	Total
									Recoverable
Sodium	5700		100	61	mg/L	100		6020A	Total
									Recoverable
Potassium	39	^	5.0	1.5	mg/L	10		6020A	Total
									Recoverable
Potassium	45	J	50	15	mg/L	100		6020A	Total
									Recoverable
Magnesium	2000	E ^	5.0	1.5	mg/L	10		6020A	Total
									Recoverable
Magnesium	2400		50	15	mg/L	100		6020A	Total
									Recoverable
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1700		60	20	mg/L	20		9056A	Total/NA
Fluoride	32		2.5	0.83	mg/L	5		9056A	Total/NA
Sulfate	16000		1000	210	mg/L	200		9056A	Total/NA
Alkalinity	1500		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	1500		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	30000	H	1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	12		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-11

Lab Sample ID: 280-160467-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.88	J	1.4	0.39	mg/L	7		6010C	Total
									Recoverable
Barium	0.014	J	0.020	0.0088	mg/L	10		6020A	Total
									Recoverable
Cadmium	0.0016	^2	0.0010	0.00055	mg/L	10		6020A	Total
									Recoverable
Calcium	450		5.0	1.9	mg/L	10		6020A	Total
									Recoverable
Calcium	520		50	19	mg/L	100		6020A	Total
									Recoverable
Cobalt	0.017	^2	0.0050	0.0019	mg/L	10		6020A	Total
									Recoverable
Cobalt	0.020	J	0.050	0.019	mg/L	100		6020A	Total
									Recoverable
Lithium	2.7	^	0.10	0.025	mg/L	10		6020A	Total
									Recoverable
Lithium	3.9		1.0	0.25	mg/L	100		6020A	Total
									Recoverable
Selenium	2.5	^	0.050	0.0096	mg/L	10		6020A	Total
									Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Client Sample ID: W-11 (Continued)

Lab Sample ID: 280-160467-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Selenium	2.9		0.50	0.096	mg/L	100		6020A	Total
Thallium	0.0037	J	0.010	0.0026	mg/L	10		6020A	Recoverable Total
Sodium	3400	^	10	6.1	mg/L	10		6020A	Recoverable Total
Sodium	4600		100	61	mg/L	100		6020A	Recoverable Total
Potassium	44	^	5.0	1.5	mg/L	10		6020A	Recoverable Total
Potassium	54		50	15	mg/L	100		6020A	Recoverable Total
Magnesium	1400	E ^	5.0	1.5	mg/L	10		6020A	Recoverable Total
Magnesium	1800		50	15	mg/L	100		6020A	Recoverable Total
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.1	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	97		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	25		2.5	0.83	mg/L	5		9056A	Total/NA
Sulfate	13000		1000	210	mg/L	200		9056A	Total/NA
Alkalinity	1000		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	1000		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	20000	H	1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	17		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-3EB

Lab Sample ID: 280-160467-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	0.0072	J	0.020	0.0069	mg/L	10		6020A	Total
Barium	0.011	J	0.020	0.0088	mg/L	10		6020A	Recoverable Total
Calcium	11		5.0	1.9	mg/L	10		6020A	Recoverable Total
Lithium	0.031	J ^	0.10	0.025	mg/L	10		6020A	Recoverable Total
Selenium	0.038	J ^	0.050	0.0096	mg/L	10		6020A	Recoverable Total
Sodium	54	^	10	6.1	mg/L	10		6020A	Recoverable Total
Magnesium	23	^	5.0	1.5	mg/L	10		6020A	Recoverable Total
pH adj. to 25 deg C	8.2	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	19.5	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Total Dissolved Solids (TDS)	10		10	4.7	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Method Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL CF
6020A	Metals (ICP/MS)	SW846	TAL CF
7470A	Mercury (CVAA)	SW846	TAL CF
9040B	pH	SW846	TAL DEN
9056A	Anions, Ion Chromatography	SW846	TAL DEN
SM 2320B	Alkalinity	SM	TAL DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL DEN
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL CF
7470A	Preparation, Mercury	SW846	TAL 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:

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

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

Sample Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-160467-1	W-2A	Water	03/31/22 10:20	04/02/22 09:15
280-160467-2	W-2C	Water	03/31/22 10:40	04/02/22 09:15
280-160467-3	W-3	Water	03/31/22 12:30	04/02/22 09:15
280-160467-4	W-3B	Water	03/31/22 13:35	04/02/22 09:15
280-160467-5	W-5	Water	03/30/22 14:20	04/02/22 09:15
280-160467-6	W-5B	Water	03/30/22 15:45	04/02/22 09:15
280-160467-7	W-6	Water	03/30/22 10:40	04/02/22 09:15
280-160467-8	W-6B	Water	03/30/22 12:35	04/02/22 09:15
280-160467-9	W-6D	Water	03/30/22 10:40	04/02/22 09:15
280-160467-10	W-7	Water	03/31/22 17:30	04/02/22 09:15
280-160467-11	W-9	Water	03/31/22 14:50	04/02/22 09:15
280-160467-12	W-12	Water	04/01/22 12:30	04/02/22 09:15
280-160467-13	W-14	Water	04/01/22 12:40	04/02/22 09:15
280-160467-14	W-16	Water	04/01/22 10:50	04/02/22 09:15
280-160467-15	MW-3	Water	03/29/22 11:45	04/02/22 09:15
280-160467-16	MW-5	Water	03/31/22 15:45	04/02/22 09:15
280-160467-17	W-11	Water	04/01/22 11:00	04/02/22 09:15
280-160467-18	W-3EB	Water	03/31/22 13:15	04/02/22 09:15

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Method: 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: W-2A
Date Collected: 03/31/22 10:20
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.9	J	5.0	1.4	mg/L		04/11/22 09:15	04/11/22 15:27	25

Client Sample ID: W-2C
Date Collected: 03/31/22 10:40
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.6	J	5.0	1.4	mg/L		04/11/22 09:15	04/12/22 10:20	25

Client Sample ID: W-3
Date Collected: 03/31/22 12:30
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.68		0.20	0.056	mg/L		04/11/22 09:15	04/11/22 15:39	1

Client Sample ID: W-3B
Date Collected: 03/31/22 13:35
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	2.0	J	5.0	1.4	mg/L		04/11/22 09:15	04/12/22 10:22	25

Client Sample ID: W-5
Date Collected: 03/30/22 14:20
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	3.7	J	5.0	1.4	mg/L		04/11/22 09:15	04/12/22 10:24	25

Client Sample ID: W-5B
Date Collected: 03/30/22 15:45
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.2		0.40	0.11	mg/L		04/11/22 09:15	04/12/22 10:55	2

Client Sample ID: W-6
Date Collected: 03/30/22 10:40
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	7.7		0.60	0.17	mg/L		04/11/22 09:15	04/12/22 10:57	3

Client Sample ID: W-6B
Date Collected: 03/30/22 12:35
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	2.2	J	5.0	1.4	mg/L		04/11/22 09:15	04/12/22 10:29	25

Client Sample ID: W-6D
Date Collected: 03/30/22 10:40
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	7.5		0.60	0.17	mg/L		04/11/22 09:15	04/12/22 10:59	3

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Method: 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: W-7
Date Collected: 03/31/22 17:30
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.5	J	5.0	1.4	mg/L		04/11/22 09:15	04/12/22 10:33	25

Client Sample ID: W-9
Date Collected: 03/31/22 14:50
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.8		1.2	0.34	mg/L		04/11/22 09:15	04/12/22 10:35	6

Client Sample ID: W-12
Date Collected: 04/01/22 12:30
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.97	J	2.0	0.56	mg/L		04/11/22 09:15	04/12/22 11:01	10

Client Sample ID: W-14
Date Collected: 04/01/22 12:40
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.0	J	1.6	0.45	mg/L		04/11/22 09:15	04/12/22 10:45	8

Client Sample ID: W-16
Date Collected: 04/01/22 10:50
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.90	J	1.2	0.34	mg/L		04/11/22 09:15	04/12/22 10:47	6

Client Sample ID: MW-3
Date Collected: 03/29/22 11:45
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		5.0	1.4	mg/L		04/11/22 09:15	04/12/22 10:49	25

Client Sample ID: MW-5
Date Collected: 03/31/22 15:45
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.1	J	2.0	0.56	mg/L		04/11/22 09:15	04/12/22 10:51	10

Client Sample ID: W-11
Date Collected: 04/01/22 11:00
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-17
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.88	J	1.4	0.39	mg/L		04/11/22 09:15	04/12/22 10:53	7

Client Sample ID: W-3EB
Date Collected: 03/31/22 13:15
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-18
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.20	0.056	mg/L		04/11/22 09:15	04/11/22 16:15	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Client Sample ID: W-2A
Date Collected: 03/31/22 10:20
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.052	F1 ^2	0.020	0.0069	mg/L		04/11/22 09:15	04/22/22 01:43	10
Antimony	ND	F1 F2	0.40	0.14	mg/L		04/11/22 09:15	04/22/22 14:54	200
Arsenic	0.049	F1	0.020	0.0075	mg/L		04/11/22 09:15	04/22/22 01:43	10
Arsenic	ND		0.40	0.15	mg/L		04/11/22 09:15	04/22/22 14:54	200
Barium	0.034	F1	0.020	0.0088	mg/L		04/11/22 09:15	04/22/22 01:43	10
Barium	ND		0.40	0.18	mg/L		04/11/22 09:15	04/22/22 14:54	200
Beryllium	0.021	F1 ^-	0.010	0.0027	mg/L		04/11/22 09:15	04/22/22 01:43	10
Beryllium	ND	F1	0.20	0.054	mg/L		04/11/22 09:15	04/22/22 14:54	200
Cadmium	0.029	F1 ^2	0.0010	0.00055	mg/L		04/11/22 09:15	04/22/22 01:43	10
Cadmium	ND		0.020	0.011	mg/L		04/11/22 09:15	04/22/22 14:54	200
Calcium	240	F2	5.0	1.9	mg/L		04/11/22 09:15	04/22/22 01:43	10
Calcium	230		100	38	mg/L		04/11/22 09:15	04/22/22 14:54	200
Chromium	0.022	J F1	0.050	0.011	mg/L		04/11/22 09:15	04/22/22 01:43	10
Chromium	ND		1.0	0.22	mg/L		04/11/22 09:15	04/22/22 14:54	200
Cobalt	0.033	F1 ^2	0.0050	0.0019	mg/L		04/11/22 09:15	04/22/22 01:43	10
Cobalt	ND		0.10	0.038	mg/L		04/11/22 09:15	04/22/22 14:54	200
Lead	0.044	F1 ^2	0.0050	0.0024	mg/L		04/11/22 09:15	04/22/22 01:43	10
Lead	ND	F1	0.10	0.048	mg/L		04/11/22 09:15	04/22/22 14:54	200
Lithium	4.3	F1 ^-	0.10	0.025	mg/L		04/11/22 09:15	04/22/22 01:43	10
Lithium	4.0		2.0	0.50	mg/L		04/11/22 09:15	04/22/22 14:54	200
Molybdenum	0.061	F1	0.020	0.012	mg/L		04/11/22 09:15	04/22/22 01:43	10
Molybdenum	ND		0.40	0.24	mg/L		04/11/22 09:15	04/22/22 14:54	200
Selenium	2.6	F1 ^-	0.050	0.0096	mg/L		04/11/22 09:15	04/22/22 01:43	10
Selenium	1.9		1.0	0.19	mg/L		04/11/22 09:15	04/22/22 14:54	200
Thallium	0.071	F1	0.010	0.0026	mg/L		04/11/22 09:15	04/22/22 01:43	10
Thallium	ND	F1	0.20	0.052	mg/L		04/11/22 09:15	04/22/22 14:54	200
Sodium	5500	E ^-	10	6.1	mg/L		04/11/22 09:15	04/22/22 01:43	10
Sodium	5200		200	120	mg/L		04/11/22 09:15	04/22/22 14:54	200
Potassium	65	F1 ^-	5.0	1.5	mg/L		04/11/22 09:15	04/22/22 01:43	10
Potassium	59	J	100	30	mg/L		04/11/22 09:15	04/22/22 14:54	200
Magnesium	7800	E ^-	5.0	1.5	mg/L		04/11/22 09:15	04/22/22 01:43	10
Magnesium	7300		100	30	mg/L		04/11/22 09:15	04/22/22 14:54	200

Client Sample ID: W-2C
Date Collected: 03/31/22 10:40
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0069	mg/L		04/11/22 09:15	04/22/22 01:56	10
Antimony	ND		0.20	0.069	mg/L		04/11/22 09:15	04/22/22 15:25	100
Arsenic	ND		0.020	0.0075	mg/L		04/11/22 09:15	04/22/22 01:56	10
Arsenic	ND		0.20	0.075	mg/L		04/11/22 09:15	04/22/22 15:25	100
Barium	0.014	J	0.020	0.0088	mg/L		04/11/22 09:15	04/22/22 01:56	10
Barium	ND		0.20	0.088	mg/L		04/11/22 09:15	04/22/22 15:25	100
Beryllium	ND	^-	0.010	0.0027	mg/L		04/11/22 09:15	04/22/22 01:56	10
Beryllium	ND		0.10	0.027	mg/L		04/11/22 09:15	04/22/22 15:25	100
Cadmium	0.0073	^2	0.0010	0.00055	mg/L		04/11/22 09:15	04/22/22 01:56	10
Cadmium	ND		0.010	0.0055	mg/L		04/11/22 09:15	04/22/22 15:25	100
Calcium	180		5.0	1.9	mg/L		04/11/22 09:15	04/22/22 01:56	10
Calcium	230		50	19	mg/L		04/11/22 09:15	04/22/22 15:25	100
Chromium	ND		0.050	0.011	mg/L		04/11/22 09:15	04/22/22 01:56	10

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Method: 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

Client Sample ID: W-2C
Date Collected: 03/31/22 10:40
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	ND		0.50	0.11	mg/L		04/11/22 09:15	04/22/22 15:25	100
Cobalt	0.0057	^2	0.0050	0.0019	mg/L		04/11/22 09:15	04/22/22 01:56	10
Cobalt	ND		0.050	0.019	mg/L		04/11/22 09:15	04/22/22 15:25	100
Lead	0.0026	J ^2	0.0050	0.0024	mg/L		04/11/22 09:15	04/22/22 01:56	10
Lead	ND		0.050	0.024	mg/L		04/11/22 09:15	04/22/22 15:25	100
Lithium	3.2	^-	0.10	0.025	mg/L		04/11/22 09:15	04/22/22 01:56	10
Lithium	4.6		1.0	0.25	mg/L		04/11/22 09:15	04/22/22 15:25	100
Molybdenum	ND		0.020	0.012	mg/L		04/11/22 09:15	04/22/22 01:56	10
Molybdenum	ND		0.20	0.12	mg/L		04/11/22 09:15	04/22/22 15:25	100
Selenium	2.9	^-	0.050	0.0096	mg/L		04/11/22 09:15	04/22/22 01:56	10
Selenium	3.0		0.50	0.096	mg/L		04/11/22 09:15	04/22/22 15:25	100
Thallium	0.010		0.010	0.0026	mg/L		04/11/22 09:15	04/22/22 01:56	10
Thallium	ND		0.10	0.026	mg/L		04/11/22 09:15	04/22/22 15:25	100
Sodium	4400	^-	10	6.1	mg/L		04/11/22 09:15	04/22/22 01:56	10
Sodium	6200		100	61	mg/L		04/11/22 09:15	04/22/22 15:25	100
Potassium	55	^-	5.0	1.5	mg/L		04/11/22 09:15	04/22/22 01:56	10
Potassium	73		50	15	mg/L		04/11/22 09:15	04/22/22 15:25	100
Magnesium	6200	E ^-	5.0	1.5	mg/L		04/11/22 09:15	04/22/22 01:56	10
Magnesium	8600		50	15	mg/L		04/11/22 09:15	04/22/22 15:25	100

Client Sample ID: W-3
Date Collected: 03/31/22 12:30
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0069	mg/L		04/11/22 09:15	04/22/22 02:00	10
Antimony	ND		0.020	0.0069	mg/L		04/11/22 09:15	04/22/22 15:29	10
Arsenic	ND		0.020	0.0075	mg/L		04/11/22 09:15	04/22/22 02:00	10
Arsenic	ND		0.020	0.0075	mg/L		04/11/22 09:15	04/22/22 15:29	10
Barium	0.026		0.020	0.0088	mg/L		04/11/22 09:15	04/22/22 02:00	10
Barium	0.021		0.020	0.0088	mg/L		04/11/22 09:15	04/22/22 15:29	10
Beryllium	ND	^-	0.010	0.0027	mg/L		04/11/22 09:15	04/22/22 02:00	10
Beryllium	ND		0.010	0.0027	mg/L		04/11/22 09:15	04/22/22 15:29	10
Cadmium	ND		0.0010	0.00055	mg/L		04/11/22 09:15	04/22/22 02:00	10
Cadmium	ND		0.0010	0.00055	mg/L		04/11/22 09:15	04/22/22 15:29	10
Calcium	200		5.0	1.9	mg/L		04/11/22 09:15	04/22/22 02:00	10
Calcium	180		5.0	1.9	mg/L		04/11/22 09:15	04/22/22 15:29	10
Chromium	ND		0.050	0.011	mg/L		04/11/22 09:15	04/22/22 02:00	10
Chromium	ND		0.050	0.011	mg/L		04/11/22 09:15	04/22/22 15:29	10
Cobalt	ND		0.0050	0.0019	mg/L		04/11/22 09:15	04/22/22 02:00	10
Cobalt	ND		0.0050	0.0019	mg/L		04/11/22 09:15	04/22/22 15:29	10
Lead	ND		0.0050	0.0024	mg/L		04/11/22 09:15	04/22/22 02:00	10
Lead	ND		0.0050	0.0024	mg/L		04/11/22 09:15	04/22/22 15:29	10
Lithium	0.10	^-	0.10	0.025	mg/L		04/11/22 09:15	04/22/22 02:00	10
Lithium	0.057	J	0.10	0.025	mg/L		04/11/22 09:15	04/22/22 15:29	10
Molybdenum	0.019	J	0.020	0.012	mg/L		04/11/22 09:15	04/22/22 02:00	10
Molybdenum	0.015	J	0.020	0.012	mg/L		04/11/22 09:15	04/22/22 15:29	10
Selenium	0.055	^-	0.050	0.0096	mg/L		04/11/22 09:15	04/22/22 02:00	10
Selenium	ND		0.050	0.0096	mg/L		04/11/22 09:15	04/22/22 15:29	10
Thallium	ND		0.010	0.0026	mg/L		04/11/22 09:15	04/22/22 02:00	10
Thallium	ND		0.010	0.0026	mg/L		04/11/22 09:15	04/22/22 15:29	10

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Method: 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

Client Sample ID: W-3
Date Collected: 03/31/22 12:30
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	160	^-	10	6.1	mg/L		04/11/22 09:15	04/22/22 02:00	10
Sodium	91		10	6.1	mg/L		04/11/22 09:15	04/22/22 15:29	10
Potassium	6.3	^-	5.0	1.5	mg/L		04/11/22 09:15	04/22/22 02:00	10
Potassium	5.9		5.0	1.5	mg/L		04/11/22 09:15	04/22/22 15:29	10
Magnesium	180	^-	5.0	1.5	mg/L		04/11/22 09:15	04/22/22 02:00	10
Magnesium	75		5.0	1.5	mg/L		04/11/22 09:15	04/22/22 15:29	10

Client Sample ID: W-3B
Date Collected: 03/31/22 13:35
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.024	^2	0.020	0.0069	mg/L		04/11/22 09:15	04/22/22 02:16	10
Antimony	ND		0.20	0.069	mg/L		04/11/22 09:15	04/22/22 15:33	100
Arsenic	0.012	J	0.020	0.0075	mg/L		04/11/22 09:15	04/22/22 02:16	10
Arsenic	ND		0.20	0.075	mg/L		04/11/22 09:15	04/22/22 15:33	100
Barium	0.022		0.020	0.0088	mg/L		04/11/22 09:15	04/22/22 02:16	10
Barium	ND		0.20	0.088	mg/L		04/11/22 09:15	04/22/22 15:33	100
Beryllium	0.0091	J ^-	0.010	0.0027	mg/L		04/11/22 09:15	04/22/22 02:16	10
Beryllium	ND		0.10	0.027	mg/L		04/11/22 09:15	04/22/22 15:33	100
Cadmium	0.027	^2	0.0010	0.00055	mg/L		04/11/22 09:15	04/22/22 02:16	10
Cadmium	0.017		0.010	0.0055	mg/L		04/11/22 09:15	04/22/22 15:33	100
Calcium	160		5.0	1.9	mg/L		04/11/22 09:15	04/22/22 02:16	10
Calcium	220		50	19	mg/L		04/11/22 09:15	04/22/22 15:33	100
Chromium	ND		0.050	0.011	mg/L		04/11/22 09:15	04/22/22 02:16	10
Chromium	ND		0.50	0.11	mg/L		04/11/22 09:15	04/22/22 15:33	100
Cobalt	0.13	^2	0.0050	0.0019	mg/L		04/11/22 09:15	04/22/22 02:16	10
Cobalt	0.15		0.050	0.019	mg/L		04/11/22 09:15	04/22/22 15:33	100
Lead	0.010	^2	0.0050	0.0024	mg/L		04/11/22 09:15	04/22/22 02:16	10
Lead	ND		0.050	0.024	mg/L		04/11/22 09:15	04/22/22 15:33	100
Lithium	2.4	^-	0.10	0.025	mg/L		04/11/22 09:15	04/22/22 02:16	10
Lithium	3.4		1.0	0.25	mg/L		04/11/22 09:15	04/22/22 15:33	100
Molybdenum	0.016	J	0.020	0.012	mg/L		04/11/22 09:15	04/22/22 02:16	10
Molybdenum	ND		0.20	0.12	mg/L		04/11/22 09:15	04/22/22 15:33	100
Selenium	0.019	J ^-	0.050	0.0096	mg/L		04/11/22 09:15	04/22/22 02:16	10
Selenium	ND		0.50	0.096	mg/L		04/11/22 09:15	04/22/22 15:33	100
Thallium	0.0052	J	0.010	0.0026	mg/L		04/11/22 09:15	04/22/22 02:16	10
Thallium	ND		0.10	0.026	mg/L		04/11/22 09:15	04/22/22 15:33	100
Sodium	10000	E ^-	10	6.1	mg/L		04/11/22 09:15	04/22/22 02:16	10
Sodium	15000		100	61	mg/L		04/11/22 09:15	04/22/22 15:33	100
Potassium	41	^-	5.0	1.5	mg/L		04/11/22 09:15	04/22/22 02:16	10
Potassium	56		50	15	mg/L		04/11/22 09:15	04/22/22 15:33	100
Magnesium	4500	E ^-	5.0	1.5	mg/L		04/11/22 09:15	04/22/22 02:16	10
Magnesium	6500		50	15	mg/L		04/11/22 09:15	04/22/22 15:33	100

Client Sample ID: W-5
Date Collected: 03/30/22 14:20
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0071	J ^2	0.020	0.0069	mg/L		04/11/22 09:15	04/22/22 02:19	10
Antimony	ND		0.20	0.069	mg/L		04/11/22 09:15	04/22/22 15:37	100

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Method: 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

Client Sample ID: W-5
Date Collected: 03/30/22 14:20
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.020	0.0075	mg/L		04/11/22 09:15	04/22/22 02:19	10
Arsenic	ND		0.20	0.075	mg/L		04/11/22 09:15	04/22/22 15:37	100
Barium	0.019	J	0.020	0.0088	mg/L		04/11/22 09:15	04/22/22 02:19	10
Barium	ND		0.20	0.088	mg/L		04/11/22 09:15	04/22/22 15:37	100
Beryllium	ND	^	0.010	0.0027	mg/L		04/11/22 09:15	04/22/22 02:19	10
Beryllium	ND		0.10	0.027	mg/L		04/11/22 09:15	04/22/22 15:37	100
Cadmium	0.00056	J ^2	0.0010	0.00055	mg/L		04/11/22 09:15	04/22/22 02:19	10
Cadmium	ND		0.010	0.0055	mg/L		04/11/22 09:15	04/22/22 15:37	100
Calcium	280		5.0	1.9	mg/L		04/11/22 09:15	04/22/22 02:19	10
Calcium	410		50	19	mg/L		04/11/22 09:15	04/22/22 15:37	100
Chromium	ND		0.050	0.011	mg/L		04/11/22 09:15	04/22/22 02:19	10
Chromium	ND		0.50	0.11	mg/L		04/11/22 09:15	04/22/22 15:37	100
Cobalt	0.036	^2	0.0050	0.0019	mg/L		04/11/22 09:15	04/22/22 02:19	10
Cobalt	0.046	J	0.050	0.019	mg/L		04/11/22 09:15	04/22/22 15:37	100
Lead	ND		0.0050	0.0024	mg/L		04/11/22 09:15	04/22/22 02:19	10
Lead	ND		0.050	0.024	mg/L		04/11/22 09:15	04/22/22 15:37	100
Lithium	1.3	^	0.10	0.025	mg/L		04/11/22 09:15	04/22/22 02:19	10
Lithium	2.1		1.0	0.25	mg/L		04/11/22 09:15	04/22/22 15:37	100
Molybdenum	0.056		0.020	0.012	mg/L		04/11/22 09:15	04/22/22 02:19	10
Molybdenum	ND		0.20	0.12	mg/L		04/11/22 09:15	04/22/22 15:37	100
Selenium	0.013	J ^	0.050	0.0096	mg/L		04/11/22 09:15	04/22/22 02:19	10
Selenium	ND		0.50	0.096	mg/L		04/11/22 09:15	04/22/22 15:37	100
Thallium	ND		0.010	0.0026	mg/L		04/11/22 09:15	04/22/22 02:19	10
Thallium	ND		0.10	0.026	mg/L		04/11/22 09:15	04/22/22 15:37	100
Sodium	6000	E ^	10	6.1	mg/L		04/11/22 09:15	04/22/22 02:19	10
Sodium	9300		100	61	mg/L		04/11/22 09:15	04/22/22 15:37	100
Potassium	10	^	5.0	1.5	mg/L		04/11/22 09:15	04/22/22 02:19	10
Potassium	16	J	50	15	mg/L		04/11/22 09:15	04/22/22 15:37	100
Magnesium	3700	E ^	5.0	1.5	mg/L		04/11/22 09:15	04/22/22 02:19	10
Magnesium	5800		50	15	mg/L		04/11/22 09:15	04/22/22 15:37	100

Client Sample ID: W-5B
Date Collected: 03/30/22 15:45
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0069	mg/L		04/11/22 09:15	04/22/22 02:23	10
Antimony	ND		0.020	0.0069	mg/L		04/11/22 09:15	04/22/22 15:41	10
Arsenic	ND		0.020	0.0075	mg/L		04/11/22 09:15	04/22/22 02:23	10
Arsenic	ND		0.020	0.0075	mg/L		04/11/22 09:15	04/22/22 15:41	10
Barium	0.018	J	0.020	0.0088	mg/L		04/11/22 09:15	04/22/22 02:23	10
Barium	0.017	J	0.020	0.0088	mg/L		04/11/22 09:15	04/22/22 15:41	10
Beryllium	ND	^	0.010	0.0027	mg/L		04/11/22 09:15	04/22/22 02:23	10
Beryllium	ND		0.010	0.0027	mg/L		04/11/22 09:15	04/22/22 15:41	10
Cadmium	0.00065	J ^2	0.0010	0.00055	mg/L		04/11/22 09:15	04/22/22 02:23	10
Cadmium	ND		0.0010	0.00055	mg/L		04/11/22 09:15	04/22/22 15:41	10
Calcium	470		5.0	1.9	mg/L		04/11/22 09:15	04/22/22 02:23	10
Calcium	510		5.0	1.9	mg/L		04/11/22 09:15	04/22/22 15:41	10
Chromium	ND		0.050	0.011	mg/L		04/11/22 09:15	04/22/22 02:23	10
Chromium	ND		0.050	0.011	mg/L		04/11/22 09:15	04/22/22 15:41	10
Cobalt	0.0035	J ^2	0.0050	0.0019	mg/L		04/11/22 09:15	04/22/22 02:23	10

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Method: 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

Client Sample ID: W-5B
Date Collected: 03/30/22 15:45
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	0.0030	J	0.0050	0.0019	mg/L		04/11/22 09:15	04/22/22 15:41	10
Lead	ND		0.0050	0.0024	mg/L		04/11/22 09:15	04/22/22 02:23	10
Lead	ND		0.0050	0.0024	mg/L		04/11/22 09:15	04/22/22 15:41	10
Lithium	0.19	^	0.10	0.025	mg/L		04/11/22 09:15	04/22/22 02:23	10
Lithium	0.22		0.10	0.025	mg/L		04/11/22 09:15	04/22/22 15:41	10
Molybdenum	ND		0.020	0.012	mg/L		04/11/22 09:15	04/22/22 02:23	10
Molybdenum	ND		0.020	0.012	mg/L		04/11/22 09:15	04/22/22 15:41	10
Selenium	ND	^	0.050	0.0096	mg/L		04/11/22 09:15	04/22/22 02:23	10
Selenium	ND		0.050	0.0096	mg/L		04/11/22 09:15	04/22/22 15:41	10
Thallium	ND		0.010	0.0026	mg/L		04/11/22 09:15	04/22/22 02:23	10
Thallium	ND		0.010	0.0026	mg/L		04/11/22 09:15	04/22/22 15:41	10
Sodium	580	^	10	6.1	mg/L		04/11/22 09:15	04/22/22 02:23	10
Sodium	580		10	6.1	mg/L		04/11/22 09:15	04/22/22 15:41	10
Potassium	12	^	5.0	1.5	mg/L		04/11/22 09:15	04/22/22 02:23	10
Potassium	14		5.0	1.5	mg/L		04/11/22 09:15	04/22/22 15:41	10
Magnesium	250	^	5.0	1.5	mg/L		04/11/22 09:15	04/22/22 02:23	10
Magnesium	220		5.0	1.5	mg/L		04/11/22 09:15	04/22/22 15:41	10

Client Sample ID: W-6
Date Collected: 03/30/22 10:40
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0069	mg/L		04/11/22 09:15	04/22/22 02:26	10
Antimony	ND		0.020	0.0069	mg/L		04/11/22 09:15	04/22/22 15:45	10
Arsenic	ND		0.020	0.0075	mg/L		04/11/22 09:15	04/22/22 02:26	10
Arsenic	ND		0.020	0.0075	mg/L		04/11/22 09:15	04/22/22 15:45	10
Barium	0.025		0.020	0.0088	mg/L		04/11/22 09:15	04/22/22 02:26	10
Barium	0.028		0.020	0.0088	mg/L		04/11/22 09:15	04/22/22 15:45	10
Beryllium	ND	^	0.010	0.0027	mg/L		04/11/22 09:15	04/22/22 02:26	10
Beryllium	ND		0.010	0.0027	mg/L		04/11/22 09:15	04/22/22 15:45	10
Cadmium	ND		0.0010	0.00055	mg/L		04/11/22 09:15	04/22/22 02:26	10
Cadmium	ND		0.0010	0.00055	mg/L		04/11/22 09:15	04/22/22 15:45	10
Calcium	470		5.0	1.9	mg/L		04/11/22 09:15	04/22/22 02:26	10
Calcium	570		5.0	1.9	mg/L		04/11/22 09:15	04/22/22 15:45	10
Chromium	ND		0.050	0.011	mg/L		04/11/22 09:15	04/22/22 02:26	10
Chromium	ND		0.050	0.011	mg/L		04/11/22 09:15	04/22/22 15:45	10
Cobalt	0.0020	J ^2	0.0050	0.0019	mg/L		04/11/22 09:15	04/22/22 02:26	10
Cobalt	0.0023	J	0.0050	0.0019	mg/L		04/11/22 09:15	04/22/22 15:45	10
Lead	ND		0.0050	0.0024	mg/L		04/11/22 09:15	04/22/22 02:26	10
Lead	ND		0.0050	0.0024	mg/L		04/11/22 09:15	04/22/22 15:45	10
Lithium	0.16	^	0.10	0.025	mg/L		04/11/22 09:15	04/22/22 02:26	10
Lithium	0.23		0.10	0.025	mg/L		04/11/22 09:15	04/22/22 15:45	10
Molybdenum	0.32		0.020	0.012	mg/L		04/11/22 09:15	04/22/22 02:26	10
Molybdenum	0.35		0.020	0.012	mg/L		04/11/22 09:15	04/22/22 15:45	10
Selenium	ND	^	0.050	0.0096	mg/L		04/11/22 09:15	04/22/22 02:26	10
Selenium	ND		0.050	0.0096	mg/L		04/11/22 09:15	04/22/22 15:45	10
Thallium	ND		0.010	0.0026	mg/L		04/11/22 09:15	04/22/22 02:26	10
Thallium	ND		0.010	0.0026	mg/L		04/11/22 09:15	04/22/22 15:45	10
Sodium	910	^	10	6.1	mg/L		04/11/22 09:15	04/22/22 02:26	10
Sodium	1300		10	6.1	mg/L		04/11/22 09:15	04/22/22 15:45	10

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Method: 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

Client Sample ID: W-6
Date Collected: 03/30/22 10:40
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium	8.4	^-	5.0	1.5	mg/L		04/11/22 09:15	04/22/22 02:26	10
Potassium	11		5.0	1.5	mg/L		04/11/22 09:15	04/22/22 15:45	10
Magnesium	480	^-	5.0	1.5	mg/L		04/11/22 09:15	04/22/22 02:26	10
Magnesium	640		5.0	1.5	mg/L		04/11/22 09:15	04/22/22 15:45	10

Client Sample ID: W-6B
Date Collected: 03/30/22 12:35
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0069	mg/L		04/11/22 09:15	04/22/22 02:29	10
Antimony	ND		0.20	0.069	mg/L		04/11/22 09:15	04/22/22 15:49	100
Arsenic	ND		0.020	0.0075	mg/L		04/11/22 09:15	04/22/22 02:29	10
Arsenic	ND		0.20	0.075	mg/L		04/11/22 09:15	04/22/22 15:49	100
Barium	0.016	J	0.020	0.0088	mg/L		04/11/22 09:15	04/22/22 02:29	10
Barium	ND		0.20	0.088	mg/L		04/11/22 09:15	04/22/22 15:49	100
Beryllium	ND	^-	0.010	0.0027	mg/L		04/11/22 09:15	04/22/22 02:29	10
Beryllium	ND		0.10	0.027	mg/L		04/11/22 09:15	04/22/22 15:49	100
Cadmium	0.0082	^2	0.0010	0.00055	mg/L		04/11/22 09:15	04/22/22 02:29	10
Cadmium	0.010		0.010	0.0055	mg/L		04/11/22 09:15	04/22/22 15:49	100
Calcium	250		5.0	1.9	mg/L		04/11/22 09:15	04/22/22 02:29	10
Calcium	350		50	19	mg/L		04/11/22 09:15	04/22/22 15:49	100
Chromium	ND		0.050	0.011	mg/L		04/11/22 09:15	04/22/22 02:29	10
Chromium	ND		0.50	0.11	mg/L		04/11/22 09:15	04/22/22 15:49	100
Cobalt	0.087	^2	0.0050	0.0019	mg/L		04/11/22 09:15	04/22/22 02:29	10
Cobalt	0.12		0.050	0.019	mg/L		04/11/22 09:15	04/22/22 15:49	100
Lead	ND		0.0050	0.0024	mg/L		04/11/22 09:15	04/22/22 02:29	10
Lead	ND		0.050	0.024	mg/L		04/11/22 09:15	04/22/22 15:49	100
Lithium	2.9	^-	0.10	0.025	mg/L		04/11/22 09:15	04/22/22 02:29	10
Lithium	4.6		1.0	0.25	mg/L		04/11/22 09:15	04/22/22 15:49	100
Molybdenum	0.012	J	0.020	0.012	mg/L		04/11/22 09:15	04/22/22 02:29	10
Molybdenum	ND		0.20	0.12	mg/L		04/11/22 09:15	04/22/22 15:49	100
Selenium	ND	^-	0.050	0.0096	mg/L		04/11/22 09:15	04/22/22 02:29	10
Selenium	ND		0.50	0.096	mg/L		04/11/22 09:15	04/22/22 15:49	100
Thallium	ND		0.010	0.0026	mg/L		04/11/22 09:15	04/22/22 02:29	10
Thallium	ND		0.10	0.026	mg/L		04/11/22 09:15	04/22/22 15:49	100
Sodium	11000	E ^-	10	6.1	mg/L		04/11/22 09:15	04/22/22 02:29	10
Sodium	16000		100	61	mg/L		04/11/22 09:15	04/22/22 15:49	100
Potassium	53	^-	5.0	1.5	mg/L		04/11/22 09:15	04/22/22 02:29	10
Potassium	76		50	15	mg/L		04/11/22 09:15	04/22/22 15:49	100
Magnesium	4900	E ^-	5.0	1.5	mg/L		04/11/22 09:15	04/22/22 02:29	10
Magnesium	7500		50	15	mg/L		04/11/22 09:15	04/22/22 15:49	100

Client Sample ID: W-6D
Date Collected: 03/30/22 10:40
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0069	mg/L		04/11/22 09:15	04/22/22 02:33	10
Antimony	ND		0.020	0.0069	mg/L		04/11/22 09:15	04/22/22 15:52	10
Arsenic	ND		0.020	0.0075	mg/L		04/11/22 09:15	04/22/22 02:33	10
Arsenic	ND		0.020	0.0075	mg/L		04/11/22 09:15	04/22/22 15:52	10

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Method: 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

Client Sample ID: W-6D
Date Collected: 03/30/22 10:40
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.021		0.020	0.0088	mg/L		04/11/22 09:15	04/22/22 02:33	10
Barium	0.028		0.020	0.0088	mg/L		04/11/22 09:15	04/22/22 15:52	10
Beryllium	ND	^	0.010	0.0027	mg/L		04/11/22 09:15	04/22/22 02:33	10
Beryllium	ND		0.010	0.0027	mg/L		04/11/22 09:15	04/22/22 15:52	10
Cadmium	ND		0.0010	0.00055	mg/L		04/11/22 09:15	04/22/22 02:33	10
Cadmium	ND		0.0010	0.00055	mg/L		04/11/22 09:15	04/22/22 15:52	10
Calcium	430		5.0	1.9	mg/L		04/11/22 09:15	04/22/22 02:33	10
Calcium	640		5.0	1.9	mg/L		04/11/22 09:15	04/22/22 15:52	10
Chromium	ND		0.050	0.011	mg/L		04/11/22 09:15	04/22/22 02:33	10
Chromium	ND		0.050	0.011	mg/L		04/11/22 09:15	04/22/22 15:52	10
Cobalt	0.0039	J ^2	0.0050	0.0019	mg/L		04/11/22 09:15	04/22/22 02:33	10
Cobalt	0.0032	J	0.0050	0.0019	mg/L		04/11/22 09:15	04/22/22 15:52	10
Lead	ND		0.0050	0.0024	mg/L		04/11/22 09:15	04/22/22 02:33	10
Lead	ND		0.0050	0.0024	mg/L		04/11/22 09:15	04/22/22 15:52	10
Lithium	0.20	^	0.10	0.025	mg/L		04/11/22 09:15	04/22/22 02:33	10
Lithium	0.29		0.10	0.025	mg/L		04/11/22 09:15	04/22/22 15:52	10
Molybdenum	0.28		0.020	0.012	mg/L		04/11/22 09:15	04/22/22 02:33	10
Molybdenum	0.37		0.020	0.012	mg/L		04/11/22 09:15	04/22/22 15:52	10
Selenium	ND	^	0.050	0.0096	mg/L		04/11/22 09:15	04/22/22 02:33	10
Selenium	ND		0.050	0.0096	mg/L		04/11/22 09:15	04/22/22 15:52	10
Thallium	ND		0.010	0.0026	mg/L		04/11/22 09:15	04/22/22 02:33	10
Thallium	ND		0.010	0.0026	mg/L		04/11/22 09:15	04/22/22 15:52	10
Sodium	1000	^	10	6.1	mg/L		04/11/22 09:15	04/22/22 02:33	10
Sodium	1400		10	6.1	mg/L		04/11/22 09:15	04/22/22 15:52	10
Potassium	8.5	^	5.0	1.5	mg/L		04/11/22 09:15	04/22/22 02:33	10
Potassium	12		5.0	1.5	mg/L		04/11/22 09:15	04/22/22 15:52	10
Magnesium	530	^	5.0	1.5	mg/L		04/11/22 09:15	04/22/22 02:33	10
Magnesium	740		5.0	1.5	mg/L		04/11/22 09:15	04/22/22 15:52	10

Client Sample ID: W-7
Date Collected: 03/31/22 17:30
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0069	mg/L		04/11/22 09:15	04/22/22 02:36	10
Antimony	0.075	J	0.20	0.069	mg/L		04/11/22 09:15	04/22/22 16:12	100
Arsenic	ND		0.020	0.0075	mg/L		04/11/22 09:15	04/22/22 02:36	10
Arsenic	ND		0.20	0.075	mg/L		04/11/22 09:15	04/22/22 16:12	100
Barium	0.011	J	0.020	0.0088	mg/L		04/11/22 09:15	04/22/22 02:36	10
Barium	ND		0.20	0.088	mg/L		04/11/22 09:15	04/22/22 16:12	100
Beryllium	ND	^	0.010	0.0027	mg/L		04/11/22 09:15	04/22/22 02:36	10
Beryllium	ND		0.10	0.027	mg/L		04/11/22 09:15	04/22/22 16:12	100
Cadmium	0.0069	^2	0.0010	0.00055	mg/L		04/11/22 09:15	04/22/22 02:36	10
Cadmium	0.0077	J	0.010	0.0055	mg/L		04/11/22 09:15	04/22/22 16:12	100
Calcium	270		5.0	1.9	mg/L		04/11/22 09:15	04/22/22 02:36	10
Calcium	330		50	19	mg/L		04/11/22 09:15	04/22/22 16:12	100
Chromium	ND		0.050	0.011	mg/L		04/11/22 09:15	04/22/22 02:36	10
Chromium	ND		0.50	0.11	mg/L		04/11/22 09:15	04/22/22 16:12	100
Cobalt	0.020	^2	0.0050	0.0019	mg/L		04/11/22 09:15	04/22/22 02:36	10
Cobalt	0.026	J	0.050	0.019	mg/L		04/11/22 09:15	04/22/22 16:12	100
Lead	ND		0.0050	0.0024	mg/L		04/11/22 09:15	04/22/22 02:36	10

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Method: 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

Client Sample ID: W-7
Date Collected: 03/31/22 17:30
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.050	0.024	mg/L		04/11/22 09:15	04/22/22 16:12	100
Lithium	3.8	^	0.10	0.025	mg/L		04/11/22 09:15	04/22/22 02:36	10
Lithium	5.6		1.0	0.25	mg/L		04/11/22 09:15	04/22/22 16:12	100
Molybdenum	0.015	J	0.020	0.012	mg/L		04/11/22 09:15	04/22/22 02:36	10
Molybdenum	ND		0.20	0.12	mg/L		04/11/22 09:15	04/22/22 16:12	100
Selenium	2.1	^	0.050	0.0096	mg/L		04/11/22 09:15	04/22/22 02:36	10
Selenium	2.1		0.50	0.096	mg/L		04/11/22 09:15	04/22/22 16:12	100
Thallium	0.0054	J	0.010	0.0026	mg/L		04/11/22 09:15	04/22/22 02:36	10
Thallium	ND		0.10	0.026	mg/L		04/11/22 09:15	04/22/22 16:12	100
Sodium	7600	E ^	10	6.1	mg/L		04/11/22 09:15	04/22/22 02:36	10
Sodium	11000		100	61	mg/L		04/11/22 09:15	04/22/22 16:12	100
Potassium	66	^	5.0	1.5	mg/L		04/11/22 09:15	04/22/22 02:36	10
Potassium	84		50	15	mg/L		04/11/22 09:15	04/22/22 16:12	100
Magnesium	7100	E ^	5.0	1.5	mg/L		04/11/22 09:15	04/22/22 02:36	10
Magnesium	7300		100	30	mg/L		04/11/22 09:15	04/22/22 16:24	200

Client Sample ID: W-9
Date Collected: 03/31/22 14:50
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0069	mg/L		04/11/22 09:15	04/22/22 02:39	10
Antimony	ND		0.20	0.069	mg/L		04/11/22 09:15	04/22/22 16:16	100
Arsenic	ND		0.020	0.0075	mg/L		04/11/22 09:15	04/22/22 02:39	10
Arsenic	ND		0.20	0.075	mg/L		04/11/22 09:15	04/22/22 16:16	100
Barium	0.015	J	0.020	0.0088	mg/L		04/11/22 09:15	04/22/22 02:39	10
Barium	ND		0.20	0.088	mg/L		04/11/22 09:15	04/22/22 16:16	100
Beryllium	ND	^	0.010	0.0027	mg/L		04/11/22 09:15	04/22/22 02:39	10
Beryllium	ND		0.10	0.027	mg/L		04/11/22 09:15	04/22/22 16:16	100
Cadmium	0.0012	^2	0.0010	0.00055	mg/L		04/11/22 09:15	04/22/22 02:39	10
Cadmium	ND		0.010	0.0055	mg/L		04/11/22 09:15	04/22/22 16:16	100
Calcium	460		5.0	1.9	mg/L		04/11/22 09:15	04/22/22 02:39	10
Calcium	530		50	19	mg/L		04/11/22 09:15	04/22/22 16:16	100
Chromium	ND		0.050	0.011	mg/L		04/11/22 09:15	04/22/22 02:39	10
Chromium	ND		0.50	0.11	mg/L		04/11/22 09:15	04/22/22 16:16	100
Cobalt	0.0025	J ^2	0.0050	0.0019	mg/L		04/11/22 09:15	04/22/22 02:39	10
Cobalt	ND		0.050	0.019	mg/L		04/11/22 09:15	04/22/22 16:16	100
Lead	ND		0.0050	0.0024	mg/L		04/11/22 09:15	04/22/22 02:39	10
Lead	ND		0.050	0.024	mg/L		04/11/22 09:15	04/22/22 16:16	100
Lithium	0.98	^	0.10	0.025	mg/L		04/11/22 09:15	04/22/22 02:39	10
Lithium	1.3		1.0	0.25	mg/L		04/11/22 09:15	04/22/22 16:16	100
Molybdenum	ND		0.020	0.012	mg/L		04/11/22 09:15	04/22/22 02:39	10
Molybdenum	ND		0.20	0.12	mg/L		04/11/22 09:15	04/22/22 16:16	100
Selenium	0.035	J ^	0.050	0.0096	mg/L		04/11/22 09:15	04/22/22 02:39	10
Selenium	ND		0.50	0.096	mg/L		04/11/22 09:15	04/22/22 16:16	100
Thallium	ND		0.010	0.0026	mg/L		04/11/22 09:15	04/22/22 02:39	10
Thallium	ND		0.10	0.026	mg/L		04/11/22 09:15	04/22/22 16:16	100
Sodium	2600	^	10	6.1	mg/L		04/11/22 09:15	04/22/22 02:39	10
Sodium	3400		100	61	mg/L		04/11/22 09:15	04/22/22 16:16	100
Potassium	22	^	5.0	1.5	mg/L		04/11/22 09:15	04/22/22 02:39	10
Potassium	29	J	50	15	mg/L		04/11/22 09:15	04/22/22 16:16	100

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Method: 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

Client Sample ID: W-9
Date Collected: 03/31/22 14:50
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	1400	E ^-	5.0	1.5	mg/L		04/11/22 09:15	04/22/22 02:39	10
Magnesium	1700		50	15	mg/L		04/11/22 09:15	04/22/22 16:16	100

Client Sample ID: W-12
Date Collected: 04/01/22 12:30
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0069	mg/L		04/11/22 09:15	04/22/22 02:46	10
Antimony	ND		0.20	0.069	mg/L		04/11/22 09:15	04/22/22 16:28	100
Arsenic	ND		0.020	0.0075	mg/L		04/11/22 09:15	04/22/22 02:46	10
Arsenic	ND		0.20	0.075	mg/L		04/11/22 09:15	04/22/22 16:28	100
Barium	0.016	J	0.020	0.0088	mg/L		04/11/22 09:15	04/22/22 02:46	10
Barium	ND		0.20	0.088	mg/L		04/11/22 09:15	04/22/22 16:28	100
Beryllium	ND	^	0.010	0.0027	mg/L		04/11/22 09:15	04/22/22 02:46	10
Beryllium	ND		0.10	0.027	mg/L		04/11/22 09:15	04/22/22 16:28	100
Cadmium	0.0014	^2	0.0010	0.00055	mg/L		04/11/22 09:15	04/22/22 02:46	10
Cadmium	ND		0.010	0.0055	mg/L		04/11/22 09:15	04/22/22 16:28	100
Calcium	450		5.0	1.9	mg/L		04/11/22 09:15	04/22/22 02:46	10
Calcium	500		50	19	mg/L		04/11/22 09:15	04/22/22 16:28	100
Chromium	ND		0.050	0.011	mg/L		04/11/22 09:15	04/22/22 02:46	10
Chromium	ND		0.50	0.11	mg/L		04/11/22 09:15	04/22/22 16:28	100
Cobalt	0.033	^2	0.0050	0.0019	mg/L		04/11/22 09:15	04/22/22 02:46	10
Cobalt	0.036	J	0.050	0.019	mg/L		04/11/22 09:15	04/22/22 16:28	100
Lead	ND		0.0050	0.0024	mg/L		04/11/22 09:15	04/22/22 02:46	10
Lead	ND		0.050	0.024	mg/L		04/11/22 09:15	04/22/22 16:28	100
Lithium	2.0	^	0.10	0.025	mg/L		04/11/22 09:15	04/22/22 02:46	10
Lithium	2.7		1.0	0.25	mg/L		04/11/22 09:15	04/22/22 16:28	100
Molybdenum	ND		0.020	0.012	mg/L		04/11/22 09:15	04/22/22 02:46	10
Molybdenum	ND		0.20	0.12	mg/L		04/11/22 09:15	04/22/22 16:28	100
Selenium	0.030	J ^	0.050	0.0096	mg/L		04/11/22 09:15	04/22/22 02:46	10
Selenium	ND		0.50	0.096	mg/L		04/11/22 09:15	04/22/22 16:28	100
Thallium	0.0041	J	0.010	0.0026	mg/L		04/11/22 09:15	04/22/22 02:46	10
Thallium	ND		0.10	0.026	mg/L		04/11/22 09:15	04/22/22 16:28	100
Sodium	5700	E ^	10	6.1	mg/L		04/11/22 09:15	04/22/22 02:46	10
Sodium	7300		100	61	mg/L		04/11/22 09:15	04/22/22 16:28	100
Potassium	43	^	5.0	1.5	mg/L		04/11/22 09:15	04/22/22 02:46	10
Potassium	51		50	15	mg/L		04/11/22 09:15	04/22/22 16:28	100
Magnesium	1200	E ^	5.0	1.5	mg/L		04/11/22 09:15	04/22/22 02:46	10
Magnesium	1500		50	15	mg/L		04/11/22 09:15	04/22/22 16:28	100

Client Sample ID: W-14
Date Collected: 04/01/22 12:40
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.024	^2	0.020	0.0069	mg/L		04/11/22 09:15	04/22/22 03:02	10
Antimony	ND		0.20	0.069	mg/L		04/11/22 09:15	04/22/22 16:36	100
Arsenic	0.010	J	0.020	0.0075	mg/L		04/11/22 09:15	04/22/22 03:02	10
Arsenic	ND		0.20	0.075	mg/L		04/11/22 09:15	04/22/22 16:36	100
Barium	0.035		0.020	0.0088	mg/L		04/11/22 09:15	04/22/22 03:02	10
Barium	ND		0.20	0.088	mg/L		04/11/22 09:15	04/22/22 16:36	100

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Method: 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

Client Sample ID: W-14
Date Collected: 04/01/22 12:40
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	0.0082	J ^-	0.010	0.0027	mg/L		04/11/22 09:15	04/22/22 03:02	10
Beryllium	ND		0.10	0.027	mg/L		04/11/22 09:15	04/22/22 16:36	100
Cadmium	0.011	^2	0.0010	0.00055	mg/L		04/11/22 09:15	04/22/22 03:02	10
Cadmium	ND		0.010	0.0055	mg/L		04/11/22 09:15	04/22/22 16:36	100
Calcium	430		5.0	1.9	mg/L		04/11/22 09:15	04/22/22 03:02	10
Calcium	480		50	19	mg/L		04/11/22 09:15	04/22/22 16:36	100
Chromium	ND		0.050	0.011	mg/L		04/11/22 09:15	04/22/22 03:02	10
Chromium	ND		0.50	0.11	mg/L		04/11/22 09:15	04/22/22 16:36	100
Cobalt	0.023	^2	0.0050	0.0019	mg/L		04/11/22 09:15	04/22/22 03:02	10
Cobalt	ND		0.050	0.019	mg/L		04/11/22 09:15	04/22/22 16:36	100
Lead	0.0092	^2	0.0050	0.0024	mg/L		04/11/22 09:15	04/22/22 03:02	10
Lead	ND		0.050	0.024	mg/L		04/11/22 09:15	04/22/22 16:36	100
Lithium	2.6	^-	0.10	0.025	mg/L		04/11/22 09:15	04/22/22 03:02	10
Lithium	3.5		1.0	0.25	mg/L		04/11/22 09:15	04/22/22 16:36	100
Molybdenum	0.032		0.020	0.012	mg/L		04/11/22 09:15	04/22/22 03:02	10
Molybdenum	ND		0.20	0.12	mg/L		04/11/22 09:15	04/22/22 16:36	100
Selenium	1.2	^-	0.050	0.0096	mg/L		04/11/22 09:15	04/22/22 03:02	10
Selenium	1.3		0.50	0.096	mg/L		04/11/22 09:15	04/22/22 16:36	100
Thallium	0.0040	J	0.010	0.0026	mg/L		04/11/22 09:15	04/22/22 03:02	10
Thallium	ND		0.10	0.026	mg/L		04/11/22 09:15	04/22/22 16:36	100
Sodium	4600	E ^-	10	6.1	mg/L		04/11/22 09:15	04/22/22 03:02	10
Sodium	6300		100	61	mg/L		04/11/22 09:15	04/22/22 16:36	100
Potassium	43	^-	5.0	1.5	mg/L		04/11/22 09:15	04/22/22 03:02	10
Potassium	54		50	15	mg/L		04/11/22 09:15	04/22/22 16:36	100
Magnesium	1400	E ^-	5.0	1.5	mg/L		04/11/22 09:15	04/22/22 03:02	10
Magnesium	1800		50	15	mg/L		04/11/22 09:15	04/22/22 16:36	100

Client Sample ID: W-16
Date Collected: 04/01/22 10:50
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0069	mg/L		04/11/22 09:15	04/22/22 03:05	10
Antimony	ND		0.20	0.069	mg/L		04/11/22 09:15	04/22/22 16:40	100
Arsenic	ND		0.020	0.0075	mg/L		04/11/22 09:15	04/22/22 03:05	10
Arsenic	ND		0.20	0.075	mg/L		04/11/22 09:15	04/22/22 16:40	100
Barium	0.015	J	0.020	0.0088	mg/L		04/11/22 09:15	04/22/22 03:05	10
Barium	ND		0.20	0.088	mg/L		04/11/22 09:15	04/22/22 16:40	100
Beryllium	ND	^-	0.010	0.0027	mg/L		04/11/22 09:15	04/22/22 03:05	10
Beryllium	ND		0.10	0.027	mg/L		04/11/22 09:15	04/22/22 16:40	100
Cadmium	0.0024	^2	0.0010	0.00055	mg/L		04/11/22 09:15	04/22/22 03:05	10
Cadmium	ND		0.010	0.0055	mg/L		04/11/22 09:15	04/22/22 16:40	100
Calcium	410		5.0	1.9	mg/L		04/11/22 09:15	04/22/22 03:05	10
Calcium	490		50	19	mg/L		04/11/22 09:15	04/22/22 16:40	100
Chromium	ND		0.050	0.011	mg/L		04/11/22 09:15	04/22/22 03:05	10
Chromium	ND		0.50	0.11	mg/L		04/11/22 09:15	04/22/22 16:40	100
Cobalt	0.0093	^2	0.0050	0.0019	mg/L		04/11/22 09:15	04/22/22 03:05	10
Cobalt	ND		0.050	0.019	mg/L		04/11/22 09:15	04/22/22 16:40	100
Lead	ND		0.0050	0.0024	mg/L		04/11/22 09:15	04/22/22 03:05	10
Lead	ND		0.050	0.024	mg/L		04/11/22 09:15	04/22/22 16:40	100
Lithium	1.6	^-	0.10	0.025	mg/L		04/11/22 09:15	04/22/22 03:05	10

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Method: 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

Client Sample ID: W-16
Date Collected: 04/01/22 10:50
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	2.3		1.0	0.25	mg/L		04/11/22 09:15	04/22/22 16:40	100
Molybdenum	ND		0.020	0.012	mg/L		04/11/22 09:15	04/22/22 03:05	10
Molybdenum	ND		0.20	0.12	mg/L		04/11/22 09:15	04/22/22 16:40	100
Selenium	0.11	^-	0.050	0.0096	mg/L		04/11/22 09:15	04/22/22 03:05	10
Selenium	0.14	J	0.50	0.096	mg/L		04/11/22 09:15	04/22/22 16:40	100
Thallium	0.0046	J	0.010	0.0026	mg/L		04/11/22 09:15	04/22/22 03:05	10
Thallium	ND		0.10	0.026	mg/L		04/11/22 09:15	04/22/22 16:40	100
Sodium	1400	^-	10	6.1	mg/L		04/11/22 09:15	04/22/22 03:05	10
Sodium	1900		100	61	mg/L		04/11/22 09:15	04/22/22 16:40	100
Potassium	28	^-	5.0	1.5	mg/L		04/11/22 09:15	04/22/22 03:05	10
Potassium	38	J	50	15	mg/L		04/11/22 09:15	04/22/22 16:40	100
Magnesium	1700	E ^-	5.0	1.5	mg/L		04/11/22 09:15	04/22/22 03:05	10
Magnesium	2300		50	15	mg/L		04/11/22 09:15	04/22/22 16:40	100

Client Sample ID: MW-3
Date Collected: 03/29/22 11:45
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0069	mg/L		04/11/22 09:15	04/22/22 03:09	10
Antimony	ND		0.020	0.0069	mg/L		04/11/22 09:15	04/22/22 16:44	10
Arsenic	ND		0.020	0.0075	mg/L		04/11/22 09:15	04/22/22 03:09	10
Arsenic	ND		0.020	0.0075	mg/L		04/11/22 09:15	04/22/22 16:44	10
Barium	0.011	J	0.020	0.0088	mg/L		04/11/22 09:15	04/22/22 03:09	10
Barium	0.011	J	0.020	0.0088	mg/L		04/11/22 09:15	04/22/22 16:44	10
Beryllium	ND	^-	0.010	0.0027	mg/L		04/11/22 09:15	04/22/22 03:09	10
Beryllium	ND		0.010	0.0027	mg/L		04/11/22 09:15	04/22/22 16:44	10
Cadmium	0.0074	^2	0.0010	0.00055	mg/L		04/11/22 09:15	04/22/22 03:09	10
Cadmium	0.0072		0.0010	0.00055	mg/L		04/11/22 09:15	04/22/22 16:44	10
Calcium	250		5.0	1.9	mg/L		04/11/22 09:15	04/22/22 03:09	10
Calcium	300		5.0	1.9	mg/L		04/11/22 09:15	04/22/22 16:44	10
Chromium	ND		0.050	0.011	mg/L		04/11/22 09:15	04/22/22 03:09	10
Chromium	ND		0.050	0.011	mg/L		04/11/22 09:15	04/22/22 16:44	10
Cobalt	0.020	^2	0.0050	0.0019	mg/L		04/11/22 09:15	04/22/22 03:09	10
Cobalt	0.021		0.0050	0.0019	mg/L		04/11/22 09:15	04/22/22 16:44	10
Lead	ND		0.0050	0.0024	mg/L		04/11/22 09:15	04/22/22 03:09	10
Lead	ND		0.0050	0.0024	mg/L		04/11/22 09:15	04/22/22 16:44	10
Lithium	2.0	^-	0.10	0.025	mg/L		04/11/22 09:15	04/22/22 03:09	10
Lithium	2.7		0.10	0.025	mg/L		04/11/22 09:15	04/22/22 16:44	10
Molybdenum	ND		0.020	0.012	mg/L		04/11/22 09:15	04/22/22 03:09	10
Molybdenum	ND		0.020	0.012	mg/L		04/11/22 09:15	04/22/22 16:44	10
Selenium	0.45	^-	0.050	0.0096	mg/L		04/11/22 09:15	04/22/22 03:09	10
Selenium	0.46		0.050	0.0096	mg/L		04/11/22 09:15	04/22/22 16:44	10
Thallium	ND		0.010	0.0026	mg/L		04/11/22 09:15	04/22/22 03:09	10
Thallium	ND		0.010	0.0026	mg/L		04/11/22 09:15	04/22/22 16:44	10

Client Sample ID: MW-5
Date Collected: 03/31/22 15:45
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0069	mg/L		04/11/22 09:15	04/22/22 03:12	10

Eurofins Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Method: 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

Client Sample ID: MW-5
Date Collected: 03/31/22 15:45
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.20	0.069	mg/L		04/11/22 09:15	04/22/22 16:47	100
Arsenic	ND		0.020	0.0075	mg/L		04/11/22 09:15	04/22/22 03:12	10
Arsenic	ND		0.20	0.075	mg/L		04/11/22 09:15	04/22/22 16:47	100
Barium	0.023		0.020	0.0088	mg/L		04/11/22 09:15	04/22/22 03:12	10
Barium	ND		0.20	0.088	mg/L		04/11/22 09:15	04/22/22 16:47	100
Beryllium	ND	^	0.010	0.0027	mg/L		04/11/22 09:15	04/22/22 03:12	10
Beryllium	ND		0.10	0.027	mg/L		04/11/22 09:15	04/22/22 16:47	100
Cadmium	0.0011	^2	0.0010	0.00055	mg/L		04/11/22 09:15	04/22/22 03:12	10
Cadmium	ND		0.010	0.0055	mg/L		04/11/22 09:15	04/22/22 16:47	100
Calcium	450		5.0	1.9	mg/L		04/11/22 09:15	04/22/22 03:12	10
Calcium	490		50	19	mg/L		04/11/22 09:15	04/22/22 16:47	100
Chromium	ND		0.050	0.011	mg/L		04/11/22 09:15	04/22/22 03:12	10
Chromium	ND		0.50	0.11	mg/L		04/11/22 09:15	04/22/22 16:47	100
Cobalt	0.0033	J ^2	0.0050	0.0019	mg/L		04/11/22 09:15	04/22/22 03:12	10
Cobalt	ND		0.050	0.019	mg/L		04/11/22 09:15	04/22/22 16:47	100
Lead	ND		0.0050	0.0024	mg/L		04/11/22 09:15	04/22/22 03:12	10
Lead	ND		0.050	0.024	mg/L		04/11/22 09:15	04/22/22 16:47	100
Lithium	2.6	^	0.10	0.025	mg/L		04/11/22 09:15	04/22/22 03:12	10
Lithium	3.4		1.0	0.25	mg/L		04/11/22 09:15	04/22/22 16:47	100
Molybdenum	ND		0.020	0.012	mg/L		04/11/22 09:15	04/22/22 03:12	10
Molybdenum	ND		0.20	0.12	mg/L		04/11/22 09:15	04/22/22 16:47	100
Selenium	0.13	^	0.050	0.0096	mg/L		04/11/22 09:15	04/22/22 03:12	10
Selenium	0.15	J	0.50	0.096	mg/L		04/11/22 09:15	04/22/22 16:47	100
Thallium	ND		0.010	0.0026	mg/L		04/11/22 09:15	04/22/22 03:12	10
Thallium	ND		0.10	0.026	mg/L		04/11/22 09:15	04/22/22 16:47	100
Sodium	4600	E ^	10	6.1	mg/L		04/11/22 09:15	04/22/22 03:12	10
Sodium	5700		100	61	mg/L		04/11/22 09:15	04/22/22 16:47	100
Potassium	39	^	5.0	1.5	mg/L		04/11/22 09:15	04/22/22 03:12	10
Potassium	45	J	50	15	mg/L		04/11/22 09:15	04/22/22 16:47	100
Magnesium	2000	E ^	5.0	1.5	mg/L		04/11/22 09:15	04/22/22 03:12	10
Magnesium	2400		50	15	mg/L		04/11/22 09:15	04/22/22 16:47	100

Client Sample ID: W-11
Date Collected: 04/01/22 11:00
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-17
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0069	mg/L		04/11/22 09:15	04/22/22 03:15	10
Antimony	ND		0.20	0.069	mg/L		04/11/22 09:15	04/22/22 16:51	100
Arsenic	ND		0.020	0.0075	mg/L		04/11/22 09:15	04/22/22 03:15	10
Arsenic	ND		0.20	0.075	mg/L		04/11/22 09:15	04/22/22 16:51	100
Barium	0.014	J	0.020	0.0088	mg/L		04/11/22 09:15	04/22/22 03:15	10
Barium	ND		0.20	0.088	mg/L		04/11/22 09:15	04/22/22 16:51	100
Beryllium	ND	^	0.010	0.0027	mg/L		04/11/22 09:15	04/22/22 03:15	10
Beryllium	ND		0.10	0.027	mg/L		04/11/22 09:15	04/22/22 16:51	100
Cadmium	0.0016	^2	0.0010	0.00055	mg/L		04/11/22 09:15	04/22/22 03:15	10
Cadmium	ND		0.010	0.0055	mg/L		04/11/22 09:15	04/22/22 16:51	100
Calcium	450		5.0	1.9	mg/L		04/11/22 09:15	04/22/22 03:15	10
Calcium	520		50	19	mg/L		04/11/22 09:15	04/22/22 16:51	100
Chromium	ND		0.050	0.011	mg/L		04/11/22 09:15	04/22/22 03:15	10
Chromium	ND		0.50	0.11	mg/L		04/11/22 09:15	04/22/22 16:51	100

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Method: 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

Client Sample ID: W-11
Date Collected: 04/01/22 11:00
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-17
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	0.017	^2	0.0050	0.0019	mg/L		04/11/22 09:15	04/22/22 03:15	10
Cobalt	0.020	J	0.050	0.019	mg/L		04/11/22 09:15	04/22/22 16:51	100
Lead	ND		0.0050	0.0024	mg/L		04/11/22 09:15	04/22/22 03:15	10
Lead	ND		0.050	0.024	mg/L		04/11/22 09:15	04/22/22 16:51	100
Lithium	2.7	^-	0.10	0.025	mg/L		04/11/22 09:15	04/22/22 03:15	10
Lithium	3.9		1.0	0.25	mg/L		04/11/22 09:15	04/22/22 16:51	100
Molybdenum	ND		0.020	0.012	mg/L		04/11/22 09:15	04/22/22 03:15	10
Molybdenum	ND		0.20	0.12	mg/L		04/11/22 09:15	04/22/22 16:51	100
Selenium	2.5	^-	0.050	0.0096	mg/L		04/11/22 09:15	04/22/22 03:15	10
Selenium	2.9		0.50	0.096	mg/L		04/11/22 09:15	04/22/22 16:51	100
Thallium	0.0037	J	0.010	0.0026	mg/L		04/11/22 09:15	04/22/22 03:15	10
Thallium	ND		0.10	0.026	mg/L		04/11/22 09:15	04/22/22 16:51	100
Sodium	3400	^-	10	6.1	mg/L		04/11/22 09:15	04/22/22 03:15	10
Sodium	4600		100	61	mg/L		04/11/22 09:15	04/22/22 16:51	100
Potassium	44	^-	5.0	1.5	mg/L		04/11/22 09:15	04/22/22 03:15	10
Potassium	54		50	15	mg/L		04/11/22 09:15	04/22/22 16:51	100
Magnesium	1400	E ^-	5.0	1.5	mg/L		04/11/22 09:15	04/22/22 03:15	10
Magnesium	1800		50	15	mg/L		04/11/22 09:15	04/22/22 16:51	100

Client Sample ID: W-3EB
Date Collected: 03/31/22 13:15
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-18
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020	0.0069	mg/L		04/11/22 09:15	04/22/22 03:19	10
Antimony	0.0072	J	0.020	0.0069	mg/L		04/11/22 09:15	04/22/22 17:13	10
Arsenic	ND		0.020	0.0075	mg/L		04/11/22 09:15	04/22/22 03:19	10
Arsenic	ND		0.020	0.0075	mg/L		04/11/22 09:15	04/22/22 17:13	10
Barium	0.011	J	0.020	0.0088	mg/L		04/11/22 09:15	04/22/22 03:19	10
Barium	ND		0.020	0.0088	mg/L		04/11/22 09:15	04/22/22 17:13	10
Beryllium	ND	^-	0.010	0.0027	mg/L		04/11/22 09:15	04/22/22 03:19	10
Beryllium	ND		0.010	0.0027	mg/L		04/11/22 09:15	04/22/22 17:13	10
Cadmium	ND		0.0010	0.00055	mg/L		04/11/22 09:15	04/22/22 03:19	10
Cadmium	ND		0.0010	0.00055	mg/L		04/11/22 09:15	04/22/22 17:13	10
Calcium	11		5.0	1.9	mg/L		04/11/22 09:15	04/22/22 03:19	10
Calcium	ND		5.0	1.9	mg/L		04/11/22 09:15	04/22/22 17:13	10
Chromium	ND		0.050	0.011	mg/L		04/11/22 09:15	04/22/22 03:19	10
Chromium	ND		0.050	0.011	mg/L		04/11/22 09:15	04/22/22 17:13	10
Cobalt	ND		0.0050	0.0019	mg/L		04/11/22 09:15	04/22/22 03:19	10
Cobalt	ND		0.0050	0.0019	mg/L		04/11/22 09:15	04/22/22 17:13	10
Lead	ND		0.0050	0.0024	mg/L		04/11/22 09:15	04/22/22 03:19	10
Lead	ND		0.0050	0.0024	mg/L		04/11/22 09:15	04/22/22 17:13	10
Lithium	0.031	J ^-	0.10	0.025	mg/L		04/11/22 09:15	04/22/22 03:19	10
Lithium	ND		0.10	0.025	mg/L		04/11/22 09:15	04/22/22 17:13	10
Molybdenum	ND		0.020	0.012	mg/L		04/11/22 09:15	04/22/22 03:19	10
Molybdenum	ND		0.020	0.012	mg/L		04/11/22 09:15	04/22/22 17:13	10
Selenium	0.038	J ^-	0.050	0.0096	mg/L		04/11/22 09:15	04/22/22 03:19	10
Selenium	ND		0.050	0.0096	mg/L		04/11/22 09:15	04/22/22 17:13	10
Thallium	ND		0.010	0.0026	mg/L		04/11/22 09:15	04/22/22 03:19	10
Thallium	ND		0.010	0.0026	mg/L		04/11/22 09:15	04/22/22 17:13	10
Sodium	54	^-	10	6.1	mg/L		04/11/22 09:15	04/22/22 03:19	10

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Method: 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

Client Sample ID: W-3EB
Date Collected: 03/31/22 13:15
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-18
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	ND		10	6.1	mg/L		04/11/22 09:15	04/22/22 17:13	10
Potassium	ND	^	5.0	1.5	mg/L		04/11/22 09:15	04/22/22 03:19	10
Potassium	ND		5.0	1.5	mg/L		04/11/22 09:15	04/22/22 17:13	10
Magnesium	23	^	5.0	1.5	mg/L		04/11/22 09:15	04/22/22 03:19	10
Magnesium	ND		5.0	1.5	mg/L		04/11/22 09:15	04/22/22 17:13	10

Method: 7470A - Mercury (CVAA)

Client Sample ID: W-2A
Date Collected: 03/31/22 10:20
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		04/18/22 14:15	04/19/22 14:41	1

Client Sample ID: W-2C
Date Collected: 03/31/22 10:40
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		04/18/22 14:15	04/19/22 14:44	1

Client Sample ID: W-3
Date Collected: 03/31/22 12:30
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		04/18/22 14:15	04/19/22 14:50	1

Client Sample ID: W-3B
Date Collected: 03/31/22 13:35
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		04/18/22 14:15	04/19/22 14:52	1

Client Sample ID: W-5
Date Collected: 03/30/22 14:20
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		04/18/22 14:15	04/19/22 14:54	1

Client Sample ID: W-5B
Date Collected: 03/30/22 15:45
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		04/18/22 14:15	04/19/22 14:56	1

Client Sample ID: W-6
Date Collected: 03/30/22 10:40
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		04/18/22 14:15	04/19/22 14:59	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Method: 7470A - Mercury (CVAA)

Client Sample ID: W-6B
Date Collected: 03/30/22 12:35
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		04/18/22 14:15	04/19/22 15:01	1

Client Sample ID: W-6D
Date Collected: 03/30/22 10:40
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		04/18/22 14:15	04/19/22 15:07	1

Client Sample ID: W-7
Date Collected: 03/31/22 17:30
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		04/18/22 14:15	04/19/22 15:09	1

Client Sample ID: W-9
Date Collected: 03/31/22 14:50
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		04/18/22 14:15	04/19/22 15:11	1

Client Sample ID: W-12
Date Collected: 04/01/22 12:30
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		04/18/22 14:15	04/19/22 15:14	1

Client Sample ID: W-14
Date Collected: 04/01/22 12:40
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		04/20/22 13:34	04/21/22 12:17	1

Client Sample ID: W-16
Date Collected: 04/01/22 10:50
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		04/20/22 13:34	04/21/22 12:19	1

Client Sample ID: MW-5
Date Collected: 03/31/22 15:45
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		04/20/22 13:34	04/21/22 12:21	1

Client Sample ID: W-11
Date Collected: 04/01/22 11:00
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-17
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		04/20/22 13:34	04/21/22 12:28	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Method: 7470A - Mercury (CVAA)

Client Sample ID: W-3EB
Date Collected: 03/31/22 13:15
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-18
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		04/20/22 13:34	04/21/22 12:30	1

General Chemistry

Client Sample ID: W-2A
Date Collected: 03/31/22 10:20
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	6.7	HF	0.1	0.1	SU			04/14/22 10:46	1
Temperature	18.6	HF	1.0	1.0	Degrees C			04/14/22 10:46	1
Chloride	860		60	20	mg/L			04/15/22 17:10	20
Fluoride	1.3	J	2.5	0.83	mg/L			04/19/22 15:19	5
Sulfate	47000		5000	1000	mg/L			04/15/22 17:25	1000
Alkalinity	670		10	3.1	mg/L			04/07/22 22:01	1
Bicarbonate Alkalinity as CaCO3	670		10	3.1	mg/L			04/07/22 22:01	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			04/07/22 22:01	1
Total Dissolved Solids (TDS)	67000		1000	470	mg/L			04/07/22 11:51	1
Total Suspended Solids	17		4.0	1.1	mg/L			04/05/22 16:36	1

Client Sample ID: W-2C
Date Collected: 03/31/22 10:40
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	6.7	HF	0.1	0.1	SU			04/14/22 10:50	1
Temperature	18.4	HF	1.0	1.0	Degrees C			04/14/22 10:50	1
Chloride	860		60	20	mg/L			04/15/22 17:40	20
Fluoride	59		5.0	1.7	mg/L			04/20/22 12:46	10
Sulfate	38000		2500	520	mg/L			04/15/22 17:55	500
Alkalinity	680		10	3.1	mg/L			04/07/22 22:09	1
Bicarbonate Alkalinity as CaCO3	680		10	3.1	mg/L			04/07/22 22:09	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			04/07/22 22:09	1
Total Dissolved Solids (TDS)	55000		1000	470	mg/L			04/07/22 11:51	1
Total Suspended Solids	20		4.0	1.1	mg/L			04/05/22 16:36	1

Client Sample ID: W-3
Date Collected: 03/31/22 12:30
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.7	HF	0.1	0.1	SU			04/14/22 10:54	1
Temperature	18.5	HF	1.0	1.0	Degrees C			04/14/22 10:54	1
Chloride	25		3.0	1.0	mg/L			04/15/22 18:10	1
Fluoride	1.1		0.50	0.17	mg/L			04/18/22 18:14	1
Sulfate	810	J	1000	210	mg/L			04/15/22 18:25	200
Alkalinity	170		10	3.1	mg/L			04/07/22 22:15	1
Bicarbonate Alkalinity as CaCO3	170		10	3.1	mg/L			04/07/22 22:15	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			04/07/22 22:15	1
Total Dissolved Solids (TDS)	1500		20	9.4	mg/L			04/07/22 11:51	1
Total Suspended Solids	4.4		4.0	1.1	mg/L			04/05/22 16:36	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

General Chemistry

Client Sample ID: W-3B
Date Collected: 03/31/22 13:35
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	6.6	HF	0.1	0.1	SU			04/14/22 10:58	1
Temperature	18.0	HF	1.0	1.0	Degrees C			04/14/22 10:58	1
Chloride	1100		60	20	mg/L			04/15/22 19:10	20
Fluoride	84		5.0	1.7	mg/L			04/20/22 13:02	10
Sulfate	49000		5000	1000	mg/L			04/15/22 19:25	1000
Alkalinity	830		10	3.1	mg/L			04/07/22 22:25	1
Bicarbonate Alkalinity as CaCO3	830		10	3.1	mg/L			04/07/22 22:25	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			04/07/22 22:25	1
Total Dissolved Solids (TDS)	68000		1000	470	mg/L			04/07/22 11:51	1
Total Suspended Solids	27		4.0	1.1	mg/L			04/05/22 16:36	1

Client Sample ID: W-5
Date Collected: 03/30/22 14:20
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.3	HF	0.1	0.1	SU			04/14/22 11:01	1
Temperature	18.0	HF	1.0	1.0	Degrees C			04/14/22 11:01	1
Chloride	810		60	20	mg/L			04/15/22 19:40	20
Fluoride	61		5.0	1.7	mg/L			04/20/22 13:18	10
Sulfate	32000		2500	520	mg/L			04/15/22 19:55	500
Alkalinity	580		10	3.1	mg/L			04/13/22 14:55	1
Bicarbonate Alkalinity as CaCO3	580		10	3.1	mg/L			04/13/22 14:55	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			04/13/22 14:55	1
Total Dissolved Solids (TDS)	48000	H	1000	470	mg/L			04/07/22 11:51	1
Total Suspended Solids	24		4.0	1.1	mg/L			04/05/22 16:36	1

Client Sample ID: W-5B
Date Collected: 03/30/22 15:45
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.4	HF	0.1	0.1	SU			04/14/22 11:05	1
Temperature	17.8	HF	1.0	1.0	Degrees C			04/14/22 11:05	1
Chloride	97		15	5.1	mg/L			04/15/22 20:10	5
Fluoride	0.18	J	0.50	0.17	mg/L			04/18/22 19:18	1
Sulfate	3200		250	52	mg/L			04/15/22 20:25	50
Alkalinity	170		10	3.1	mg/L			04/13/22 15:00	1
Bicarbonate Alkalinity as CaCO3	170		10	3.1	mg/L			04/13/22 15:00	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			04/13/22 15:00	1
Total Dissolved Solids (TDS)	4800	H	40	19	mg/L			04/07/22 11:51	1
Total Suspended Solids	2.8	J	4.0	1.1	mg/L			04/05/22 16:36	1

Client Sample ID: W-6
Date Collected: 03/30/22 10:40
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.7	HF	0.1	0.1	SU			04/14/22 11:09	1
Temperature	17.9	HF	1.0	1.0	Degrees C			04/14/22 11:09	1
Chloride	180		15	5.1	mg/L			04/15/22 20:40	5
Fluoride	9.7		2.5	0.83	mg/L			04/20/22 13:33	5
Sulfate	5100		250	52	mg/L			04/15/22 20:55	50

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

General Chemistry (Continued)

Client Sample ID: W-6
Date Collected: 03/30/22 10:40
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	800		10	3.1	mg/L			04/13/22 15:10	1
Bicarbonate Alkalinity as CaCO3	800		10	3.1	mg/L			04/13/22 15:10	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			04/13/22 15:10	1
Total Dissolved Solids (TDS)	7800	H	100	47	mg/L			04/07/22 11:51	1
Total Suspended Solids	6.0		4.0	1.1	mg/L			04/05/22 16:36	1

Client Sample ID: W-6B
Date Collected: 03/30/22 12:35
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	6.9	HF	0.1	0.1	SU			04/14/22 11:13	1
Temperature	18.8	HF	1.0	1.0	Degrees C			04/14/22 11:13	1
Chloride	1300		30	10	mg/L			04/15/22 21:10	10
Fluoride	85		5.0	1.7	mg/L			04/20/22 13:49	10
Sulfate	48000		2500	520	mg/L			04/15/22 21:26	500
Alkalinity	840		10	3.1	mg/L			04/13/22 15:20	1
Bicarbonate Alkalinity as CaCO3	840		10	3.1	mg/L			04/13/22 15:20	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			04/13/22 15:20	1
Total Dissolved Solids (TDS)	67000	H	1000	470	mg/L			04/07/22 11:51	1
Total Suspended Solids	37		4.0	1.1	mg/L			04/05/22 16:36	1

Client Sample ID: W-6D
Date Collected: 03/30/22 10:40
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.6	HF	0.1	0.1	SU			04/14/22 11:20	1
Temperature	19.2	HF	1.0	1.0	Degrees C			04/14/22 11:20	1
Chloride	180		15	5.1	mg/L			04/15/22 22:11	5
Fluoride	10		2.5	0.83	mg/L			04/20/22 14:05	5
Sulfate	5200		250	52	mg/L			04/15/22 22:26	50
Alkalinity	600		10	3.1	mg/L			04/13/22 15:29	1
Bicarbonate Alkalinity as CaCO3	600		10	3.1	mg/L			04/13/22 15:29	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			04/13/22 15:29	1
Total Dissolved Solids (TDS)	7900	H	100	47	mg/L			04/07/22 11:51	1
Total Suspended Solids	8.0		4.0	1.1	mg/L			04/05/22 16:36	1

Client Sample ID: W-7
Date Collected: 03/31/22 17:30
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU			04/14/22 11:22	1
Temperature	17.9	HF	1.0	1.0	Degrees C			04/14/22 11:22	1
Chloride	780		30	10	mg/L			04/15/22 23:41	10
Fluoride	72		10	3.3	mg/L			04/19/22 20:04	20
Sulfate	47000		2500	520	mg/L			04/15/22 23:56	500
Alkalinity	1100		10	3.1	mg/L			04/13/22 15:41	1
Bicarbonate Alkalinity as CaCO3	1100		10	3.1	mg/L			04/13/22 15:41	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			04/13/22 15:41	1
Total Dissolved Solids (TDS)	64000		1000	470	mg/L			04/07/22 11:51	1
Total Suspended Solids	29		4.0	1.1	mg/L			04/05/22 16:36	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

General Chemistry

Client Sample ID: W-9
Date Collected: 03/31/22 14:50
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.3	HF	0.1	0.1	SU			04/14/22 11:26	1
Temperature	18.3	HF	1.0	1.0	Degrees C			04/14/22 11:26	1
Chloride	370		15	5.1	mg/L			04/16/22 00:11	5
Fluoride	20		2.5	0.83	mg/L			04/19/22 20:36	5
Sulfate	12000		500	100	mg/L			04/16/22 00:26	100
Alkalinity	620		10	3.1	mg/L			04/13/22 15:49	1
Bicarbonate Alkalinity as CaCO3	620		10	3.1	mg/L			04/13/22 15:49	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			04/13/22 15:49	1
Total Dissolved Solids (TDS)	19000		1000	470	mg/L			04/07/22 11:50	1
Total Suspended Solids	12		4.0	1.1	mg/L			04/05/22 16:36	1

Client Sample ID: W-12
Date Collected: 04/01/22 12:30
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU			04/14/22 11:30	1
Temperature	18.0	HF	1.0	1.0	Degrees C			04/14/22 11:30	1
Chloride	880		30	10	mg/L			04/16/22 01:10	10
Fluoride	30		2.5	0.83	mg/L			04/19/22 22:11	5
Sulfate	17000		1000	210	mg/L			04/16/22 01:25	200
Alkalinity	1300		10	3.1	mg/L			04/13/22 16:03	1
Bicarbonate Alkalinity as CaCO3	1300		10	3.1	mg/L			04/13/22 16:03	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			04/13/22 16:03	1
Total Dissolved Solids (TDS)	27000		1000	470	mg/L			04/07/22 11:50	1
Total Suspended Solids	11		4.0	1.1	mg/L			04/05/22 16:36	1

Client Sample ID: W-14
Date Collected: 04/01/22 12:40
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.3	HF	0.1	0.1	SU			04/14/22 11:34	1
Temperature	18.1	HF	1.0	1.0	Degrees C			04/14/22 11:34	1
Chloride	660		30	10	mg/L			04/16/22 01:40	10
Fluoride	30		2.5	0.83	mg/L			04/19/22 22:27	5
Sulfate	17000		500	100	mg/L			04/16/22 01:55	100
Alkalinity	1300		10	3.1	mg/L			04/13/22 16:16	1
Bicarbonate Alkalinity as CaCO3	1300		10	3.1	mg/L			04/13/22 16:16	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			04/13/22 16:16	1
Total Dissolved Solids (TDS)	27000		1000	470	mg/L			04/07/22 11:50	1
Total Suspended Solids	8.0		4.0	1.1	mg/L			04/05/22 16:36	1

Client Sample ID: W-16
Date Collected: 04/01/22 10:50
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU			04/14/22 11:38	1
Temperature	18.2	HF	1.0	1.0	Degrees C			04/14/22 11:38	1
Chloride	250		15	5.1	mg/L			04/16/22 02:10	5
Fluoride	20		2.5	0.83	mg/L			04/19/22 22:43	5
Sulfate	13000		500	100	mg/L			04/16/22 02:25	100

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

General Chemistry (Continued)

Client Sample ID: W-16
Date Collected: 04/01/22 10:50
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	850		10	3.1	mg/L			04/13/22 16:25	1
Bicarbonate Alkalinity as CaCO3	850		10	3.1	mg/L			04/13/22 16:25	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			04/13/22 16:25	1
Total Dissolved Solids (TDS)	22000		1000	470	mg/L			04/07/22 11:50	1
Total Suspended Solids	6.4		4.0	1.1	mg/L			04/05/22 16:36	1

Client Sample ID: MW-3
Date Collected: 03/29/22 11:45
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU			04/14/22 11:42	1
Temperature	18.8	HF	1.0	1.0	Degrees C			04/14/22 11:42	1
Chloride	390		15	5.1	mg/L			04/16/22 02:40	5
Fluoride	68		5.0	1.7	mg/L			04/20/22 14:21	10
Sulfate	37000		2500	520	mg/L			04/19/22 23:15	500
Alkalinity	920		10	3.1	mg/L			04/14/22 15:39	1
Bicarbonate Alkalinity as CaCO3	920		10	3.1	mg/L			04/14/22 15:39	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			04/14/22 15:39	1
Total Dissolved Solids (TDS)	53000	H	1000	470	mg/L			04/07/22 11:50	1
Total Suspended Solids	15		4.0	1.1	mg/L			04/05/22 16:36	1

Client Sample ID: MW-5
Date Collected: 03/31/22 15:45
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU			04/14/22 11:46	1
Temperature	20.0	HF	1.0	1.0	Degrees C			04/14/22 11:46	1
Chloride	1700		60	20	mg/L			04/16/22 03:10	20
Fluoride	32		2.5	0.83	mg/L			04/19/22 23:31	5
Sulfate	16000		1000	210	mg/L			04/19/22 23:46	200
Alkalinity	1500		10	3.1	mg/L			04/14/22 16:03	1
Bicarbonate Alkalinity as CaCO3	1500		10	3.1	mg/L			04/14/22 16:03	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			04/14/22 16:03	1
Total Dissolved Solids (TDS)	30000	H	1000	470	mg/L			04/12/22 10:46	1
Total Suspended Solids	12		4.0	1.1	mg/L			04/05/22 16:36	1

Client Sample ID: W-11
Date Collected: 04/01/22 11:00
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-17
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU			04/14/22 11:49	1
Temperature	20.1	HF	1.0	1.0	Degrees C			04/14/22 11:49	1
Chloride	97		15	5.1	mg/L			04/16/22 03:25	5
Fluoride	25		2.5	0.83	mg/L			04/20/22 00:02	5
Sulfate	13000		1000	210	mg/L			04/16/22 04:10	200
Alkalinity	1000		10	3.1	mg/L			04/14/22 16:14	1
Bicarbonate Alkalinity as CaCO3	1000		10	3.1	mg/L			04/14/22 16:14	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			04/14/22 16:14	1
Total Dissolved Solids (TDS)	20000	H	1000	470	mg/L			04/12/22 10:46	1
Total Suspended Solids	17		4.0	1.1	mg/L			04/05/22 16:36	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

General Chemistry

Client Sample ID: W-3EB
Date Collected: 03/31/22 13:15
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-18
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.2	HF	0.1	0.1	SU			04/18/22 12:04	1
Temperature	19.5	HF	1.0	1.0	Degrees C			04/18/22 12:04	1
Chloride	ND		3.0	1.0	mg/L			04/16/22 04:25	1
Fluoride	ND		0.50	0.17	mg/L			04/20/22 00:50	1
Sulfate	ND		5.0	1.0	mg/L			04/16/22 04:25	1
Alkalinity	ND		10	3.1	mg/L			04/12/22 03:01	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			04/12/22 03:01	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			04/12/22 03:01	1
Total Dissolved Solids (TDS)	10		10	4.7	mg/L			04/07/22 11:50	1
Total Suspended Solids	ND		4.0	1.1	mg/L			04/06/22 14:29	1

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 310-349372/1-A
Matrix: Water
Analysis Batch: 349734

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 349372

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.20	0.056	mg/L		04/11/22 09:15	04/11/22 15:15	1

Lab Sample ID: LCS 310-349372/2-A
Matrix: Water
Analysis Batch: 349734

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 349372

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	2.19		mg/L		109	80 - 120

Lab Sample ID: 280-160467-1 MS
Matrix: Water
Analysis Batch: 349734

Client Sample ID: W-2A
Prep Type: Total Recoverable
Prep Batch: 349372

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	1.9	J	2.00	3.89	J	mg/L		102	75 - 125

Lab Sample ID: 280-160467-1 MSD
Matrix: Water
Analysis Batch: 349734

Client Sample ID: W-2A
Prep Type: Total Recoverable
Prep Batch: 349372

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	1.9	J	2.00	4.04	J	mg/L		109	75 - 125	4	20

Lab Sample ID: 280-160467-11 DU
Matrix: Water
Analysis Batch: 349734

Client Sample ID: W-9
Prep Type: Total Recoverable
Prep Batch: 349372

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Boron	1.8		1.70		mg/L		4	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-349370/1-A
Matrix: Water
Analysis Batch: 350830

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 349370

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00069	mg/L		04/11/22 09:15	04/22/22 14:38	1
Arsenic	ND		0.0020	0.00075	mg/L		04/11/22 09:15	04/22/22 14:38	1
Barium	ND		0.0020	0.00088	mg/L		04/11/22 09:15	04/22/22 14:38	1
Beryllium	ND		0.0010	0.00027	mg/L		04/11/22 09:15	04/22/22 14:38	1
Cadmium	ND		0.00010	0.000055	mg/L		04/11/22 09:15	04/22/22 14:38	1
Calcium	ND		0.50	0.19	mg/L		04/11/22 09:15	04/22/22 14:38	1
Chromium	ND		0.0050	0.0011	mg/L		04/11/22 09:15	04/22/22 14:38	1
Cobalt	ND		0.00050	0.00019	mg/L		04/11/22 09:15	04/22/22 14:38	1
Lead	ND		0.00050	0.00024	mg/L		04/11/22 09:15	04/22/22 14:38	1
Lithium	ND		0.010	0.0025	mg/L		04/11/22 09:15	04/22/22 14:38	1
Molybdenum	ND		0.0020	0.0012	mg/L		04/11/22 09:15	04/22/22 14:38	1
Selenium	ND		0.0050	0.00096	mg/L		04/11/22 09:15	04/22/22 14:38	1
Thallium	0.000456	J	0.0010	0.00026	mg/L		04/11/22 09:15	04/22/22 14:38	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

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

Lab Sample ID: MB 310-349370/1-A
Matrix: Water
Analysis Batch: 350830

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 349370

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	ND		1.0	0.61	mg/L		04/11/22 09:15	04/22/22 14:38	1
Potassium	ND		0.50	0.15	mg/L		04/11/22 09:15	04/22/22 14:38	1
Magnesium	ND		0.50	0.15	mg/L		04/11/22 09:15	04/22/22 14:38	1

Lab Sample ID: LCS 310-349370/2-A
Matrix: Water
Analysis Batch: 350830

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 349370

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.200	0.211		mg/L		105	80 - 120
Arsenic	0.200	0.211		mg/L		106	80 - 120
Barium	0.100	0.104		mg/L		104	80 - 120
Beryllium	0.100	0.108		mg/L		108	80 - 120
Cadmium	0.100	0.102		mg/L		102	80 - 120
Calcium	2.00	1.99		mg/L		99	80 - 120
Chromium	0.100	0.106		mg/L		106	80 - 120
Cobalt	0.100	0.103		mg/L		103	80 - 120
Lead	0.200	0.205		mg/L		103	80 - 120
Lithium	0.200	0.217		mg/L		108	80 - 120
Molybdenum	0.200	0.210		mg/L		105	80 - 120
Selenium	0.400	0.408		mg/L		102	80 - 120
Thallium	0.200	0.208		mg/L		104	80 - 120
Sodium	2.00	2.25		mg/L		113	80 - 120
Potassium	2.00	2.15		mg/L		107	80 - 120
Magnesium	2.00	2.14		mg/L		107	80 - 120

Lab Sample ID: 280-160467-1 MS
Matrix: Water
Analysis Batch: 350830

Client Sample ID: W-2A
Prep Type: Total Recoverable
Prep Batch: 349370

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	ND	F1 F2	0.200	0.178	J	mg/L		89	75 - 125
Arsenic	ND		0.200	0.194	J	mg/L		97	75 - 125
Barium	ND		0.100	ND		mg/L		NC	75 - 125
Beryllium	ND	F1	0.100	0.0622	J F1	mg/L		62	75 - 125
Cadmium	ND		0.100	0.0872		mg/L		87	75 - 125
Calcium	230		2.00	158	4	mg/L		-3649	75 - 125
Chromium	ND		0.100	ND		mg/L		NC	75 - 125
Cobalt	ND		0.100	0.0982	J	mg/L		98	75 - 125
Lead	ND	F1	0.200	0.0984	J F1	mg/L		49	75 - 125
Lithium	4.0		0.200	3.86	4	mg/L		-45	75 - 125
Molybdenum	ND		0.200	ND		mg/L		NC	75 - 125
Selenium	1.9		0.400	2.42	4	mg/L		122	75 - 125
Thallium	ND	F1	0.200	0.159	J	mg/L		80	75 - 125
Sodium	5200		2.00	5280	4	mg/L		4140	75 - 125
Potassium	59	J	2.00	60.4	J 4	mg/L		69	75 - 125
Magnesium	7300		2.00	7370	4	mg/L		5753	75 - 125

Eurofins Denver

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

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

Lab Sample ID: 280-160467-1 MSD

Matrix: Water

Analysis Batch: 350830

Client Sample ID: W-2A

Prep Type: Total Recoverable

Prep Batch: 349370

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	ND	F1 F2	0.200	0.276	J F1 F2	mg/L		138	75 - 125	43	20
Arsenic	ND		0.200	0.181	J	mg/L		90	75 - 125	7	20
Barium	ND		0.100	ND		mg/L		NC	75 - 125	NC	20
Beryllium	ND	F1	0.100	0.0696	J F1	mg/L		70	75 - 125	11	20
Cadmium	ND		0.100	0.0778		mg/L		78	75 - 125	11	20
Calcium	230		2.00	171	4	mg/L		-3009	75 - 125	8	20
Chromium	ND		0.100	ND		mg/L		NC	75 - 125	NC	20
Cobalt	ND		0.100	0.0850	J	mg/L		85	75 - 125	14	20
Lead	ND	F1	0.200	0.0874	J F1	mg/L		44	75 - 125	12	20
Lithium	4.0		0.200	3.57	4	mg/L		-192	75 - 125	8	20
Molybdenum	ND		0.200	ND		mg/L		NC	75 - 125	NC	20
Selenium	1.9		0.400	2.09	4	mg/L		39	75 - 125	15	20
Thallium	ND	F1	0.200	0.144	J F1	mg/L		72	75 - 125	10	20
Sodium	5200		2.00	4620	4	mg/L		-2905	75 - 125	13	20
Potassium	59	J	2.00	53.0	J 4	mg/L		-300	75 - 125	13	20
Magnesium	7300		2.00	6450	4	mg/L		-4021	75 - 125	13	20

Lab Sample ID: 280-160467-11 DU

Matrix: Water

Analysis Batch: 350830

Client Sample ID: W-9

Prep Type: Total Recoverable

Prep Batch: 349370

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Antimony	ND		ND		mg/L		NC	20
Arsenic	ND		ND		mg/L		NC	20
Barium	ND		ND		mg/L		NC	20
Beryllium	ND		ND		mg/L		NC	20
Cadmium	ND		ND		mg/L		NC	20
Calcium	530		496		mg/L		7	20
Chromium	ND		ND		mg/L		NC	20
Cobalt	ND		ND		mg/L		NC	20
Lead	ND		ND		mg/L		NC	20
Lithium	1.3		1.17		mg/L		12	20
Molybdenum	ND		ND		mg/L		NC	20
Selenium	ND		ND		mg/L		NC	20
Thallium	ND		ND		mg/L		NC	20
Sodium	3400		3250		mg/L		5	20
Potassium	29	J	27.1	J	mg/L		7	20
Magnesium	1700		1580		mg/L		5	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-350238/1-A

Matrix: Water

Analysis Batch: 350374

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 350238

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		04/18/22 14:15	04/19/22 14:14	1

Eurofins Denver

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

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

Lab Sample ID: LCS 310-350238/2-A
Matrix: Water
Analysis Batch: 350374

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 350238

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00167	0.00154		mg/L		92	80 - 120

Lab Sample ID: 280-160467-2 MS
Matrix: Water
Analysis Batch: 350374

Client Sample ID: W-2C
Prep Type: Total/NA
Prep Batch: 350238

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		0.00167	0.00148		mg/L		89	80 - 120

Lab Sample ID: 280-160467-2 MSD
Matrix: Water
Analysis Batch: 350374

Client Sample ID: W-2C
Prep Type: Total/NA
Prep Batch: 350238

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Mercury	ND		0.00167	0.00149		mg/L		90	80 - 120	1	20

Lab Sample ID: MB 310-350495/1-A
Matrix: Water
Analysis Batch: 350701

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 350495

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		04/20/22 13:34	04/21/22 12:07	1

Lab Sample ID: LCS 310-350495/2-A
Matrix: Water
Analysis Batch: 350701

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 350495

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

Method: 9040B - pH

Lab Sample ID: LCS 280-571889/4
Matrix: Water
Analysis Batch: 571889

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH adj. to 25 deg C	7.00	7.0		SU		100	99 - 101

Lab Sample ID: LCS 280-572205/4
Matrix: Water
Analysis Batch: 572205

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH adj. to 25 deg C	7.00	7.1		SU		101	99 - 101

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-571994/6

Matrix: Water

Analysis Batch: 571994

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			04/15/22 15:29	1
Sulfate	ND		5.0	1.0	mg/L			04/15/22 15:29	1

Lab Sample ID: LCS 280-571994/4

Matrix: Water

Analysis Batch: 571994

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	101		mg/L		101	90 - 110
Sulfate	100	100		mg/L		100	90 - 110

Lab Sample ID: LCSD 280-571994/5

Matrix: Water

Analysis Batch: 571994

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	101		mg/L		101	90 - 110	0	10
Sulfate	100	100		mg/L		100	90 - 110	0	10

Lab Sample ID: MRL 280-571994/3

Matrix: Water

Analysis Batch: 571994

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.00	4.60		mg/L		92	50 - 150
Sulfate	5.00	4.21	J	mg/L		84	50 - 150

Lab Sample ID: MB 280-572163/6

Matrix: Water

Analysis Batch: 572163

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.50	0.17	mg/L			04/18/22 12:29	1

Lab Sample ID: LCS 280-572163/4

Matrix: Water

Analysis Batch: 572163

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	5.00	4.60		mg/L		92	90 - 110

Lab Sample ID: LCSD 280-572163/5

Matrix: Water

Analysis Batch: 572163

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Fluoride	5.00	4.71		mg/L		94	90 - 110	2	10

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

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

Lab Sample ID: MRL 280-572163/3

Matrix: Water

Analysis Batch: 572163

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	0.500	0.350	J	mg/L		70	50 - 150

Lab Sample ID: MB 280-572280/13

Matrix: Water

Analysis Batch: 572280

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			04/19/22 14:04	1
Fluoride	ND		0.50	0.17	mg/L			04/19/22 14:04	1
Sulfate	ND		5.0	1.0	mg/L			04/19/22 14:04	1

Lab Sample ID: LCS 280-572280/11

Matrix: Water

Analysis Batch: 572280

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	100		mg/L		100	90 - 110
Fluoride	5.00	4.83		mg/L		97	90 - 110
Sulfate	100	97.7		mg/L		98	90 - 110

Lab Sample ID: LCSD 280-572280/12

Matrix: Water

Analysis Batch: 572280

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	100		mg/L		100	90 - 110	0	10
Fluoride	5.00	4.88		mg/L		98	90 - 110	1	10
Sulfate	100	98.1		mg/L		98	90 - 110	0	10

Lab Sample ID: MRL 280-572280/10

Matrix: Water

Analysis Batch: 572280

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.00	4.07		mg/L		81	50 - 150
Fluoride	0.500	0.540		mg/L		108	50 - 150
Sulfate	5.00	4.21	J	mg/L		84	50 - 150

Lab Sample ID: 280-160467-11 MS

Matrix: Water

Analysis Batch: 572280

Client Sample ID: W-9

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	360		250	634		mg/L		110	80 - 120
Fluoride	20		25.0	46.9		mg/L		107	80 - 120
Sulfate	12000	E	250	11900	E 4	mg/L		93	80 - 120

Eurofins Denver

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

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

Lab Sample ID: 280-160467-11 MSD

Matrix: Water

Analysis Batch: 572280

Client Sample ID: W-9

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	360		250	630		mg/L		108	80 - 120	1	20
Fluoride	20		25.0	47.1		mg/L		108	80 - 120	1	20
Sulfate	12000	E	250	11800	E 4	mg/L		46	80 - 120	1	20

Lab Sample ID: 280-160467-11 DU

Matrix: Water

Analysis Batch: 572280

Client Sample ID: W-9

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	360		360		mg/L		0	15
Fluoride	20		20.3		mg/L		0	15
Sulfate	12000	E	11600	E	mg/L		0.6	15

Lab Sample ID: MB 280-572399/6

Matrix: Water

Analysis Batch: 572399

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.50	0.17	mg/L			04/20/22 11:56	1

Lab Sample ID: LCS 280-572399/4

Matrix: Water

Analysis Batch: 572399

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	5.00	5.26		mg/L		105	90 - 110

Lab Sample ID: LCSD 280-572399/5

Matrix: Water

Analysis Batch: 572399

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Fluoride	5.00	5.22		mg/L		104	90 - 110	1	10

Lab Sample ID: MRL 280-572399/3

Matrix: Water

Analysis Batch: 572399

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	0.500	0.510		mg/L		102	50 - 150

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-571245/58

Matrix: Water

Analysis Batch: 571245

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	ND		10	3.1	mg/L			04/07/22 20:56	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			04/07/22 20:56	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: MB 280-571245/58

Matrix: Water

Analysis Batch: 571245

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			04/07/22 20:56	1

Lab Sample ID: LCS 280-571245/57

Matrix: Water

Analysis Batch: 571245

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	200	193		mg/L		97	89 - 109

Lab Sample ID: MB 280-571820/6

Matrix: Water

Analysis Batch: 571820

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	ND		10	3.1	mg/L			04/13/22 13:07	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			04/13/22 13:07	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			04/13/22 13:07	1

Lab Sample ID: LCS 280-571820/4

Matrix: Water

Analysis Batch: 571820

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	200	189		mg/L		95	89 - 109

Lab Sample ID: LCSD 280-571820/5

Matrix: Water

Analysis Batch: 571820

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Alkalinity	200	191		mg/L		96	89 - 109	1	10

Lab Sample ID: MB 280-571962/5

Matrix: Water

Analysis Batch: 571962

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	ND		10	3.1	mg/L			04/14/22 15:28	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			04/14/22 15:28	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			04/14/22 15:28	1

Lab Sample ID: LCS 280-571962/4

Matrix: Water

Analysis Batch: 571962

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	200	184		mg/L		92	89 - 109

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: 280-160467-15 DU

Matrix: Water

Analysis Batch: 571962

Client Sample ID: MW-3

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Alkalinity	920		760	F3	mg/L		19	10
Bicarbonate Alkalinity as CaCO3	920		760		mg/L		19	20
Carbonate Alkalinity as CaCO3	ND		ND		mg/L		NC	20

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

Lab Sample ID: MB 280-571090/1

Matrix: Water

Analysis Batch: 571090

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 (TDS)	ND		10	4.7	mg/L			04/07/22 11:50	1

Lab Sample ID: LCS 280-571090/2

Matrix: Water

Analysis Batch: 571090

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 (TDS)	506	502		mg/L		99	88 - 114

Lab Sample ID: LCSD 280-571090/3

Matrix: Water

Analysis Batch: 571090

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Total Dissolved Solids (TDS)	506	511		mg/L		101	88 - 114	2	20

Lab Sample ID: 280-160467-14 DU

Matrix: Water

Analysis Batch: 571090

Client Sample ID: W-16

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Total Dissolved Solids (TDS)	22000		19100	F3	mg/L		15	10

Lab Sample ID: MB 280-571091/1

Matrix: Water

Analysis Batch: 571091

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 (TDS)	ND		10	4.7	mg/L			04/07/22 11:51	1

Lab Sample ID: LCS 280-571091/2

Matrix: Water

Analysis Batch: 571091

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 (TDS)	506	496		mg/L		98	88 - 114

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

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

Lab Sample ID: 280-160467-13 DU

Matrix: Water

Analysis Batch: 571091

Client Sample ID: W-14

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids (TDS)	27000		24600		mg/L		9	10

Lab Sample ID: MB 280-571583/1

Matrix: Water

Analysis Batch: 571583

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 (TDS)	ND		10	4.7	mg/L			04/12/22 10:46	1

Lab Sample ID: LCS 280-571583/2

Matrix: Water

Analysis Batch: 571583

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 (TDS)	503	498		mg/L		99	88 - 114

Lab Sample ID: 280-160467-17 DU

Matrix: Water

Analysis Batch: 571583

Client Sample ID: W-11

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids (TDS)	20000	H	20200		mg/L		0.5	10

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 280-570875/2

Matrix: Water

Analysis Batch: 570875

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			04/05/22 16:36	1

Lab Sample ID: LCS 280-570875/1

Matrix: Water

Analysis Batch: 570875

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	86.4		mg/L		86	79 - 114

Lab Sample ID: 280-160467-1 DU

Matrix: Water

Analysis Batch: 570875

Client Sample ID: W-2A

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	17		18.0		mg/L		7	10

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

Lab Sample ID: MB 280-570980/3

Matrix: Water

Analysis Batch: 570980

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			04/06/22 14:29	1

Lab Sample ID: LCS 280-570980/1

Matrix: Water

Analysis Batch: 570980

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	81.6		mg/L		82	79 - 114

Lab Sample ID: LCSD 280-570980/2

Matrix: Water

Analysis Batch: 570980

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	100	92.4		mg/L		92	79 - 114	12	20

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Metals

Prep Batch: 349370

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-1	W-2A	Total Recoverable	Water	3005A	
280-160467-2	W-2C	Total Recoverable	Water	3005A	
280-160467-3	W-3	Total Recoverable	Water	3005A	
280-160467-4	W-3B	Total Recoverable	Water	3005A	
280-160467-5	W-5	Total Recoverable	Water	3005A	
280-160467-6	W-5B	Total Recoverable	Water	3005A	
280-160467-7	W-6	Total Recoverable	Water	3005A	
280-160467-8	W-6B	Total Recoverable	Water	3005A	
280-160467-9	W-6D	Total Recoverable	Water	3005A	
280-160467-10	W-7	Total Recoverable	Water	3005A	
280-160467-11	W-9	Total Recoverable	Water	3005A	
280-160467-12	W-12	Total Recoverable	Water	3005A	
280-160467-13	W-14	Total Recoverable	Water	3005A	
280-160467-14	W-16	Total Recoverable	Water	3005A	
280-160467-15	MW-3	Total Recoverable	Water	3005A	
280-160467-16	MW-5	Total Recoverable	Water	3005A	
280-160467-17	W-11	Total Recoverable	Water	3005A	
280-160467-18	W-3EB	Total Recoverable	Water	3005A	
MB 310-349370/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 310-349370/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-160467-1 MS	W-2A	Total Recoverable	Water	3005A	
280-160467-1 MSD	W-2A	Total Recoverable	Water	3005A	
280-160467-11 DU	W-9	Total Recoverable	Water	3005A	

Prep Batch: 349372

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-1	W-2A	Total Recoverable	Water	3005A	
280-160467-2	W-2C	Total Recoverable	Water	3005A	
280-160467-3	W-3	Total Recoverable	Water	3005A	
280-160467-4	W-3B	Total Recoverable	Water	3005A	
280-160467-5	W-5	Total Recoverable	Water	3005A	
280-160467-6	W-5B	Total Recoverable	Water	3005A	
280-160467-7	W-6	Total Recoverable	Water	3005A	
280-160467-8	W-6B	Total Recoverable	Water	3005A	
280-160467-9	W-6D	Total Recoverable	Water	3005A	
280-160467-10	W-7	Total Recoverable	Water	3005A	
280-160467-11	W-9	Total Recoverable	Water	3005A	
280-160467-12	W-12	Total Recoverable	Water	3005A	
280-160467-13	W-14	Total Recoverable	Water	3005A	
280-160467-14	W-16	Total Recoverable	Water	3005A	
280-160467-15	MW-3	Total Recoverable	Water	3005A	
280-160467-16	MW-5	Total Recoverable	Water	3005A	
280-160467-17	W-11	Total Recoverable	Water	3005A	
280-160467-18	W-3EB	Total Recoverable	Water	3005A	
MB 310-349372/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 310-349372/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-160467-1 MS	W-2A	Total Recoverable	Water	3005A	
280-160467-1 MSD	W-2A	Total Recoverable	Water	3005A	
280-160467-11 DU	W-9	Total Recoverable	Water	3005A	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Metals

Analysis Batch: 349734

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-1	W-2A	Total Recoverable	Water	6010C	349372
280-160467-2	W-2C	Total Recoverable	Water	6010C	349372
280-160467-3	W-3	Total Recoverable	Water	6010C	349372
280-160467-4	W-3B	Total Recoverable	Water	6010C	349372
280-160467-5	W-5	Total Recoverable	Water	6010C	349372
280-160467-6	W-5B	Total Recoverable	Water	6010C	349372
280-160467-7	W-6	Total Recoverable	Water	6010C	349372
280-160467-8	W-6B	Total Recoverable	Water	6010C	349372
280-160467-9	W-6D	Total Recoverable	Water	6010C	349372
280-160467-10	W-7	Total Recoverable	Water	6010C	349372
280-160467-11	W-9	Total Recoverable	Water	6010C	349372
280-160467-12	W-12	Total Recoverable	Water	6010C	349372
280-160467-13	W-14	Total Recoverable	Water	6010C	349372
280-160467-14	W-16	Total Recoverable	Water	6010C	349372
280-160467-15	MW-3	Total Recoverable	Water	6010C	349372
280-160467-16	MW-5	Total Recoverable	Water	6010C	349372
280-160467-17	W-11	Total Recoverable	Water	6010C	349372
280-160467-18	W-3EB	Total Recoverable	Water	6010C	349372
MB 310-349372/1-A	Method Blank	Total Recoverable	Water	6010C	349372
LCS 310-349372/2-A	Lab Control Sample	Total Recoverable	Water	6010C	349372
280-160467-1 MS	W-2A	Total Recoverable	Water	6010C	349372
280-160467-1 MSD	W-2A	Total Recoverable	Water	6010C	349372
280-160467-11 DU	W-9	Total Recoverable	Water	6010C	349372

Prep Batch: 350238

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-1	W-2A	Total/NA	Water	7470A	
280-160467-2	W-2C	Total/NA	Water	7470A	
280-160467-3	W-3	Total/NA	Water	7470A	
280-160467-4	W-3B	Total/NA	Water	7470A	
280-160467-5	W-5	Total/NA	Water	7470A	
280-160467-6	W-5B	Total/NA	Water	7470A	
280-160467-7	W-6	Total/NA	Water	7470A	
280-160467-8	W-6B	Total/NA	Water	7470A	
280-160467-9	W-6D	Total/NA	Water	7470A	
280-160467-10	W-7	Total/NA	Water	7470A	
280-160467-11	W-9	Total/NA	Water	7470A	
280-160467-12	W-12	Total/NA	Water	7470A	
MB 310-350238/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-350238/2-A	Lab Control Sample	Total/NA	Water	7470A	
280-160467-2 MS	W-2C	Total/NA	Water	7470A	
280-160467-2 MSD	W-2C	Total/NA	Water	7470A	

Analysis Batch: 350374

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-1	W-2A	Total/NA	Water	7470A	350238
280-160467-2	W-2C	Total/NA	Water	7470A	350238
280-160467-3	W-3	Total/NA	Water	7470A	350238
280-160467-4	W-3B	Total/NA	Water	7470A	350238
280-160467-5	W-5	Total/NA	Water	7470A	350238
280-160467-6	W-5B	Total/NA	Water	7470A	350238

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Metals (Continued)

Analysis Batch: 350374 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-7	W-6	Total/NA	Water	7470A	350238
280-160467-8	W-6B	Total/NA	Water	7470A	350238
280-160467-9	W-6D	Total/NA	Water	7470A	350238
280-160467-10	W-7	Total/NA	Water	7470A	350238
280-160467-11	W-9	Total/NA	Water	7470A	350238
280-160467-12	W-12	Total/NA	Water	7470A	350238
MB 310-350238/1-A	Method Blank	Total/NA	Water	7470A	350238
LCS 310-350238/2-A	Lab Control Sample	Total/NA	Water	7470A	350238
280-160467-2 MS	W-2C	Total/NA	Water	7470A	350238
280-160467-2 MSD	W-2C	Total/NA	Water	7470A	350238

Prep Batch: 350495

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-13	W-14	Total/NA	Water	7470A	
280-160467-14	W-16	Total/NA	Water	7470A	
280-160467-16	MW-5	Total/NA	Water	7470A	
280-160467-17	W-11	Total/NA	Water	7470A	
280-160467-18	W-3EB	Total/NA	Water	7470A	
MB 310-350495/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-350495/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 350701

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-13	W-14	Total/NA	Water	7470A	350495
280-160467-14	W-16	Total/NA	Water	7470A	350495
280-160467-16	MW-5	Total/NA	Water	7470A	350495
280-160467-17	W-11	Total/NA	Water	7470A	350495
280-160467-18	W-3EB	Total/NA	Water	7470A	350495
MB 310-350495/1-A	Method Blank	Total/NA	Water	7470A	350495
LCS 310-350495/2-A	Lab Control Sample	Total/NA	Water	7470A	350495

Analysis Batch: 350746

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-1	W-2A	Total Recoverable	Water	6020A	349370
280-160467-2	W-2C	Total Recoverable	Water	6020A	349370
280-160467-3	W-3	Total Recoverable	Water	6020A	349370
280-160467-4	W-3B	Total Recoverable	Water	6020A	349370
280-160467-5	W-5	Total Recoverable	Water	6020A	349370
280-160467-6	W-5B	Total Recoverable	Water	6020A	349370
280-160467-7	W-6	Total Recoverable	Water	6020A	349370
280-160467-8	W-6B	Total Recoverable	Water	6020A	349370
280-160467-9	W-6D	Total Recoverable	Water	6020A	349370
280-160467-10	W-7	Total Recoverable	Water	6020A	349370
280-160467-11	W-9	Total Recoverable	Water	6020A	349370
280-160467-12	W-12	Total Recoverable	Water	6020A	349370
280-160467-13	W-14	Total Recoverable	Water	6020A	349370
280-160467-14	W-16	Total Recoverable	Water	6020A	349370
280-160467-15	MW-3	Total Recoverable	Water	6020A	349370
280-160467-16	MW-5	Total Recoverable	Water	6020A	349370
280-160467-17	W-11	Total Recoverable	Water	6020A	349370
280-160467-18	W-3EB	Total Recoverable	Water	6020A	349370

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Metals

Analysis Batch: 350830

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-1	W-2A	Total Recoverable	Water	6020A	349370
280-160467-2	W-2C	Total Recoverable	Water	6020A	349370
280-160467-3	W-3	Total Recoverable	Water	6020A	349370
280-160467-4	W-3B	Total Recoverable	Water	6020A	349370
280-160467-5	W-5	Total Recoverable	Water	6020A	349370
280-160467-6	W-5B	Total Recoverable	Water	6020A	349370
280-160467-7	W-6	Total Recoverable	Water	6020A	349370
280-160467-8	W-6B	Total Recoverable	Water	6020A	349370
280-160467-9	W-6D	Total Recoverable	Water	6020A	349370
280-160467-10	W-7	Total Recoverable	Water	6020A	349370
280-160467-10	W-7	Total Recoverable	Water	6020A	349370
280-160467-11	W-9	Total Recoverable	Water	6020A	349370
280-160467-12	W-12	Total Recoverable	Water	6020A	349370
280-160467-13	W-14	Total Recoverable	Water	6020A	349370
280-160467-14	W-16	Total Recoverable	Water	6020A	349370
280-160467-15	MW-3	Total Recoverable	Water	6020A	349370
280-160467-16	MW-5	Total Recoverable	Water	6020A	349370
280-160467-17	W-11	Total Recoverable	Water	6020A	349370
280-160467-18	W-3EB	Total Recoverable	Water	6020A	349370
MB 310-349370/1-A	Method Blank	Total Recoverable	Water	6020A	349370
LCS 310-349370/2-A	Lab Control Sample	Total Recoverable	Water	6020A	349370
280-160467-1 MS	W-2A	Total Recoverable	Water	6020A	349370
280-160467-1 MSD	W-2A	Total Recoverable	Water	6020A	349370
280-160467-11 DU	W-9	Total Recoverable	Water	6020A	349370

General Chemistry

Analysis Batch: 570875

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-1	W-2A	Total/NA	Water	SM 2540D	
280-160467-2	W-2C	Total/NA	Water	SM 2540D	
280-160467-3	W-3	Total/NA	Water	SM 2540D	
280-160467-4	W-3B	Total/NA	Water	SM 2540D	
280-160467-5	W-5	Total/NA	Water	SM 2540D	
280-160467-6	W-5B	Total/NA	Water	SM 2540D	
280-160467-7	W-6	Total/NA	Water	SM 2540D	
280-160467-8	W-6B	Total/NA	Water	SM 2540D	
280-160467-9	W-6D	Total/NA	Water	SM 2540D	
280-160467-10	W-7	Total/NA	Water	SM 2540D	
280-160467-11	W-9	Total/NA	Water	SM 2540D	
280-160467-12	W-12	Total/NA	Water	SM 2540D	
280-160467-13	W-14	Total/NA	Water	SM 2540D	
280-160467-14	W-16	Total/NA	Water	SM 2540D	
280-160467-15	MW-3	Total/NA	Water	SM 2540D	
280-160467-16	MW-5	Total/NA	Water	SM 2540D	
280-160467-17	W-11	Total/NA	Water	SM 2540D	
MB 280-570875/2	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-570875/1	Lab Control Sample	Total/NA	Water	SM 2540D	
280-160467-1 DU	W-2A	Total/NA	Water	SM 2540D	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

General Chemistry

Analysis Batch: 570980

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-18	W-3EB	Total/NA	Water	SM 2540D	
MB 280-570980/3	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-570980/1	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-570980/2	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 571090

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-11	W-9	Total/NA	Water	SM 2540C	
280-160467-12	W-12	Total/NA	Water	SM 2540C	
280-160467-13	W-14	Total/NA	Water	SM 2540C	
280-160467-14	W-16	Total/NA	Water	SM 2540C	
280-160467-15	MW-3	Total/NA	Water	SM 2540C	
280-160467-18	W-3EB	Total/NA	Water	SM 2540C	
MB 280-571090/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-571090/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-571090/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
280-160467-14 DU	W-16	Total/NA	Water	SM 2540C	

Analysis Batch: 571091

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-1	W-2A	Total/NA	Water	SM 2540C	
280-160467-2	W-2C	Total/NA	Water	SM 2540C	
280-160467-3	W-3	Total/NA	Water	SM 2540C	
280-160467-4	W-3B	Total/NA	Water	SM 2540C	
280-160467-5	W-5	Total/NA	Water	SM 2540C	
280-160467-6	W-5B	Total/NA	Water	SM 2540C	
280-160467-7	W-6	Total/NA	Water	SM 2540C	
280-160467-8	W-6B	Total/NA	Water	SM 2540C	
280-160467-9	W-6D	Total/NA	Water	SM 2540C	
280-160467-10	W-7	Total/NA	Water	SM 2540C	
MB 280-571091/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-571091/2	Lab Control Sample	Total/NA	Water	SM 2540C	
280-160467-13 DU	W-14	Total/NA	Water	SM 2540C	

Analysis Batch: 571245

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-1	W-2A	Total/NA	Water	SM 2320B	
280-160467-2	W-2C	Total/NA	Water	SM 2320B	
280-160467-3	W-3	Total/NA	Water	SM 2320B	
280-160467-4	W-3B	Total/NA	Water	SM 2320B	
MB 280-571245/58	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-571245/57	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 571533

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-18	W-3EB	Total/NA	Water	SM 2320B	

Analysis Batch: 571583

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-16	MW-5	Total/NA	Water	SM 2540C	
280-160467-17	W-11	Total/NA	Water	SM 2540C	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

General Chemistry (Continued)

Analysis Batch: 571583 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-571583/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-571583/2	Lab Control Sample	Total/NA	Water	SM 2540C	
280-160467-17 DU	W-11	Total/NA	Water	SM 2540C	

Analysis Batch: 571820

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-5	W-5	Total/NA	Water	SM 2320B	
280-160467-6	W-5B	Total/NA	Water	SM 2320B	
280-160467-7	W-6	Total/NA	Water	SM 2320B	
280-160467-8	W-6B	Total/NA	Water	SM 2320B	
280-160467-9	W-6D	Total/NA	Water	SM 2320B	
280-160467-10	W-7	Total/NA	Water	SM 2320B	
280-160467-11	W-9	Total/NA	Water	SM 2320B	
280-160467-12	W-12	Total/NA	Water	SM 2320B	
280-160467-13	W-14	Total/NA	Water	SM 2320B	
280-160467-14	W-16	Total/NA	Water	SM 2320B	
MB 280-571820/6	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-571820/4	Lab Control Sample	Total/NA	Water	SM 2320B	
LCSD 280-571820/5	Lab Control Sample Dup	Total/NA	Water	SM 2320B	

Analysis Batch: 571889

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-1	W-2A	Total/NA	Water	9040B	
280-160467-2	W-2C	Total/NA	Water	9040B	
280-160467-3	W-3	Total/NA	Water	9040B	
280-160467-4	W-3B	Total/NA	Water	9040B	
280-160467-5	W-5	Total/NA	Water	9040B	
280-160467-6	W-5B	Total/NA	Water	9040B	
280-160467-7	W-6	Total/NA	Water	9040B	
280-160467-8	W-6B	Total/NA	Water	9040B	
280-160467-9	W-6D	Total/NA	Water	9040B	
280-160467-10	W-7	Total/NA	Water	9040B	
280-160467-11	W-9	Total/NA	Water	9040B	
280-160467-12	W-12	Total/NA	Water	9040B	
280-160467-13	W-14	Total/NA	Water	9040B	
280-160467-14	W-16	Total/NA	Water	9040B	
280-160467-15	MW-3	Total/NA	Water	9040B	
280-160467-16	MW-5	Total/NA	Water	9040B	
280-160467-17	W-11	Total/NA	Water	9040B	
LCS 280-571889/4	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 571962

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-15	MW-3	Total/NA	Water	SM 2320B	
280-160467-16	MW-5	Total/NA	Water	SM 2320B	
280-160467-17	W-11	Total/NA	Water	SM 2320B	
MB 280-571962/5	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-571962/4	Lab Control Sample	Total/NA	Water	SM 2320B	
280-160467-15 DU	MW-3	Total/NA	Water	SM 2320B	

Eurofins Denver

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

General Chemistry

Analysis Batch: 571994

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-1	W-2A	Total/NA	Water	9056A	
280-160467-1	W-2A	Total/NA	Water	9056A	
280-160467-2	W-2C	Total/NA	Water	9056A	
280-160467-2	W-2C	Total/NA	Water	9056A	
280-160467-3	W-3	Total/NA	Water	9056A	
280-160467-3	W-3	Total/NA	Water	9056A	
280-160467-4	W-3B	Total/NA	Water	9056A	
280-160467-4	W-3B	Total/NA	Water	9056A	
280-160467-5	W-5	Total/NA	Water	9056A	
280-160467-5	W-5	Total/NA	Water	9056A	
280-160467-6	W-5B	Total/NA	Water	9056A	
280-160467-6	W-5B	Total/NA	Water	9056A	
280-160467-7	W-6	Total/NA	Water	9056A	
280-160467-7	W-6	Total/NA	Water	9056A	
280-160467-8	W-6B	Total/NA	Water	9056A	
280-160467-8	W-6B	Total/NA	Water	9056A	
280-160467-9	W-6D	Total/NA	Water	9056A	
280-160467-9	W-6D	Total/NA	Water	9056A	
280-160467-10	W-7	Total/NA	Water	9056A	
280-160467-10	W-7	Total/NA	Water	9056A	
280-160467-11	W-9	Total/NA	Water	9056A	
280-160467-11	W-9	Total/NA	Water	9056A	
280-160467-12	W-12	Total/NA	Water	9056A	
280-160467-12	W-12	Total/NA	Water	9056A	
280-160467-13	W-14	Total/NA	Water	9056A	
280-160467-13	W-14	Total/NA	Water	9056A	
280-160467-14	W-16	Total/NA	Water	9056A	
280-160467-14	W-16	Total/NA	Water	9056A	
280-160467-15	MW-3	Total/NA	Water	9056A	
280-160467-16	MW-5	Total/NA	Water	9056A	
280-160467-17	W-11	Total/NA	Water	9056A	
280-160467-17	W-11	Total/NA	Water	9056A	
280-160467-18	W-3EB	Total/NA	Water	9056A	
MB 280-571994/6	Method Blank	Total/NA	Water	9056A	
LCS 280-571994/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-571994/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-571994/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 572163

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-3	W-3	Total/NA	Water	9056A	
280-160467-6	W-5B	Total/NA	Water	9056A	
MB 280-572163/6	Method Blank	Total/NA	Water	9056A	
LCS 280-572163/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-572163/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-572163/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 572205

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-18	W-3EB	Total/NA	Water	9040B	
LCS 280-572205/4	Lab Control Sample	Total/NA	Water	9040B	

Eurofins Denver

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

General Chemistry

Analysis Batch: 572280

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-1	W-2A	Total/NA	Water	9056A	
280-160467-10	W-7	Total/NA	Water	9056A	
280-160467-11	W-9	Total/NA	Water	9056A	
280-160467-12	W-12	Total/NA	Water	9056A	
280-160467-13	W-14	Total/NA	Water	9056A	
280-160467-14	W-16	Total/NA	Water	9056A	
280-160467-15	MW-3	Total/NA	Water	9056A	
280-160467-16	MW-5	Total/NA	Water	9056A	
280-160467-16	MW-5	Total/NA	Water	9056A	
280-160467-17	W-11	Total/NA	Water	9056A	
280-160467-18	W-3EB	Total/NA	Water	9056A	
MB 280-572280/13	Method Blank	Total/NA	Water	9056A	
LCS 280-572280/11	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-572280/12	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-572280/10	Lab Control Sample	Total/NA	Water	9056A	
280-160467-11 MS	W-9	Total/NA	Water	9056A	
280-160467-11 MSD	W-9	Total/NA	Water	9056A	
280-160467-11 DU	W-9	Total/NA	Water	9056A	

Analysis Batch: 572399

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-2	W-2C	Total/NA	Water	9056A	
280-160467-4	W-3B	Total/NA	Water	9056A	
280-160467-5	W-5	Total/NA	Water	9056A	
280-160467-7	W-6	Total/NA	Water	9056A	
280-160467-8	W-6B	Total/NA	Water	9056A	
280-160467-9	W-6D	Total/NA	Water	9056A	
280-160467-15	MW-3	Total/NA	Water	9056A	
MB 280-572399/6	Method Blank	Total/NA	Water	9056A	
LCS 280-572399/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-572399/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-572399/3	Lab Control Sample	Total/NA	Water	9056A	

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Client Sample ID: W-2A

Date Collected: 03/31/22 10:20

Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	349372	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6010C		25			349734	04/11/22 15:27	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		200			350830	04/22/22 14:54	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			350746	04/22/22 01:43	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	350238	04/18/22 14:15	EAM	TAL CF
Total/NA	Analysis	7470A		1			350374	04/19/22 14:41	EAM	TAL CF
Total/NA	Analysis	9040B		1			571889	04/14/22 10:46	KEG	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	572280	04/19/22 15:19	RAF	TAL DEN
Total/NA	Analysis	9056A		20	10 mL	10 mL	571994	04/15/22 17:10	RAF	TAL DEN
Total/NA	Analysis	9056A		1000	10 mL	10 mL	571994	04/15/22 17:25	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			571245	04/07/22 22:01	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	571091	04/07/22 11:51	LRB	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	570875	04/05/22 16:36	SVC	TAL DEN

Client Sample ID: W-2C

Date Collected: 03/31/22 10:40

Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	349372	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6010C		25			349734	04/12/22 10:20	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		100			350830	04/22/22 15:25	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			350746	04/22/22 01:56	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	350238	04/18/22 14:15	EAM	TAL CF
Total/NA	Analysis	7470A		1			350374	04/19/22 14:44	EAM	TAL CF
Total/NA	Analysis	9040B		1			571889	04/14/22 10:50	KEG	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	572399	04/20/22 12:46	RAF	TAL DEN
Total/NA	Analysis	9056A		20	10 mL	10 mL	571994	04/15/22 17:40	RAF	TAL DEN
Total/NA	Analysis	9056A		500	10 mL	10 mL	571994	04/15/22 17:55	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			571245	04/07/22 22:09	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	571091	04/07/22 11:51	LRB	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	570875	04/05/22 16:36	SVC	TAL DEN

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Client Sample ID: W-3

Date Collected: 03/31/22 12:30

Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	349372	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6010C		1			349734	04/11/22 15:39	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			350830	04/22/22 15:29	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			350746	04/22/22 02:00	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	350238	04/18/22 14:15	EAM	TAL CF
Total/NA	Analysis	7470A		1			350374	04/19/22 14:50	EAM	TAL CF
Total/NA	Analysis	9040B		1			571889	04/14/22 10:54	KEG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	572163	04/18/22 18:14	RAF	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	571994	04/15/22 18:10	RAF	TAL DEN
Total/NA	Analysis	9056A		200	10 mL	10 mL	571994	04/15/22 18:25	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			571245	04/07/22 22:15	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	571091	04/07/22 11:51	LRB	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	570875	04/05/22 16:36	SVC	TAL DEN

Client Sample ID: W-3B

Date Collected: 03/31/22 13:35

Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	349372	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6010C		25			349734	04/12/22 10:22	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		100			350830	04/22/22 15:33	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			350746	04/22/22 02:16	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	350238	04/18/22 14:15	EAM	TAL CF
Total/NA	Analysis	7470A		1			350374	04/19/22 14:52	EAM	TAL CF
Total/NA	Analysis	9040B		1			571889	04/14/22 10:58	KEG	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	572399	04/20/22 13:02	RAF	TAL DEN
Total/NA	Analysis	9056A		20	10 mL	10 mL	571994	04/15/22 19:10	RAF	TAL DEN
Total/NA	Analysis	9056A		1000	10 mL	10 mL	571994	04/15/22 19:25	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			571245	04/07/22 22:25	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	571091	04/07/22 11:51	LRB	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	570875	04/05/22 16:36	SVC	TAL DEN

Eurofins Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Client Sample ID: W-5

Date Collected: 03/30/22 14:20

Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	349372	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6010C		25			349734	04/12/22 10:24	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		100			350830	04/22/22 15:37	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			350746	04/22/22 02:19	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	350238	04/18/22 14:15	EAM	TAL CF
Total/NA	Analysis	7470A		1			350374	04/19/22 14:54	EAM	TAL CF
Total/NA	Analysis	9040B		1			571889	04/14/22 11:01	KEG	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	572399	04/20/22 13:18	RAF	TAL DEN
Total/NA	Analysis	9056A		20	10 mL	10 mL	571994	04/15/22 19:40	RAF	TAL DEN
Total/NA	Analysis	9056A		500	10 mL	10 mL	571994	04/15/22 19:55	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			571820	04/13/22 14:55	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	571091	04/07/22 11:51	LRB	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	570875	04/05/22 16:36	SVC	TAL DEN

Client Sample ID: W-5B

Date Collected: 03/30/22 15:45

Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	349372	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6010C		2			349734	04/12/22 10:55	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			350830	04/22/22 15:41	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			350746	04/22/22 02:23	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	350238	04/18/22 14:15	EAM	TAL CF
Total/NA	Analysis	7470A		1			350374	04/19/22 14:56	EAM	TAL CF
Total/NA	Analysis	9040B		1			571889	04/14/22 11:05	KEG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	572163	04/18/22 19:18	RAF	TAL DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	571994	04/15/22 20:10	RAF	TAL DEN
Total/NA	Analysis	9056A		50	10 mL	10 mL	571994	04/15/22 20:25	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			571820	04/13/22 15:00	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	571091	04/07/22 11:51	LRB	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	570875	04/05/22 16:36	SVC	TAL DEN

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Client Sample ID: W-6

Date Collected: 03/30/22 10:40

Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	349372	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6010C		3			349734	04/12/22 10:57	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			350830	04/22/22 15:45	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			350746	04/22/22 02:26	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	350238	04/18/22 14:15	EAM	TAL CF
Total/NA	Analysis	7470A		1			350374	04/19/22 14:59	EAM	TAL CF
Total/NA	Analysis	9040B		1			571889	04/14/22 11:09	KEG	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	572399	04/20/22 13:33	RAF	TAL DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	571994	04/15/22 20:40	RAF	TAL DEN
Total/NA	Analysis	9056A		50	10 mL	10 mL	571994	04/15/22 20:55	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			571820	04/13/22 15:10	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	571091	04/07/22 11:51	LRB	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	570875	04/05/22 16:36	SVC	TAL DEN

Client Sample ID: W-6B

Date Collected: 03/30/22 12:35

Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	349372	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6010C		25			349734	04/12/22 10:29	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		100			350830	04/22/22 15:49	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			350746	04/22/22 02:29	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	350238	04/18/22 14:15	EAM	TAL CF
Total/NA	Analysis	7470A		1			350374	04/19/22 15:01	EAM	TAL CF
Total/NA	Analysis	9040B		1			571889	04/14/22 11:13	KEG	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	572399	04/20/22 13:49	RAF	TAL DEN
Total/NA	Analysis	9056A		10	10 mL	10 mL	571994	04/15/22 21:10	RAF	TAL DEN
Total/NA	Analysis	9056A		500	10 mL	10 mL	571994	04/15/22 21:26	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			571820	04/13/22 15:20	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	571091	04/07/22 11:51	LRB	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	570875	04/05/22 16:36	SVC	TAL DEN

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Client Sample ID: W-6D

Lab Sample ID: 280-160467-9

Date Collected: 03/30/22 10:40

Matrix: Water

Date Received: 04/02/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	349372	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6010C		3			349734	04/12/22 10:59	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			350830	04/22/22 15:52	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			350746	04/22/22 02:33	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	350238	04/18/22 14:15	EAM	TAL CF
Total/NA	Analysis	7470A		1			350374	04/19/22 15:07	EAM	TAL CF
Total/NA	Analysis	9040B		1			571889	04/14/22 11:20	KEG	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	572399	04/20/22 14:05	RAF	TAL DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	571994	04/15/22 22:11	RAF	TAL DEN
Total/NA	Analysis	9056A		50	10 mL	10 mL	571994	04/15/22 22:26	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			571820	04/13/22 15:29	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	571091	04/07/22 11:51	LRB	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	570875	04/05/22 16:36	SVC	TAL DEN

Client Sample ID: W-7

Lab Sample ID: 280-160467-10

Date Collected: 03/31/22 17:30

Matrix: Water

Date Received: 04/02/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	349372	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6010C		25			349734	04/12/22 10:33	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		100			350830	04/22/22 16:12	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		200			350830	04/22/22 16:24	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			350746	04/22/22 02:36	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	350238	04/18/22 14:15	EAM	TAL CF
Total/NA	Analysis	7470A		1			350374	04/19/22 15:09	EAM	TAL CF
Total/NA	Analysis	9040B		1			571889	04/14/22 11:22	KEG	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	572280	04/19/22 20:04	RAF	TAL DEN
Total/NA	Analysis	9056A		10	10 mL	10 mL	571994	04/15/22 23:41	RAF	TAL DEN
Total/NA	Analysis	9056A		500	10 mL	10 mL	571994	04/15/22 23:56	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			571820	04/13/22 15:41	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	571091	04/07/22 11:51	LRB	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	570875	04/05/22 16:36	SVC	TAL DEN

Eurofins Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Client Sample ID: W-9

Date Collected: 03/31/22 14:50

Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-11

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	349372	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6010C		6			349734	04/12/22 10:35	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		100			350830	04/22/22 16:16	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			350746	04/22/22 02:39	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	350238	04/18/22 14:15	EAM	TAL CF
Total/NA	Analysis	7470A		1			350374	04/19/22 15:11	EAM	TAL CF
Total/NA	Analysis	9040B		1			571889	04/14/22 11:26	KEG	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	572280	04/19/22 20:36	RAF	TAL DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	571994	04/16/22 00:11	RAF	TAL DEN
Total/NA	Analysis	9056A		100	10 mL	10 mL	571994	04/16/22 00:26	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			571820	04/13/22 15:49	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	571090	04/07/22 11:50	LRB	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	570875	04/05/22 16:36	SVC	TAL DEN

Client Sample ID: W-12

Date Collected: 04/01/22 12:30

Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-12

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	349372	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6010C		10			349734	04/12/22 11:01	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		100			350830	04/22/22 16:28	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			350746	04/22/22 02:46	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	350238	04/18/22 14:15	EAM	TAL CF
Total/NA	Analysis	7470A		1			350374	04/19/22 15:14	EAM	TAL CF
Total/NA	Analysis	9040B		1			571889	04/14/22 11:30	KEG	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	572280	04/19/22 22:11	RAF	TAL DEN
Total/NA	Analysis	9056A		10	10 mL	10 mL	571994	04/16/22 01:10	RAF	TAL DEN
Total/NA	Analysis	9056A		200	10 mL	10 mL	571994	04/16/22 01:25	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			571820	04/13/22 16:03	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	571090	04/07/22 11:50	LRB	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	570875	04/05/22 16:36	SVC	TAL DEN

Eurofins Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Client Sample ID: W-14

Date Collected: 04/01/22 12:40

Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-13

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	349372	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6010C		8			349734	04/12/22 10:45	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		100			350830	04/22/22 16:36	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			350746	04/22/22 03:02	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	350495	04/20/22 13:34	EAM	TAL CF
Total/NA	Analysis	7470A		1			350701	04/21/22 12:17	EAM	TAL CF
Total/NA	Analysis	9040B		1			571889	04/14/22 11:34	KEG	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	572280	04/19/22 22:27	RAF	TAL DEN
Total/NA	Analysis	9056A		10	10 mL	10 mL	571994	04/16/22 01:40	RAF	TAL DEN
Total/NA	Analysis	9056A		100	10 mL	10 mL	571994	04/16/22 01:55	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			571820	04/13/22 16:16	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	571090	04/07/22 11:50	LRB	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	570875	04/05/22 16:36	SVC	TAL DEN

Client Sample ID: W-16

Date Collected: 04/01/22 10:50

Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-14

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	349372	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6010C		6			349734	04/12/22 10:47	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		100			350830	04/22/22 16:40	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			350746	04/22/22 03:05	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	350495	04/20/22 13:34	EAM	TAL CF
Total/NA	Analysis	7470A		1			350701	04/21/22 12:19	EAM	TAL CF
Total/NA	Analysis	9040B		1			571889	04/14/22 11:38	KEG	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	572280	04/19/22 22:43	RAF	TAL DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	571994	04/16/22 02:10	RAF	TAL DEN
Total/NA	Analysis	9056A		100	10 mL	10 mL	571994	04/16/22 02:25	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			571820	04/13/22 16:25	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	571090	04/07/22 11:50	LRB	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	570875	04/05/22 16:36	SVC	TAL DEN

Eurofins Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Client Sample ID: MW-3

Date Collected: 03/29/22 11:45

Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-15

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	349372	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6010C		25			349734	04/12/22 10:49	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			350830	04/22/22 16:44	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			350746	04/22/22 03:09	SAP	TAL CF
Total/NA	Analysis	9040B		1			571889	04/14/22 11:42	KEG	TAL DEN
Total/NA	Analysis	9056A		500	5 mL	5 mL	572280	04/19/22 23:15	RAF	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	572399	04/20/22 14:21	RAF	TAL DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	571994	04/16/22 02:40	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			571962	04/14/22 15:39	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	571090	04/07/22 11:50	LRB	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	570875	04/05/22 16:36	SVC	TAL DEN

Client Sample ID: MW-5

Date Collected: 03/31/22 15:45

Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-16

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	349372	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6010C		10			349734	04/12/22 10:51	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		100			350830	04/22/22 16:47	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			350746	04/22/22 03:12	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	350495	04/20/22 13:34	EAM	TAL CF
Total/NA	Analysis	7470A		1			350701	04/21/22 12:21	EAM	TAL CF
Total/NA	Analysis	9040B		1			571889	04/14/22 11:46	KEG	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	572280	04/19/22 23:31	RAF	TAL DEN
Total/NA	Analysis	9056A		200	5 mL	5 mL	572280	04/19/22 23:46	RAF	TAL DEN
Total/NA	Analysis	9056A		20	10 mL	10 mL	571994	04/16/22 03:10	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			571962	04/14/22 16:03	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	571583	04/12/22 10:46	LRB	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	570875	04/05/22 16:36	SVC	TAL DEN

Client Sample ID: W-11

Date Collected: 04/01/22 11:00

Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-17

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	349372	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6010C		7			349734	04/12/22 10:53	CTB	TAL CF

Eurofins Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Client Sample ID: W-11

Date Collected: 04/01/22 11:00

Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-17

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		100			350830	04/22/22 16:51	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			350746	04/22/22 03:15	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	350495	04/20/22 13:34	EAM	TAL CF
Total/NA	Analysis	7470A		1			350701	04/21/22 12:28	EAM	TAL CF
Total/NA	Analysis	9040B		1			571889	04/14/22 11:49	KEG	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	572280	04/20/22 00:02	RAF	TAL DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	571994	04/16/22 03:25	RAF	TAL DEN
Total/NA	Analysis	9056A		200	10 mL	10 mL	571994	04/16/22 04:10	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			571962	04/14/22 16:14	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	571583	04/12/22 10:46	LRB	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	570875	04/05/22 16:36	SVC	TAL DEN

Client Sample ID: W-3EB

Date Collected: 03/31/22 13:15

Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-18

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	349372	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6010C		1			349734	04/11/22 16:15	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			350830	04/22/22 17:13	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	ACM2	TAL CF
Total Recoverable	Analysis	6020A		10			350746	04/22/22 03:19	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	350495	04/20/22 13:34	EAM	TAL CF
Total/NA	Analysis	7470A		1			350701	04/21/22 12:30	EAM	TAL CF
Total/NA	Analysis	9040B		1			572205	04/18/22 12:04	KEG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	572280	04/20/22 00:50	RAF	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	571994	04/16/22 04:25	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			571533	04/12/22 03:01	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	571090	04/07/22 11:50	LRB	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	570980	04/06/22 14:29	ABW	TAL DEN

Laboratory References:

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

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

Eurofins Denver

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-1

Laboratory: Eurofins Denver

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

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-23

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
9040B		Water	Temperature

Laboratory: Eurofins Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Colorado	Petroleum Storage Tank Program	IA100001 (OR)	09-29-22
Georgia	State	IA100001 (OR)	09-29-22
Illinois	NELAP	200024	11-29-22
Iowa	State	007	12-01-21 *
Kansas	NELAP	E-10341	01-31-23
Minnesota	NELAP	019-999-319	12-31-22
Minnesota (Petrofund)	State	3349	01-18-24
North Dakota	State	R-186	09-29-22
Oregon	NELAP	IA100001	09-29-22

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

Chain of Custody Record

Client Information		Sampler: <u>Kent J. F. Davis</u>		Lab PM: <u>Harrington, Danielle M</u>		Carrier Tracking No(s): <u>280-110862-32017.2</u>	
Client Contact: <u>Molly Reeves</u>		Phone: <u>7209337496</u>		E-Mail: <u>Danielle.Harrington@Eurofinset.com</u>		State of Origin: <u>CO</u>	
Company: <u>HDR Inc</u>		PWSID: <u>7209337496</u>		Analysis Requested		Page: <u>1</u> of 2	
Address: <u>1670 Broadway Suite 3400</u>		Due Date Requested: <u>std</u>		Total Number of Containers: <u>5</u>		Job #: <u>1</u>	
City: <u>Denver</u>		TAT Requested (days): <u>std</u>		Field Filtered Sample (Yes or No)		Preservation Codes:	
State, Zip: <u>CO, 80202</u>		Compliance Project: <u>Δ Yes Δ No</u>		6010C, 6020A, 7470A Dissolved Metals - Canton		A - HCL	
Phone: <u>734-263-7138(Tel)</u>		PO #: <u>DEN-021</u>		7320B alkalinity, 9040B pH, 9056A_28DCchloride, Fluoride, Sulfate		M - Hexane	
Email: <u>Molly.Reeves@hdrinc.com</u>		WO #: <u>28014376</u>		6010C, 6020A, 7470A Dissolved Metals - Canton		N - None	
Project Name: <u>Xcel Energy GW CCR Monitoring - Comanche</u>		Project #: <u>28014376</u>		Perform MS/MSD (Yes or No)		O - AshNaO2	
Site: <u>COLORADO</u>		SSOW#: <u></u>		Field Filtered Sample (Yes or No)		P - Na2O4S	
Groundwater- CCR (App III and App IV)		Sample Date		Sample Time		Q - Na2SO3	
Sample Identification		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=soil, A=air)		R - Na2SO3	
W-2A		G		Water		S - H2SO4	
W-2C		G		Water		T - TSP Dodecahydrate	
W-3		G		W		U - Acetone	
W-3B		G		W		V - MCAA	
W-5		G		W		W - pH 4-5	
W-5B		G		W		L - EDA	
W-6		G		W		Z - other (specify)	
W-6B		G		W		Other:	
W-6D		G		W		Special Instructions/Note:	
W-7		G		W		280-160467 Chain of Custody	
W-9		G		W		Barcode	
Possible Hazard Identification		Poison B		Radiological		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	
Non-Hazard		Flammable		Skin Irritant		Return To Client	
Deliverable Requested: I, II, III, IV, Other (specify)		Unknown		Empty Kit Relinquished by:		Archive For Months	
Empty Kit Relinquished by:		Date:		Time:		Special Instructions/QC Requirements:	
Relinquished by: <u>T. A. Kent</u>		Date: <u>2 April 2022</u>		Time: <u>0915</u>		Method of Shipment:	
Relinquished by:		Date:		Time:		Received by: <u>HTD R</u>	
Relinquished by:		Date:		Time:		Received by:	
Custody Seals Intact: <u>Δ Yes Δ No</u>		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: <u>26.0, 26.7, 26.8, 26.1, 26.2, 26.1</u>		Company: <u>HTA DEN</u>	

[illegible]



Environment Testing
America



280-160467 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client <u>Dewer</u>			
City/State	CITY	STATE	Project
		<u>CO</u>	
Receipt Information			
Date/Time Received	DATE	TIME	Received By
	<u>4/5/22</u>	<u>0945</u>	<u>N</u>
Delivery Type ☐ UPS ☒ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee			
☐ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?	☒ Yes ☐ No	If yes Cooler ID	
Multiple Coolers?	☐ Yes ☒ No	If yes Cooler # _____ of _____	
Cooler Custody Seals Present?	☒ Yes ☐ No	If yes Cooler custody seals intact? ☒ Yes ☐ No	
Sample Custody Seals Present?	☐ Yes ☒ No	If yes Sample custody seals intact? ☐ Yes ☐ No	
Trip Blank Present?	☐ Yes ☒ No	If yes Which VOA samples are in cooler? ↓	
Temperature Record			
Coolant	☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other _____	☒ NONE	
Thermometer ID	<u>N</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>12.4</u>	Corrected Temp (°C) <u>12.4</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? ☐ Yes ☐ No			
a) If yes Is there evidence that the chilling process began? ☐ Yes ☐ No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No			
NOTE If yes, contact PM before proceeding If no, proceed with login			
Additional Comments			

Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler	Lab P/N:	Carrier Tracking No(s):	COC No:							
Client Contact Shipping/Receiving		Phone:	Harrington, Danielle M		280-609071.2							
Company: Eurofins Environment Testing North Centr		E-mail:	Danielle.Harrington@Eurofins.com	State of Origin: Colorado	Page: Page 2 of 2							
Address: 3019 Venture Way		Due Date Requested: 4/21/2022	Job #: 280-160467-1									
City: Cedar Falls		TAT Requested (days):	Preservation Codes:									
State, Zip: IA, 50613		PO #:	A HCL M Hexane B NaOH N None C Zn Acetate O AsNaO2 D Nitric Acid P Na2O4S E NaHSO4 Q Na2SO3 F MeOH R Na2S2O3 G Anhydrous S H2SO4 H Ascorbic Acid T TSP Dodecahydrate I Ice U Acetone J DI Water V MCAA K EDTA W pH 4-5 L EDA Z other (specify) Other									
Project Name: Xcel Energy GW CCR Monitoring Comanche		WO #:										
Site: Xcel Energy CCR Comanche Station		Project #: 28014376										
		SSOW#:										
Sample Identification	Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=Water, S=solid, O=other)	Field Filled Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020A/3005A (MOD) 13 Total Metals (w/collision cell)	6010C/3005A (MOD) Boron	7470A/7470A Prep Mercury	Total Number of Containers	Special Instructions/Note:
W-7 (280-160467-10)		3/31/22	17:30 Mountain	Water	Water	X	X	X	X		1	
W-9 (280-160467-11)		3/31/22	14:50 Mountain	Water	Water	X	X	X	X		1	
W-12 (280-160467-12)		3/31/22	12:30 Mountain	Water	Water	X	X	X	X		1	
W-14 (280-160467-13)		3/31/22	12:40 Mountain	Water	Water	X	X	X	X		1	
W-16 (280-160467-14)		3/31/22	10:50 Mountain	Water	Water	X	X	X	X		1	
MW-5 (280-160467-16)		3/31/22	15:45 Mountain	Water	Water	X	X	X	X		1	
W-11 (280-160467-17)		3/31/22	11:00 Mountain	Water	Water	X	X	X	X		1	
W-3EB (280-160467-18)		3/31/22	13:15 Mountain	Water	Water	X	X	X	X		1	

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

Possible Hazard Identification

Unconfirmed
Deliverable Requested: I, II, III, IV Other (specify) _____ Primary Deliverable Rank: 2

Special Instructions/QC Requirements:

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

Empty Kit Relinquished by: _____ Date: _____ Time: _____ Method of Shipment: _____

Relinquished by: *Danielle Harrington* Date: *4/12/22* Time: *0945* Company: *Company*

Relinquished by: _____ Date: _____ Time: _____ Company: _____

Relinquished by: _____ Date: _____ Time: _____ Company: _____

Custody Seals Intact: _____ Custody Seal No. _____ Cooler Temperature(s) °C and Other Remarks: _____



Environment Testing
America



280-160467 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client <u>Denver</u>			
City/State	CITY	STATE	Project
		<u>CO</u>	
Receipt Information			
Date/Time Received	DATE	TIME	Received By
	<u>4-8-22</u>	<u>935</u>	<u>[Signature]</u>
Delivery Type ☐ UPS ☒ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee			
☐ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler? ☒ Yes ☐ No If yes Cooler ID _____			
Multiple Coolers? ☐ Yes ☒ No If yes Cooler # _____ of _____			
Cooler Custody Seals Present? ☒ Yes ☐ No If yes Cooler custody seals intact? ☒ Yes ☐ No			
Sample Custody Seals Present? ☐ Yes ☒ No If yes Sample custody seals intact? ☐ Yes ☐ No			
Trip Blank Present? ☐ Yes ☒ No If yes Which VOA samples are in cooler? ↓			
Temperature Record			
Coolant ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other _____ ☐ NONE			
Thermometer ID		Correction Factor (°C)	
<u>0</u>		<u>0</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C)		Corrected Temp (°C)	
<u>0.9</u>		<u>0.9</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? ☐ Yes ☐ No			
a) If yes Is there evidence that the chilling process began? ☐ Yes ☐ No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No			
NOTE: If yes, contact PM before proceeding If no, proceed with login			
Additional Comments			



Chain of Custody Record

[illegible]

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-160467-1

Login Number: 160467

List Number: 1

Creator: Rystrom, Joshua R

List Source: Eurofins Denver

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

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-160467-1

Login Number: 160467

List Number: 2

Creator: Homolar, Dana J

List Source: Eurofins Cedar Falls

List Creation: 04/05/22 01:45 PM

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?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-160467-1

Login Number: 160467

List Number: 4

Creator: Kizer, Preston V

List Source: Eurofins Cedar Falls

List Creation: 04/08/22 12:58 PM

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.	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?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

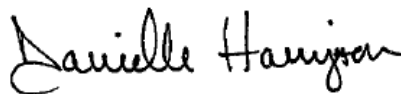
Laboratory Job ID: 280-160467-2

Client Project/Site: Xcel Energy GW CCR Monitoring -
Comanche

For:

HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Attn: Molly Reeves



Authorized for release by:
5/6/2022 4:09:56 PM

Danielle Harrington, Project Manager II
(303)736-0176
Danielle.Harrington@et.eurofinsus.com

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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-2

Qualifiers

Rad

Qualifier	Qualifier Description
G	The Sample MDC is greater than the requested RL.
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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-2

Job ID: 280-160467-2

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-160467-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 04/02/2022; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt were 0.7°C, 0.7°C, 0.8°C, 0.9°C, 0.9°C and 1.2°C

The laboratory received these sample with a pH>2, so an additionaly 1mL of nitric to preserve them to a pH <2.

W-2A (280-160467-1), W-2C (280-160467-2), W-3 (280-160467-3), W-3B (280-160467-4), W-5 (280-160467-5), W-5B (280-160467-6), W-6 (280-160467-7), W-6B (280-160467-8), W-6D (280-160467-9), W-7 (280-160467-10), W-9 (280-160467-11), W-12 (280-160467-12), W-14 (280-160467-13), W-16 (280-160467-14), MW-3 (280-160467-15), MW-5 (280-160467-16), W-11 (280-160467-17) and W-3EB (280-160467-18)

RADIUM-226 (GFPC)- Method 9315

Method 9315_Ra226: Radium-228 Prep Batch 160-5593018: The following samples were prepared at a reduced aliquot due to Matrix: W-6B (280-160467-8), W-7 (280-160467-10), W-12 (280-160467-12), W-14 (280-160467-13), MW-5 (280-160467-16) and W-11 (280-160467-17).

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

RADIUM-228-Methd 9320

Method 9320_Ra228: Radium-228 Prep Batch 160-5593018: The following samples were prepared at a reduced aliquot due to Matrix: W-6B (280-160467-8), W-7 (280-160467-10), W-12 (280-160467-12), W-14 (280-160467-13), MW-5 (280-160467-16) and W-11 (280-160467-17).

Method 9320_Ra228: Radium 228 batch 559318 The detection goal was not met for the following sample(s). Samples were prepped at a reduced volume due to the presence of matrix interferences: MW-5 (280-160467-16) and W-11 (280-160467-17). Analytical results are reported with the detection limit achieved.

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

RADIUM-226/RADIUM-228 (GFPC)

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

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-2

Client Sample ID: W-2A	Lab Sample ID: 280-160467-1
☐ No Detections.	
Client Sample ID: W-2C	Lab Sample ID: 280-160467-2
☐ No Detections.	
Client Sample ID: W-3	Lab Sample ID: 280-160467-3
☐ No Detections.	
Client Sample ID: W-3B	Lab Sample ID: 280-160467-4
☐ No Detections.	
Client Sample ID: W-5	Lab Sample ID: 280-160467-5
☐ No Detections.	
Client Sample ID: W-5B	Lab Sample ID: 280-160467-6
☐ No Detections.	
Client Sample ID: W-6	Lab Sample ID: 280-160467-7
☐ No Detections.	
Client Sample ID: W-6B	Lab Sample ID: 280-160467-8
☐ No Detections.	
Client Sample ID: W-6D	Lab Sample ID: 280-160467-9
☐ No Detections.	
Client Sample ID: W-7	Lab Sample ID: 280-160467-10
☐ No Detections.	
Client Sample ID: W-9	Lab Sample ID: 280-160467-11
☐ No Detections.	
Client Sample ID: W-12	Lab Sample ID: 280-160467-12
☐ No Detections.	
Client Sample ID: W-14	Lab Sample ID: 280-160467-13
☐ No Detections.	
Client Sample ID: W-16	Lab Sample ID: 280-160467-14
☐ No Detections.	
Client Sample ID: MW-5	Lab Sample ID: 280-160467-16
☐ No Detections.	
Client Sample ID: W-11	Lab Sample ID: 280-160467-17
☐ No Detections.	

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-2

Client Sample ID: W-3EB

Lab Sample ID: 280-160467-18

No Detections.

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Method Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-2

Method	Method Description	Protocol	Laboratory
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

Protocol References:

None = None

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:

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

Sample Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-160467-1	W-2A	Water	03/31/22 10:20	04/02/22 09:15
280-160467-2	W-2C	Water	03/31/22 10:40	04/02/22 09:15
280-160467-3	W-3	Water	03/31/22 12:30	04/02/22 09:15
280-160467-4	W-3B	Water	03/31/22 13:35	04/02/22 09:15
280-160467-5	W-5	Water	03/30/22 14:20	04/02/22 09:15
280-160467-6	W-5B	Water	03/30/22 15:45	04/02/22 09:15
280-160467-7	W-6	Water	03/30/22 10:40	04/02/22 09:15
280-160467-8	W-6B	Water	03/30/22 12:35	04/02/22 09:15
280-160467-9	W-6D	Water	03/30/22 10:40	04/02/22 09:15
280-160467-10	W-7	Water	03/31/22 17:30	04/02/22 09:15
280-160467-11	W-9	Water	03/31/22 14:50	04/02/22 09:15
280-160467-12	W-12	Water	04/01/22 12:30	04/02/22 09:15
280-160467-13	W-14	Water	04/01/22 12:40	04/02/22 09:15
280-160467-14	W-16	Water	04/01/22 10:50	04/02/22 09:15
280-160467-16	MW-5	Water	03/31/22 15:45	04/02/22 09:15
280-160467-17	W-11	Water	04/01/22 11:00	04/02/22 09:15
280-160467-18	W-3EB	Water	03/31/22 13:15	04/02/22 09:15

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-2

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: W-2A
Date Collected: 03/31/22 10:20
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.74		0.480	0.504	1.00	0.424	pCi/L	04/07/22 13:02	04/29/22 11:32	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	84.6		40 - 110					04/07/22 13:02	04/29/22 11:32	1

Client Sample ID: W-2C
Date Collected: 03/31/22 10:40
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.38		0.421	0.439	1.00	0.372	pCi/L	04/07/22 13:02	04/29/22 11:32	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	84.6		40 - 110					04/07/22 13:02	04/29/22 11:32	1

Client Sample ID: W-3
Date Collected: 03/31/22 12:30
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.142	U	0.271	0.271	1.00	0.588	pCi/L	04/07/22 13:02	04/29/22 11:32	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	76.1		40 - 110					04/07/22 13:02	04/29/22 11:32	1

Client Sample ID: W-3B
Date Collected: 03/31/22 13:35
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	4.41		0.731	0.832	1.00	0.444	pCi/L	04/07/22 13:02	04/29/22 11:33	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	76.6		40 - 110					04/07/22 13:02	04/29/22 11:33	1

Client Sample ID: W-5
Date Collected: 03/30/22 14:20
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.551		0.311	0.315	1.00	0.412	pCi/L	04/07/22 13:02	04/29/22 14:10	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.1		40 - 110					04/07/22 13:02	04/29/22 14:10	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-2

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: W-5B
Date Collected: 03/30/22 15:45
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.634		0.312	0.318	1.00	0.385	pCi/L	04/07/22 13:02	04/29/22 14:11	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.8		40 - 110					04/07/22 13:02	04/29/22 14:11	1

Client Sample ID: W-6
Date Collected: 03/30/22 10:40
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.187	U	0.214	0.215	1.00	0.347	pCi/L	04/07/22 13:02	04/29/22 14:11	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.8		40 - 110					04/07/22 13:02	04/29/22 14:11	1

Client Sample ID: W-6B
Date Collected: 03/30/22 12:35
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	2.72		0.588	0.637	1.00	0.456	pCi/L	04/08/22 12:02	05/05/22 17:42	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.1		40 - 110					04/08/22 12:02	05/05/22 17:42	1

Client Sample ID: W-6D
Date Collected: 03/30/22 10:40
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.386	U	0.314	0.316	1.00	0.477	pCi/L	04/07/22 13:02	04/29/22 14:11	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.8		40 - 110					04/07/22 13:02	04/29/22 14:11	1

Client Sample ID: W-7
Date Collected: 03/31/22 17:30
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-10
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	2.00		0.500	0.532	1.00	0.400	pCi/L	04/08/22 12:02	05/05/22 17:42	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.0		40 - 110					04/08/22 12:02	05/05/22 17:42	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-2

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: W-9
Date Collected: 03/31/22 14:50
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-11
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.07		0.459	0.469	1.00	0.531	pCi/L	04/07/22 13:02	04/29/22 14:12	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	60.0		40 - 110					04/07/22 13:02	04/29/22 14:12	1

Client Sample ID: W-12
Date Collected: 04/01/22 12:30
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-12
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.848		0.370	0.378	1.00	0.430	pCi/L	04/08/22 12:02	05/05/22 17:42	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.3		40 - 110					04/08/22 12:02	05/05/22 17:42	1

Client Sample ID: W-14
Date Collected: 04/01/22 12:40
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-13
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.01		0.406	0.416	1.00	0.465	pCi/L	04/08/22 12:02	05/05/22 17:42	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.6		40 - 110					04/08/22 12:02	05/05/22 17:42	1

Client Sample ID: W-16
Date Collected: 04/01/22 10:50
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-14
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.702		0.352	0.358	1.00	0.442	pCi/L	04/07/22 13:02	04/29/22 14:12	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	84.1		40 - 110					04/07/22 13:02	04/29/22 14:12	1

Client Sample ID: MW-5
Date Collected: 03/31/22 15:45
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-16
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.235	U	0.300	0.300	1.00	0.498	pCi/L	04/08/22 12:02	05/05/22 17:43	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	74.1		40 - 110					04/08/22 12:02	05/05/22 17:43	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-2

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: W-11
Date Collected: 04/01/22 11:00
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-17
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.61		0.562	0.580	1.00	0.575	pCi/L	04/08/22 12:02	05/05/22 17:40	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	62.2		40 - 110					04/08/22 12:02	05/05/22 17:40	1

Client Sample ID: W-3EB
Date Collected: 03/31/22 13:15
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-18
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.105	U	0.109	0.109	1.00	0.282	pCi/L	04/07/22 13:02	04/29/22 14:14	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.5		40 - 110					04/07/22 13:02	04/29/22 14:14	1

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: W-2A
Date Collected: 03/31/22 10:20
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	4.07		0.583	0.692	1.00	0.512	pCi/L	04/07/22 13:31	04/28/22 17:23	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	84.6		40 - 110					04/07/22 13:31	04/28/22 17:23	1
Y Carrier	88.6		40 - 110					04/07/22 13:31	04/28/22 17:23	1

Client Sample ID: W-2C
Date Collected: 03/31/22 10:40
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	3.34		0.561	0.639	1.00	0.574	pCi/L	04/07/22 13:31	04/28/22 17:24	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	84.6		40 - 110					04/07/22 13:31	04/28/22 17:24	1
Y Carrier	87.5		40 - 110					04/07/22 13:31	04/28/22 17:24	1

Client Sample ID: W-3
Date Collected: 03/31/22 12:30
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.393	U	0.438	0.439	1.00	0.719	pCi/L	04/07/22 13:31	04/28/22 17:24	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-2

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	76.1		40 - 110	04/07/22 13:31	04/28/22 17:24	1
Y Carrier	88.2		40 - 110	04/07/22 13:31	04/28/22 17:24	1

Client Sample ID: W-3B
Date Collected: 03/31/22 13:35
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	8.25		0.852	1.14	1.00	0.645	pCi/L	04/07/22 13:31	04/28/22 17:24	1
Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac				
Ba Carrier	76.6		40 - 110	04/07/22 13:31	04/28/22 17:24	1				
Y Carrier	86.0		40 - 110	04/07/22 13:31	04/28/22 17:24	1				

Client Sample ID: W-5
Date Collected: 03/30/22 14:20
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.47		0.399	0.421	1.00	0.479	pCi/L	04/07/22 13:31	04/28/22 17:24	1
Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac				
Ba Carrier	89.1		40 - 110	04/07/22 13:31	04/28/22 17:24	1				
Y Carrier	86.7		40 - 110	04/07/22 13:31	04/28/22 17:24	1				

Client Sample ID: W-5B
Date Collected: 03/30/22 15:45
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.51		0.396	0.420	1.00	0.474	pCi/L	04/07/22 13:31	04/28/22 17:24	1
Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac				
Ba Carrier	91.8		40 - 110	04/07/22 13:31	04/28/22 17:24	1				
Y Carrier	88.6		40 - 110	04/07/22 13:31	04/28/22 17:24	1				

Client Sample ID: W-6
Date Collected: 03/30/22 10:40
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.713		0.330	0.336	1.00	0.464	pCi/L	04/07/22 13:31	04/28/22 17:24	1
Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac				
Ba Carrier	87.8		40 - 110	04/07/22 13:31	04/28/22 17:24	1				
Y Carrier	87.5		40 - 110	04/07/22 13:31	04/28/22 17:24	1				

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-2

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: W-6B
Date Collected: 03/30/22 12:35
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	7.67		0.962	1.19	1.00	0.775	pCi/L	04/08/22 13:33	05/03/22 17:39	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.1		40 - 110					04/08/22 13:33	05/03/22 17:39	1
Y Carrier	84.9		40 - 110					04/08/22 13:33	05/03/22 17:39	1

Client Sample ID: W-6D
Date Collected: 03/30/22 10:40
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.612		0.313	0.318	1.00	0.455	pCi/L	04/07/22 13:31	04/28/22 17:25	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.8		40 - 110					04/07/22 13:31	04/28/22 17:25	1
Y Carrier	86.4		40 - 110					04/07/22 13:31	04/28/22 17:25	1

Client Sample ID: W-7
Date Collected: 03/31/22 17:30
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-10
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	4.38		0.773	0.871	1.00	0.791	pCi/L	04/08/22 13:33	05/03/22 17:39	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.0		40 - 110					04/08/22 13:33	05/03/22 17:39	1
Y Carrier	84.9		40 - 110					04/08/22 13:33	05/03/22 17:39	1

Client Sample ID: W-9
Date Collected: 03/31/22 14:50
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-11
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.32		0.607	0.619	1.00	0.885	pCi/L	04/07/22 13:31	04/28/22 17:25	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	60.0		40 - 110					04/07/22 13:31	04/28/22 17:25	1
Y Carrier	87.1		40 - 110					04/07/22 13:31	04/28/22 17:25	1

Client Sample ID: W-12
Date Collected: 04/01/22 12:30
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-12
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.75		0.696	0.741	1.00	0.816	pCi/L	04/08/22 13:33	05/03/22 17:39	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-2

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	86.3		40 - 110	04/08/22 13:33	05/03/22 17:39	1
Y Carrier	84.9		40 - 110	04/08/22 13:33	05/03/22 17:39	1

Client Sample ID: W-14
Date Collected: 04/01/22 12:40
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-13
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.14		0.586	0.595	1.00	0.862	pCi/L	04/08/22 13:33	05/03/22 17:40	1
Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac				
Ba Carrier	89.6		40 - 110	04/08/22 13:33	05/03/22 17:40	1				
Y Carrier	81.1		40 - 110	04/08/22 13:33	05/03/22 17:40	1				

Client Sample ID: W-16
Date Collected: 04/01/22 10:50
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-14
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.17		0.488	0.527	1.00	0.568	pCi/L	04/07/22 13:31	04/28/22 17:20	1
Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac				
Ba Carrier	84.1		40 - 110	04/07/22 13:31	04/28/22 17:20	1				
Y Carrier	87.1		40 - 110	04/07/22 13:31	04/28/22 17:20	1				

Client Sample ID: MW-5
Date Collected: 03/31/22 15:45
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-16
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.07	G	0.773	0.796	1.00	1.07	pCi/L	04/08/22 13:33	05/03/22 17:40	1
Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac				
Ba Carrier	74.1		40 - 110	04/08/22 13:33	05/03/22 17:40	1				
Y Carrier	83.7		40 - 110	04/08/22 13:33	05/03/22 17:40	1				

Client Sample ID: W-11
Date Collected: 04/01/22 11:00
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-17
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	4.98	G	1.10	1.20	1.00	1.33	pCi/L	04/08/22 13:33	05/03/22 17:40	1
Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac				
Ba Carrier	62.2		40 - 110	04/08/22 13:33	05/03/22 17:40	1				
Y Carrier	85.6		40 - 110	04/08/22 13:33	05/03/22 17:40	1				

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-2

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: W-3EB
Date Collected: 03/31/22 13:15
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-18
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.397	U	0.275	0.277	1.00	0.427	pCi/L	04/07/22 13:31	04/28/22 17:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.5		40 - 110					04/07/22 13:31	04/28/22 17:21	1
Y Carrier	78.9		40 - 110					04/07/22 13:31	04/28/22 17:21	1

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

Client Sample ID: W-2A
Date Collected: 03/31/22 10:20
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	5.81		0.755	0.856	5.00	0.512	pCi/L		05/06/22 12:48	1

Client Sample ID: W-2C
Date Collected: 03/31/22 10:40
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	4.72		0.701	0.775	5.00	0.574	pCi/L		05/06/22 12:48	1

Client Sample ID: W-3
Date Collected: 03/31/22 12:30
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.251	U	0.515	0.516	5.00	0.719	pCi/L		05/06/22 12:48	1

Client Sample ID: W-3B
Date Collected: 03/31/22 13:35
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	12.7		1.12	1.41	5.00	0.645	pCi/L		05/06/22 12:48	1

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-2

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

Client Sample ID: W-5
Date Collected: 03/30/22 14:20
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.02		0.506	0.526	5.00	0.479	pCi/L		05/06/22 12:48	1

Client Sample ID: W-5B
Date Collected: 03/30/22 15:45
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.14		0.504	0.527	5.00	0.474	pCi/L		05/06/22 12:48	1

Client Sample ID: W-6
Date Collected: 03/30/22 10:40
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.899		0.393	0.399	5.00	0.464	pCi/L		05/06/22 12:48	1

Client Sample ID: W-6B
Date Collected: 03/30/22 12:35
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	10.4		1.13	1.35	5.00	0.775	pCi/L		05/06/22 12:48	1

Client Sample ID: W-6D
Date Collected: 03/30/22 10:40
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.998		0.443	0.448	5.00	0.477	pCi/L		05/06/22 12:48	1

Client Sample ID: W-7
Date Collected: 03/31/22 17:30
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-10
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	6.37		0.921	1.02	5.00	0.791	pCi/L		05/06/22 12:48	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-2

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

Client Sample ID: W-9
Date Collected: 03/31/22 14:50
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-11
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.40		0.761	0.777	5.00	0.885	pCi/L		05/06/22 12:48	1

Client Sample ID: W-12
Date Collected: 04/01/22 12:30
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-12
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	3.60		0.788	0.832	5.00	0.816	pCi/L		05/06/22 12:48	1

Client Sample ID: W-14
Date Collected: 04/01/22 12:40
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-13
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.15		0.713	0.726	5.00	0.862	pCi/L		05/06/22 12:48	1

Client Sample ID: W-16
Date Collected: 04/01/22 10:50
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-14
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.87		0.602	0.637	5.00	0.568	pCi/L		05/06/22 12:48	1

Client Sample ID: MW-5
Date Collected: 03/31/22 15:45
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-16
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.31		0.829	0.851	5.00	1.07	pCi/L		05/06/22 12:48	1

Client Sample ID: W-11
Date Collected: 04/01/22 11:00
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-17
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	6.59		1.24	1.33	5.00	1.33	pCi/L		05/06/22 12:48	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-2

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

Client Sample ID: W-3EB
Date Collected: 03/31/22 13:15
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-18
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.292	U	0.296	0.298	5.00	0.427	pCi/L		05/06/22 12:48	1

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-2

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-559117/24-A

Matrix: Water

Analysis Batch: 562835

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 559117

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.2184	U	0.189	0.190	1.00	0.286	pCi/L	04/07/22 13:02	04/29/22 18:00	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.6		40 - 110					04/07/22 13:02	04/29/22 18:00	1

Lab Sample ID: LCS 160-559117/1-A

Matrix: Water

Analysis Batch: 563273

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 559117

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226		11.3	8.634		0.975	1.00	0.156	pCi/L	76	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits							
Ba Carrier	93.5		40 - 110							

Lab Sample ID: MB 160-559307/20-A

Matrix: Water

Analysis Batch: 563913

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 559307

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.03917	U	0.115	0.115	1.00	0.212	pCi/L	04/08/22 12:02	05/05/22 18:57	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.5		40 - 110					04/08/22 12:02	05/05/22 18:57	1

Lab Sample ID: LCS 160-559307/1-A

Matrix: Water

Analysis Batch: 563914

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 559307

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226		11.3	9.168		1.11	1.00	0.218	pCi/L	81	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits							
Ba Carrier	85.1		40 - 110							

Lab Sample ID: LCSD 160-559307/2-A

Matrix: Water

Analysis Batch: 563914

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 559307

Analyte		Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-226		11.3	10.62		1.21	1.00	0.205	pCi/L	94	75 - 125	0.62	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-2

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

Lab Sample ID: LCSD 160-559307/2-A
Matrix: Water
Analysis Batch: 563914

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 559307

	LCSD	LCSD	
Carrier	%Yield	Qualifier	Limits
Ba Carrier	92.0		40 - 110

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-559118/24-A
Matrix: Water
Analysis Batch: 562663

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 559118

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.09747	U	0.258	0.258	1.00	0.443	pCi/L	04/07/22 13:31	04/28/22 17:22	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.6		40 - 110					04/07/22 13:31	04/28/22 17:22	1
Y Carrier	88.2		40 - 110					04/07/22 13:31	04/28/22 17:22	1

Lab Sample ID: LCS 160-559118/1-A
Matrix: Water
Analysis Batch: 562662

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 559118

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-228	8.67	9.361		1.09	1.00	0.413	pCi/L	108	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	93.5		40 - 110						
Y Carrier	89.0		40 - 110						

Lab Sample ID: MB 160-559318/20-A
Matrix: Water
Analysis Batch: 563502

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 559318

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.08353	U	0.231	0.231	1.00	0.399	pCi/L	04/08/22 13:33	05/03/22 17:35	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.5		40 - 110					04/08/22 13:33	05/03/22 17:35	1
Y Carrier	86.4		40 - 110					04/08/22 13:33	05/03/22 17:35	1

Lab Sample ID: LCS 160-559318/1-A
Matrix: Water
Analysis Batch: 563501

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 559318

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-228	8.65	10.37		1.25	1.00	0.515	pCi/L	120	75 - 125

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-2

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

Lab Sample ID: LCS 160-559318/1-A
Matrix: Water
Analysis Batch: 563501

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 559318

	LCS	LCS	
Carrier	%Yield	Qualifier	Limits
Ba Carrier	85.1		40 - 110
Y Carrier	78.9		40 - 110

Lab Sample ID: LCSD 160-559318/2-A
Matrix: Water
Analysis Batch: 563501

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 559318

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-228	8.65	9.394		1.11	1.00	0.387	pCi/L	109	75 - 125	0.42	1

	LCSD	LCSD	
Carrier	%Yield	Qualifier	Limits
Ba Carrier	92.0		40 - 110
Y Carrier	84.1		40 - 110

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-2

Rad

Prep Batch: 559117

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-1	W-2A	Total/NA	Water	PrecSep-21	
280-160467-2	W-2C	Total/NA	Water	PrecSep-21	
280-160467-3	W-3	Total/NA	Water	PrecSep-21	
280-160467-4	W-3B	Total/NA	Water	PrecSep-21	
280-160467-5	W-5	Total/NA	Water	PrecSep-21	
280-160467-6	W-5B	Total/NA	Water	PrecSep-21	
280-160467-7	W-6	Total/NA	Water	PrecSep-21	
280-160467-9	W-6D	Total/NA	Water	PrecSep-21	
280-160467-11	W-9	Total/NA	Water	PrecSep-21	
280-160467-14	W-16	Total/NA	Water	PrecSep-21	
280-160467-18	W-3EB	Total/NA	Water	PrecSep-21	
MB 160-559117/24-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-559117/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 559118

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-1	W-2A	Total/NA	Water	PrecSep_0	
280-160467-2	W-2C	Total/NA	Water	PrecSep_0	
280-160467-3	W-3	Total/NA	Water	PrecSep_0	
280-160467-4	W-3B	Total/NA	Water	PrecSep_0	
280-160467-5	W-5	Total/NA	Water	PrecSep_0	
280-160467-6	W-5B	Total/NA	Water	PrecSep_0	
280-160467-7	W-6	Total/NA	Water	PrecSep_0	
280-160467-9	W-6D	Total/NA	Water	PrecSep_0	
280-160467-11	W-9	Total/NA	Water	PrecSep_0	
280-160467-14	W-16	Total/NA	Water	PrecSep_0	
280-160467-18	W-3EB	Total/NA	Water	PrecSep_0	
MB 160-559118/24-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-559118/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Prep Batch: 559307

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-8	W-6B	Total/NA	Water	PrecSep-21	
280-160467-10	W-7	Total/NA	Water	PrecSep-21	
280-160467-12	W-12	Total/NA	Water	PrecSep-21	
280-160467-13	W-14	Total/NA	Water	PrecSep-21	
280-160467-16	MW-5	Total/NA	Water	PrecSep-21	
280-160467-17	W-11	Total/NA	Water	PrecSep-21	
MB 160-559307/20-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-559307/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-559307/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 559318

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-8	W-6B	Total/NA	Water	PrecSep_0	
280-160467-10	W-7	Total/NA	Water	PrecSep_0	
280-160467-12	W-12	Total/NA	Water	PrecSep_0	
280-160467-13	W-14	Total/NA	Water	PrecSep_0	
280-160467-16	MW-5	Total/NA	Water	PrecSep_0	
280-160467-17	W-11	Total/NA	Water	PrecSep_0	
MB 160-559318/20-A	Method Blank	Total/NA	Water	PrecSep_0	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-2

Rad (Continued)

Prep Batch: 559318 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 160-559318/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-559318/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-2

Client Sample ID: W-2A

Date Collected: 03/31/22 10:20

Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			749.39 mL	1.0 g	559117	04/07/22 13:02	BMP	TAL SL
Total/NA	Analysis	9315		1			562835	04/29/22 11:32	CLP	TAL SL
Total/NA	Prep	PrecSep_0			749.39 mL	1.0 g	559118	04/07/22 13:31	BMP	TAL SL
Total/NA	Analysis	9320		1			562662	04/28/22 17:23	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			564094	05/06/22 12:48	EMH	TAL SL

Client Sample ID: W-2C

Date Collected: 03/31/22 10:40

Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			752.06 mL	1.0 g	559117	04/07/22 13:02	BMP	TAL SL
Total/NA	Analysis	9315		1			562835	04/29/22 11:32	CLP	TAL SL
Total/NA	Prep	PrecSep_0			752.06 mL	1.0 g	559118	04/07/22 13:31	BMP	TAL SL
Total/NA	Analysis	9320		1			562662	04/28/22 17:24	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			564094	05/06/22 12:48	EMH	TAL SL

Client Sample ID: W-3

Date Collected: 03/31/22 12:30

Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			749.98 mL	1.0 g	559117	04/07/22 13:02	BMP	TAL SL
Total/NA	Analysis	9315		1			562835	04/29/22 11:32	CLP	TAL SL
Total/NA	Prep	PrecSep_0			749.98 mL	1.0 g	559118	04/07/22 13:31	BMP	TAL SL
Total/NA	Analysis	9320		1			562662	04/28/22 17:24	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			564094	05/06/22 12:48	EMH	TAL SL

Client Sample ID: W-3B

Date Collected: 03/31/22 13:35

Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			748.94 mL	1.0 g	559117	04/07/22 13:02	BMP	TAL SL
Total/NA	Analysis	9315		1			562835	04/29/22 11:33	CLP	TAL SL
Total/NA	Prep	PrecSep_0			748.94 mL	1.0 g	559118	04/07/22 13:31	BMP	TAL SL
Total/NA	Analysis	9320		1			562662	04/28/22 17:24	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			564094	05/06/22 12:48	EMH	TAL SL

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-2

Client Sample ID: W-5

Date Collected: 03/30/22 14:20

Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			758.60 mL	1.0 g	559117	04/07/22 13:02	BMP	TAL SL
Total/NA	Analysis	9315		1			562835	04/29/22 14:10	CLP	TAL SL
Total/NA	Prep	PrecSep_0			758.60 mL	1.0 g	559118	04/07/22 13:31	BMP	TAL SL
Total/NA	Analysis	9320		1			562662	04/28/22 17:24	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			564094	05/06/22 12:48	EMH	TAL SL

Client Sample ID: W-5B

Date Collected: 03/30/22 15:45

Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			745.23 mL	1.0 g	559117	04/07/22 13:02	BMP	TAL SL
Total/NA	Analysis	9315		1			562835	04/29/22 14:11	CLP	TAL SL
Total/NA	Prep	PrecSep_0			745.23 mL	1.0 g	559118	04/07/22 13:31	BMP	TAL SL
Total/NA	Analysis	9320		1			562662	04/28/22 17:24	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			564094	05/06/22 12:48	EMH	TAL SL

Client Sample ID: W-6

Date Collected: 03/30/22 10:40

Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			753.62 mL	1.0 g	559117	04/07/22 13:02	BMP	TAL SL
Total/NA	Analysis	9315		1			562835	04/29/22 14:11	CLP	TAL SL
Total/NA	Prep	PrecSep_0			753.62 mL	1.0 g	559118	04/07/22 13:31	BMP	TAL SL
Total/NA	Analysis	9320		1			562662	04/28/22 17:24	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			564094	05/06/22 12:48	EMH	TAL SL

Client Sample ID: W-6B

Date Collected: 03/30/22 12:35

Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			508.42 mL	1.0 g	559307	04/08/22 12:02	HRT	TAL SL
Total/NA	Analysis	9315		1			563914	05/05/22 17:42	SCB	TAL SL
Total/NA	Prep	PrecSep_0			508.42 mL	1.0 g	559318	04/08/22 13:33	HRT	TAL SL
Total/NA	Analysis	9320		1			563486	05/03/22 17:39	CLP	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			564094	05/06/22 12:48	EMH	TAL SL

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-2

Client Sample ID: W-6D

Lab Sample ID: 280-160467-9

Date Collected: 03/30/22 10:40

Matrix: Water

Date Received: 04/02/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			754.37 mL	1.0 g	559117	04/07/22 13:02	BMP	TAL SL
Total/NA	Analysis	9315		1			562835	04/29/22 14:11	CLP	TAL SL
Total/NA	Prep	PrecSep_0			754.37 mL	1.0 g	559118	04/07/22 13:31	BMP	TAL SL
Total/NA	Analysis	9320		1			562662	04/28/22 17:25	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			564094	05/06/22 12:48	EMH	TAL SL

Client Sample ID: W-7

Lab Sample ID: 280-160467-10

Date Collected: 03/31/22 17:30

Matrix: Water

Date Received: 04/02/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			503.63 mL	1.0 g	559307	04/08/22 12:02	HRT	TAL SL
Total/NA	Analysis	9315		1			563914	05/05/22 17:42	SCB	TAL SL
Total/NA	Prep	PrecSep_0			503.63 mL	1.0 g	559318	04/08/22 13:33	HRT	TAL SL
Total/NA	Analysis	9320		1			563486	05/03/22 17:39	CLP	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			564094	05/06/22 12:48	EMH	TAL SL

Client Sample ID: W-9

Lab Sample ID: 280-160467-11

Date Collected: 03/31/22 14:50

Matrix: Water

Date Received: 04/02/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			743.82 mL	1.0 g	559117	04/07/22 13:02	BMP	TAL SL
Total/NA	Analysis	9315		1			562835	04/29/22 14:12	CLP	TAL SL
Total/NA	Prep	PrecSep_0			743.82 mL	1.0 g	559118	04/07/22 13:31	BMP	TAL SL
Total/NA	Analysis	9320		1			562662	04/28/22 17:25	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			564094	05/06/22 12:48	EMH	TAL SL

Client Sample ID: W-12

Lab Sample ID: 280-160467-12

Date Collected: 04/01/22 12:30

Matrix: Water

Date Received: 04/02/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			491.92 mL	1.0 g	559307	04/08/22 12:02	HRT	TAL SL
Total/NA	Analysis	9315		1			563914	05/05/22 17:42	SCB	TAL SL
Total/NA	Prep	PrecSep_0			491.92 mL	1.0 g	559318	04/08/22 13:33	HRT	TAL SL
Total/NA	Analysis	9320		1			563486	05/03/22 17:39	CLP	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			564094	05/06/22 12:48	EMH	TAL SL

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-2

Client Sample ID: W-14

Date Collected: 04/01/22 12:40

Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-13

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			494.74 mL	1.0 g	559307	04/08/22 12:02	HRT	TAL SL
Total/NA	Analysis	9315		1			563914	05/05/22 17:42	SCB	TAL SL
Total/NA	Prep	PrecSep_0			494.74 mL	1.0 g	559318	04/08/22 13:33	HRT	TAL SL
Total/NA	Analysis	9320		1			563486	05/03/22 17:40	CLP	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			564094	05/06/22 12:48	EMH	TAL SL

Client Sample ID: W-16

Date Collected: 04/01/22 10:50

Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-14

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			746.64 mL	1.0 g	559117	04/07/22 13:02	BMP	TAL SL
Total/NA	Analysis	9315		1			562835	04/29/22 14:12	CLP	TAL SL
Total/NA	Prep	PrecSep_0			746.64 mL	1.0 g	559118	04/07/22 13:31	BMP	TAL SL
Total/NA	Analysis	9320		1			562631	04/28/22 17:20	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			564094	05/06/22 12:48	EMH	TAL SL

Client Sample ID: MW-5

Date Collected: 03/31/22 15:45

Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-16

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			505.40 mL	1.0 g	559307	04/08/22 12:02	HRT	TAL SL
Total/NA	Analysis	9315		1	1.0 mL	1.0 mL	563914	05/05/22 17:43	SCB	TAL SL
Total/NA	Prep	PrecSep_0			505.40 mL	1.0 g	559318	04/08/22 13:33	HRT	TAL SL
Total/NA	Analysis	9320		1			563486	05/03/22 17:40	CLP	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			564094	05/06/22 12:48	EMH	TAL SL

Client Sample ID: W-11

Date Collected: 04/01/22 11:00

Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-17

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			513.04 mL	1.0 g	559307	04/08/22 12:02	HRT	TAL SL
Total/NA	Analysis	9315		1	1.0 mL	1.0 mL	563910	05/05/22 17:40	FLC	TAL SL
Total/NA	Prep	PrecSep_0			513.04 mL	1.0 g	559318	04/08/22 13:33	HRT	TAL SL
Total/NA	Analysis	9320		1			563486	05/03/22 17:40	CLP	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			564094	05/06/22 12:48	EMH	TAL SL

Eurofins Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-2

Client Sample ID: W-3EB

Lab Sample ID: 280-160467-18

Date Collected: 03/31/22 13:15

Matrix: Water

Date Received: 04/02/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			994.27 mL	1.0 g	559117	04/07/22 13:02	BMP	TAL SL
Total/NA	Analysis	9315		1			562966	04/29/22 14:14	SCB	TAL SL
Total/NA	Prep	PrecSep_0			994.27 mL	1.0 g	559118	04/07/22 13:31	BMP	TAL SL
Total/NA	Analysis	9320		1			562631	04/28/22 17:21	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			564094	05/06/22 12:48	EMH	TAL SL

Laboratory References:

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

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-2

Laboratory: Eurofins St. Louis

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

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-22
California	Los Angeles County Sanitation Districts	10259	06-30-22
California	State	2886	07-01-22
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-22
HI - RadChem Recognition	State	n/a	06-30-22
Illinois	NELAP	200023	11-30-22
Iowa	State	373	12-01-22
Kansas	NELAP	E-10236	10-31-22
Kentucky (DW)	State	KY90125	12-31-22
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-22
Louisiana	NELAP	04080	06-30-22
Louisiana (DW)	State	LA011	12-31-22
Maryland	State	310	09-30-22
MI - RadChem Recognition	State	9005	06-30-22
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-22
New Jersey	NELAP	MO002	06-30-22
New York	NELAP	11616	04-01-23
North Dakota	State	R-207	06-30-22
NRC	NRC	24-24817-01	12-31-22
Oklahoma	NELAP	9997	08-31-22
Oregon	NELAP	4157	09-01-22
Pennsylvania	NELAP	68-00540	02-28-23
South Carolina	State	85002001	06-30-22
Texas	NELAP	T104704193	07-31-22
US Fish & Wildlife	US Federal Programs	058448	07-31-22
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	08-01-22
Virginia	NELAP	10310	06-14-22
Washington	State	C592	08-30-22
West Virginia DEP	State	381	10-31-22

Chain of Custody Record

Client Information		Sampler: <u>Kent J. F. Davis</u>		Lab PM: <u>Harrington, Danielle M</u>		Carrier Tracking No(s): <u>280-110862-32017.2</u>		SOC No: <u>280-110862-32017.2</u>	
Client Contact: <u>Molly Reeves</u>		Phone: <u>7209337496</u>		E-Mail: <u>Danielle.Harrington@Eurofinset.com</u>		State of Origin: <u>CO</u>		Page: <u>1</u> of 2	
Company: <u>HDR Inc</u>		PWSID: <u>7209337496</u>		Analysis Requested		Job #:		Preservation Codes:	
Address: <u>1670 Broadway Suite 3400</u>		Due Date Requested: <u>std</u>		6010C, 6020A, 7470A Dissolved Metals - Canton		6010C, 6020A, 7470A Total Metals - Canton		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:	
City: <u>Denver</u>		TAT Requested (days): <u>std</u>		2320B alkalinity, 9040B pH, 9056A_28DCchloride, Fluoride, Sulfate		2540D - TSS/2540C TDS		M - Hexane N - None O - AshNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)	
State, Zip: <u>CO, 80202</u>		Compliance Project: <u>Δ Yes Δ No</u>		Perform MS/MSD (Yes or No)		Radium -226 9135 and Radium -228 Method 9320/ Ra2226Ra2228GFPc - ETA St. Louis			
Phone: <u>734-263-7138(Tel)</u>		PO #: <u>DEN-021</u>		Field Filtered Sample (Yes or No)		6010C, 6020A, 7470A Dissolved Metals - Canton			
Email: <u>Molly.Reeves@hdrinc.com</u>		WO #: <u>28014376</u>		Matrix (W=water, S=solid, O=soil, BT=Tissue, A=Air)		6010C, 6020A, 7470A Dissolved Metals - Canton			
Project Name: <u>Xcel Energy GW CCR Monitoring - Comanche</u>		Project #: <u>28014376</u>		Sample Type (C=Comp, G=grab)		6010C, 6020A, 7470A Dissolved Metals - Canton			
Site: <u>COLORADO</u>		SSOW#: <u></u>		Sample Date		6010C, 6020A, 7470A Dissolved Metals - Canton			
Groundwater- CCR (App III and App IV)				Sample Time		6010C, 6020A, 7470A Dissolved Metals - Canton			
Sample Identification		Sample Date		Sample Time		6010C, 6020A, 7470A Dissolved Metals - Canton			
W-2A		03/31/22		1020		6010C, 6020A, 7470A Dissolved Metals - Canton			
W-2C		03/31/22		1040		6010C, 6020A, 7470A Dissolved Metals - Canton			
W-3		03/31/22		1230		6010C, 6020A, 7470A Dissolved Metals - Canton			
W-3B		03/31/22		1335		6010C, 6020A, 7470A Dissolved Metals - Canton			
W-5		03/30/22		1420		6010C, 6020A, 7470A Dissolved Metals - Canton			
W-5B		03/30/22		1545		6010C, 6020A, 7470A Dissolved Metals - Canton			
W-6		03/30/22		1040		6010C, 6020A, 7470A Dissolved Metals - Canton			
W-6B		03/30/22		1235		6010C, 6020A, 7470A Dissolved Metals - Canton			
W-6D		03/30/22		1040		6010C, 6020A, 7470A Dissolved Metals - Canton			
W-7		03/31/22		1730		6010C, 6020A, 7470A Dissolved Metals - Canton			
W-9		03/31/22		1450		6010C, 6020A, 7470A Dissolved Metals - Canton			
Possible Hazard Identification		Poison B ☐ Unknown ☐ Radiological ☐		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		280-160467 Chain of Custody			
Non-Hazard ☐ Flammable ☐ Skin Irritant ☐		Deliverable Requested: I, II, III, IV, Other (specify)		Return To Client ☐ Archive For ☐ Months		280-160467 Chain of Custody			
Empty Kit Relinquished by:		Date:		Special Instructions/QC Requirements:		280-160467 Chain of Custody			
Relinquished by: <u>T. A. Kent</u>		Date: <u>2 April 2022 0915</u>		Received by: <u>HTD R</u>		280-160467 Chain of Custody			
Relinquished by:		Date/Time:		Received by:		280-160467 Chain of Custody			
Relinquished by:		Date/Time:		Received by:		280-160467 Chain of Custody			
Custody Seals Intact: <u>Δ Yes Δ No</u>		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: <u>26.0, 26.7, 26.8, 26.1, 26.2, 26.1</u>		280-160467 Chain of Custody			

[illegible]

Eurofins Denver

4955 Yarrow Street
Arvada, CO 80002

Phone: 303-736-0100 Fax: 303-431-7171

Chain of Custody Record

Environment Testing
America

Client Information (Sub Contract Lab)		Sampler:	Lab PM:	Carrier Tracking No(s):	COC No:
Client Contact:		Phone:	Harrington, Danielle M		280-609070.1
Shipping/Receiving			E-Mail:	State of Origin:	Page
Company			Danielle.Harrington@Eurofinset.com	Colorado	1 of 2
TestAmerica Laboratories, Inc.			Accreditations Required (See note)	Job #	
Address:			DoD - A2LA	280-160467-1	
13715 Rider Trail North,					
City:	Earth City				
State, Zip:	MO, 63045				
Phone:	314-298-8566(Tel) 314-298-8757(Fax)				
Email:					
Project Name:	Xcel Energy GW CCR Monitoring - Comanche				
Site:	Xcel Energy CCR - Comanche Station				
Due Date Requested:	4/21/2022				
TAT Requested (days):					
PO #:					
WO #:					
Project #:	28014376				
SSOW#:					
Analysis Requested		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 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 Z - other (specify) Other:			
Sample Identification - Client ID (Lab ID)		Special Instructions/Note:			
Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=oil, A=air)	Field Filtered Sample (Yes or No)	Total Number of Containers
3/31/22	10:20 Mountain		Water	X	1
3/31/22	10:40 Mountain		Water	X	2
3/31/22	12:30 Mountain		Water	X	2
3/31/22	13:35 Mountain		Water	X	2
3/31/22	14:20 Mountain		Water	X	2
3/31/22	15:45 Mountain		Water	X	2
3/31/22	10:40 Mountain		Water	X	2
3/31/22	12:35 Mountain		Water	X	2
3/31/22	10:40 Mountain		Water	X	2
Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins TestAmerica.					
Possible Hazard Identification					
Unconfirmed					
Deliverable Requested: I, II, III, IV, Other (specify)					
Primary Deliverable Rank: 2					
Empty Kit Relinquished by:					
Date:					
Time:					
Method of Shipment:					
Relinquished by: <i>M. Nielsen</i>					
Date/Time: 4/22 1540					
Company: FED EX					
Relinquished by:					
Date/Time:					
Company:					
Relinquished by:					
Date/Time:					
Company:					
Custody Seals Intact: ☐ Yes ☐ No					
Custody Seal No.:					
Cooler Temperature(s) °C and Other Remarks:					

Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler: Harrington, Danielle M		Carrier Tracking No(s):		COC No: 280-609070.2	
Client Contact: Shipping/Receiving		Phone:		State of Origin: Colorado		Page: Page 2 of 2	
Company: TestAmerica Laboratories, Inc.		E-Mail: Danielle.Harrington@Eurofins.com		Accreditations Required (See note): DoD - A2LA		Job #: 280-160467-1	
Address: 13715 Rider Trail North,		Due Date Requested: 4/21/2022		Analysis Requested:		Preservation Codes:	
City: Earth City		TAT Requested (days):		9315_Ra226/PreSep_21 Ra226 (1/3) - SUB		A - HCL	
State Zip: MO, 63045		PO #:		9320_Ra228/PreSep_0 Ra228 (2/3) - SUB		B - NaOH	
Phone: 314-298-8566(Tel) 314-298-8757(Fax)		WO #:		9315_Ra226/PreSep_21 Ra226 (1/3) - SUB		C - Zn Acetate	
Email:		Project #:		9320_Ra228/PreSep_0 Ra228 (2/3) - SUB		D - Nitric Acid	
Project Name: Xcel Energy GW CCR Monitoring - Comanche		28014376		9315_Ra226/PreSep_21 Ra226 (1/3) - SUB		E - NaHSO4	
Site: Xcel Energy CCR - Comanche Station		SSOW#:		9320_Ra228/PreSep_0 Ra228 (2/3) - SUB		F - MeOH	
				9315_Ra226/PreSep_21 Ra226 (1/3) - SUB		G - Amchlor	
				9320_Ra228/PreSep_0 Ra228 (2/3) - SUB		H - Ascorbic Acid	
				9315_Ra226/PreSep_21 Ra226 (1/3) - SUB		I - Ice	
				9320_Ra228/PreSep_0 Ra228 (2/3) - SUB		J - DI Water	
				9315_Ra226/PreSep_21 Ra226 (1/3) - SUB		K - EDTA	
				9320_Ra228/PreSep_0 Ra228 (2/3) - SUB		L - EDA	
				9315_Ra226/PreSep_21 Ra226 (1/3) - SUB		M - Hexane	
				9320_Ra228/PreSep_0 Ra228 (2/3) - SUB		N - None	
				9315_Ra226/PreSep_21 Ra226 (1/3) - SUB		O - AsNaO2	
				9320_Ra228/PreSep_0 Ra228 (2/3) - SUB		P - Na2O4S	
				9315_Ra226/PreSep_21 Ra226 (1/3) - SUB		Q - Na2SO3	
				9320_Ra228/PreSep_0 Ra228 (2/3) - SUB		R - Na2S2O3	
				9315_Ra226/PreSep_21 Ra226 (1/3) - SUB		S - H2SO4	
				9320_Ra228/PreSep_0 Ra228 (2/3) - SUB		T - TSP Dodecahydrate	
				9315_Ra226/PreSep_21 Ra226 (1/3) - SUB		U - Acetone	
				9320_Ra228/PreSep_0 Ra228 (2/3) - SUB		V - MCAA	
				9315_Ra226/PreSep_21 Ra226 (1/3) - SUB		W - pH 4-5	
				9320_Ra228/PreSep_0 Ra228 (2/3) - SUB		Z - other (specify)	
				9315_Ra226/PreSep_21 Ra226 (1/3) - SUB		Other:	
				9320_Ra228/PreSep_0 Ra228 (2/3) - SUB			
				9315_Ra226/PreSep_21 Ra226 (1/3) - SUB			
				9320_Ra228/PreSep_0 Ra228 (2/3) - SUB			
				9315_Ra226/PreSep_21 Ra226 (1/3) - SUB			
				9320_Ra228/PreSep_0 Ra228 (2/3) - SUB			
				9315_Ra226/PreSep_21 Ra226 (1/3) - SUB			
				9320_Ra228/PreSep_0 Ra228 (2/3) - SUB			
				9315_Ra226/PreSep_21 Ra226 (1/3) - SUB			
				9320_Ra228/PreSep_0 Ra228 (2/3) - SUB			
				9315_Ra226/PreSep_21 Ra226 (1/3) - SUB			
				9320_Ra228/PreSep_0 Ra228 (2/3) - SUB			
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Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-160467-2

Login Number: 160467

List Number: 1

Creator: Rystrom, Joshua R

List Source: Eurofins Denver

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

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-160467-2

Login Number: 160467

List Number: 3

Creator: Worthington, Sierra M

List Source: Eurofins St. Louis

List Creation: 04/06/22 11:45 AM

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

Tracer/Carrier Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-2

Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)					
		Ba					
Lab Sample ID	Client Sample ID	(40-110)					
280-160467-1	W-2A	84.6					
280-160467-2	W-2C	84.6					
280-160467-3	W-3	76.1					
280-160467-4	W-3B	76.6					
280-160467-5	W-5	89.1					
280-160467-6	W-5B	91.8					
280-160467-7	W-6	87.8					
280-160467-8	W-6B	87.1					
280-160467-9	W-6D	93.8					
280-160467-10	W-7	92.0					
280-160467-11	W-9	60.0					
280-160467-12	W-12	86.3					
280-160467-13	W-14	89.6					
280-160467-14	W-16	84.1					
280-160467-16	MW-5	74.1					
280-160467-17	W-11	62.2					
280-160467-18	W-3EB	93.5					
LCS 160-559117/1-A	Lab Control Sample	93.5					
LCS 160-559307/1-A	Lab Control Sample	85.1					
LCSD 160-559307/2-A	Lab Control Sample Dup	92.0					
MB 160-559117/24-A	Method Blank	86.6					
MB 160-559307/20-A	Method Blank	93.5					

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 9320 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)					
		Ba	Y				
Lab Sample ID	Client Sample ID	(40-110)	(40-110)				
280-160467-1	W-2A	84.6	88.6				
280-160467-2	W-2C	84.6	87.5				
280-160467-3	W-3	76.1	88.2				
280-160467-4	W-3B	76.6	86.0				
280-160467-5	W-5	89.1	86.7				
280-160467-6	W-5B	91.8	88.6				
280-160467-7	W-6	87.8	87.5				
280-160467-8	W-6B	87.1	84.9				
280-160467-9	W-6D	93.8	86.4				
280-160467-10	W-7	92.0	84.9				
280-160467-11	W-9	60.0	87.1				
280-160467-12	W-12	86.3	84.9				
280-160467-13	W-14	89.6	81.1				
280-160467-14	W-16	84.1	87.1				
280-160467-16	MW-5	74.1	83.7				
280-160467-17	W-11	62.2	85.6				
280-160467-18	W-3EB	93.5	78.9				
LCS 160-559118/1-A	Lab Control Sample	93.5	89.0				

Eurofins Denver

Tracer/Carrier Summary

Client: HDR Inc

Job ID: 280-160467-2

Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)
LCS 160-559318/1-A	Lab Control Sample	85.1	78.9
LCSD 160-559318/2-A	Lab Control Sample Dup	92.0	84.1
MB 160-559118/24-A	Method Blank	86.6	88.2
MB 160-559318/20-A	Method Blank	93.5	86.4
Tracer/Carrier Legend			
Ba = Ba Carrier			
Y = Y Carrier			

ANALYTICAL REPORT

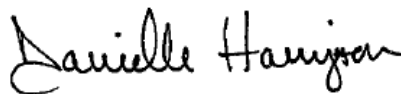
Eurofins Denver
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Laboratory Job ID: 280-160467-3

Client Project/Site: Xcel Energy GW CCR Monitoring -
Comanche

For:
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Attn: Molly Reeves



Authorized for release by:
6/3/2022 3:03:28 PM

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-3

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

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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-3

Job ID: 280-160467-3

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-160467-3

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 04/02/2022; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt were 0.7°C, 0.7°C, 0.8°C, 0.9°C, 0.9°C and 1.2°C.

Receipt Exceptions

The following sample was submitted for analysis; however, it was not listed on the Chain-of-Custody (COC): W-3EB (280-160467-18)

Volume was received for all analysis on the COC. However, the COC states 2 UP containers for sample MW-5 (280-160467-16)

The laboratory received these sample with a pH>2, so we used 1mL of nitric to preserve them.

W-2A (280-160467-1), W-2C (280-160467-2), W-3 (280-160467-3), W-3B (280-160467-4), W-5 (280-160467-5), W-5B (280-160467-6), W-6 (280-160467-7), W-6B (280-160467-8), W-6D (280-160467-9), W-7 (280-160467-10), W-9 (280-160467-11), W-12 (280-160467-12), W-14 (280-160467-13), W-16 (280-160467-14), MW-3 (280-160467-15), MW-5 (280-160467-16), W-11 (280-160467-17) and W-3EB (280-160467-18)

Per client request on 05/27/2022, Denver performed the Method 6020B analysis for Antimony and Arsenic on all samples. Sample W-14 also included Beryllium, Cadmium, and Cobalt. Please note, No COC received with workshare samples returning from Cedar Falls.

6020B ICP-MS

MS/MSD analyses were performed on sample W-2C. The MS/MSD for Beryllium method 6020B exhibited spike compound recoveries outside the QC limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The accuracy and precision of the Cadmium and Cobalt MS/MSD performed on a sample W-2C could not be reliably evaluated, as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

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

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-3

Client Sample ID: W-2C

Lab Sample ID: 280-160467-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00071	J	0.0050	0.00033	mg/L	1		6020B	Total Recoverable

Client Sample ID: W-3

Lab Sample ID: 280-160467-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	0.00080	J	0.0020	0.00040	mg/L	1		6020B	Total Recoverable
Arsenic	0.00083	J	0.0050	0.00033	mg/L	1		6020B	Total Recoverable

Client Sample ID: W-5B

Lab Sample ID: 280-160467-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00035	J	0.0050	0.00033	mg/L	1		6020B	Total Recoverable

Client Sample ID: W-6

Lab Sample ID: 280-160467-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0032	J	0.0050	0.00033	mg/L	1		6020B	Total Recoverable

Client Sample ID: W-6B

Lab Sample ID: 280-160467-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00033	J	0.0050	0.00033	mg/L	1		6020B	Total Recoverable

Client Sample ID: W-7

Lab Sample ID: 280-160467-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00058	J	0.0050	0.00033	mg/L	1		6020B	Total Recoverable

Client Sample ID: W-9

Lab Sample ID: 280-160467-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	0.00047	J	0.0020	0.00040	mg/L	1		6020B	Total Recoverable
Arsenic	0.00071	J	0.0050	0.00033	mg/L	1		6020B	Total Recoverable

Client Sample ID: W-12

Lab Sample ID: 280-160467-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	0.00072	J	0.0020	0.00040	mg/L	1		6020B	Total Recoverable

Client Sample ID: W-14

Lab Sample ID: 280-160467-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	0.00080	J	0.0020	0.00040	mg/L	1		6020B	Total Recoverable
Arsenic	0.00050	J	0.0050	0.00033	mg/L	1		6020B	Total Recoverable
Cadmium	0.0011		0.0010	0.00027	mg/L	1		6020B	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-3

Client Sample ID: W-14 (Continued)

Lab Sample ID: 280-160467-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cobalt	0.013		0.0010	0.000092	mg/L	1		6020B	Total Recoverable

Client Sample ID: W-16

Lab Sample ID: 280-160467-14

No Detections.

Client Sample ID: MW-3

Lab Sample ID: 280-160467-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00059	J	0.0050	0.00033	mg/L	1		6020B	Total Recoverable

Client Sample ID: MW-5

Lab Sample ID: 280-160467-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	0.00092	J	0.0020	0.00040	mg/L	1		6020B	Total Recoverable
Arsenic	0.0012	J	0.0050	0.00033	mg/L	1		6020B	Total Recoverable

Client Sample ID: W-11

Lab Sample ID: 280-160467-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00043	J	0.0050	0.00033	mg/L	1		6020B	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Method Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-3

Method	Method Description	Protocol	Laboratory
6020B	Metals (ICP/MS)	SW846	TAL DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL DEN

Protocol References:

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

Laboratory References:

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

Sample Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-160467-2	W-2C	Water	03/31/22 10:40	04/02/22 09:15
280-160467-3	W-3	Water	03/31/22 12:30	04/02/22 09:15
280-160467-6	W-5B	Water	03/30/22 15:45	04/02/22 09:15
280-160467-7	W-6	Water	03/30/22 10:40	04/02/22 09:15
280-160467-8	W-6B	Water	03/30/22 12:35	04/02/22 09:15
280-160467-10	W-7	Water	03/31/22 17:30	04/02/22 09:15
280-160467-11	W-9	Water	03/31/22 14:50	04/02/22 09:15
280-160467-12	W-12	Water	04/01/22 12:30	04/02/22 09:15
280-160467-13	W-14	Water	04/01/22 12:40	04/02/22 09:15
280-160467-14	W-16	Water	04/01/22 10:50	04/02/22 09:15
280-160467-15	MW-3	Water	03/29/22 11:45	04/02/22 09:15
280-160467-16	MW-5	Water	03/31/22 15:45	04/02/22 09:15
280-160467-17	W-11	Water	04/01/22 11:00	04/02/22 09:15

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-3

Method: 6020B - Metals (ICP/MS) - Total Recoverable

Client Sample ID: W-2C
Date Collected: 03/31/22 10:40
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		06/01/22 09:40	06/01/22 20:53	1
Arsenic	0.00071	J	0.0050	0.00033	mg/L		06/01/22 09:40	06/01/22 20:53	1

Client Sample ID: W-3
Date Collected: 03/31/22 12:30
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00080	J	0.0020	0.00040	mg/L		06/01/22 09:40	06/01/22 21:12	1
Arsenic	0.00083	J	0.0050	0.00033	mg/L		06/01/22 09:40	06/01/22 21:12	1

Client Sample ID: W-5B
Date Collected: 03/30/22 15:45
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		06/01/22 09:40	06/01/22 21:16	1
Arsenic	0.00035	J	0.0050	0.00033	mg/L		06/01/22 09:40	06/01/22 21:16	1

Client Sample ID: W-6
Date Collected: 03/30/22 10:40
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		06/01/22 09:40	06/01/22 21:27	1
Arsenic	0.0032	J	0.0050	0.00033	mg/L		06/01/22 09:40	06/01/22 21:27	1

Client Sample ID: W-6B
Date Collected: 03/30/22 12:35
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		06/01/22 09:40	06/01/22 21:31	1
Arsenic	0.00033	J	0.0050	0.00033	mg/L		06/01/22 09:40	06/01/22 21:31	1

Client Sample ID: W-7
Date Collected: 03/31/22 17:30
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		06/01/22 09:40	06/01/22 21:35	1
Arsenic	0.00058	J	0.0050	0.00033	mg/L		06/01/22 09:40	06/01/22 21:35	1

Client Sample ID: W-9
Date Collected: 03/31/22 14:50
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00047	J	0.0020	0.00040	mg/L		06/01/22 09:40	06/01/22 21:38	1
Arsenic	0.00071	J	0.0050	0.00033	mg/L		06/01/22 09:40	06/01/22 21:38	1

Client Sample ID: W-12
Date Collected: 04/01/22 12:30
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00072	J	0.0020	0.00040	mg/L		06/01/22 09:40	06/01/22 21:42	1
Arsenic	ND		0.0050	0.00033	mg/L		06/01/22 09:40	06/01/22 21:42	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-3

Method: 6020B - Metals (ICP/MS) - Total Recoverable

Client Sample ID: W-14
Date Collected: 04/01/22 12:40
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00080	J	0.0020	0.00040	mg/L		06/01/22 09:40	06/01/22 21:46	1
Arsenic	0.00050	J	0.0050	0.00033	mg/L		06/01/22 09:40	06/01/22 21:46	1
Beryllium	ND		0.0010	0.000080	mg/L		06/01/22 09:40	06/01/22 21:46	1
Cadmium	0.0011		0.0010	0.00027	mg/L		06/01/22 09:40	06/01/22 21:46	1
Cobalt	0.013		0.0010	0.000092	mg/L		06/01/22 09:40	06/01/22 21:46	1

Client Sample ID: W-16
Date Collected: 04/01/22 10:50
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		06/01/22 09:40	06/01/22 21:50	1
Arsenic	ND		0.0050	0.00033	mg/L		06/01/22 09:40	06/01/22 21:50	1

Client Sample ID: MW-3
Date Collected: 03/29/22 11:45
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		06/01/22 09:40	06/01/22 21:53	1
Arsenic	0.00059	J	0.0050	0.00033	mg/L		06/01/22 09:40	06/01/22 21:53	1

Client Sample ID: MW-5
Date Collected: 03/31/22 15:45
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00092	J	0.0020	0.00040	mg/L		06/01/22 09:40	06/01/22 22:05	1
Arsenic	0.0012	J	0.0050	0.00033	mg/L		06/01/22 09:40	06/01/22 22:05	1

Client Sample ID: W-11
Date Collected: 04/01/22 11:00
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-17
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		06/01/22 09:40	06/01/22 22:09	1
Arsenic	0.00043	J	0.0050	0.00033	mg/L		06/01/22 09:40	06/01/22 22:09	1

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-3

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-576579/1-A

Matrix: Water

Analysis Batch: 576852

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 576579

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		06/01/22 09:40	06/01/22 20:46	1
Arsenic	ND		0.0050	0.00033	mg/L		06/01/22 09:40	06/01/22 20:46	1
Beryllium	ND		0.0010	0.000080	mg/L		06/01/22 09:40	06/01/22 20:46	1
Cadmium	ND		0.0010	0.00027	mg/L		06/01/22 09:40	06/01/22 20:46	1
Cobalt	ND		0.0010	0.000092	mg/L		06/01/22 09:40	06/01/22 20:46	1

Lab Sample ID: LCS 280-576579/2-A

Matrix: Water

Analysis Batch: 576852

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 576579

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0416		mg/L		104	80 - 111
Arsenic	0.0400	0.0400		mg/L		100	92 - 112
Beryllium	0.0400	0.0405		mg/L		101	87 - 118
Cadmium	0.0400	0.0395		mg/L		99	91 - 114
Cobalt	0.0400	0.0417		mg/L		104	94 - 115

Lab Sample ID: 280-160467-2 MS

Matrix: Water

Analysis Batch: 576852

Client Sample ID: W-2C

Prep Type: Total Recoverable

Prep Batch: 576579

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	ND		0.0400	0.0428		mg/L		107	80 - 111
Arsenic	0.00071	J	0.0400	0.0439		mg/L		108	92 - 112
Beryllium	ND	F1	0.0400	0.0506	F1	mg/L		127	87 - 118
Cadmium	4.6		0.0400	0.0417	4	mg/L		-1147 8	91 - 114
Cobalt	3.6		0.0400	0.0423	4	mg/L		-8887	94 - 115

Lab Sample ID: 280-160467-2 MSD

Matrix: Water

Analysis Batch: 576852

Client Sample ID: W-2C

Prep Type: Total Recoverable

Prep Batch: 576579

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Antimony	ND		0.0400	0.0419		mg/L		105	80 - 111	2	20
Arsenic	0.00071	J	0.0400	0.0430		mg/L		106	92 - 112	2	20
Beryllium	ND	F1	0.0400	0.0533	F1	mg/L		133	87 - 118	5	20
Cadmium	4.6		0.0400	0.0415	4	mg/L		-1147 9	91 - 114	0	20
Cobalt	3.6		0.0400	0.0417	4	mg/L		-8888	94 - 115	1	20

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-3

Metals

Prep Batch: 576579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-2	W-2C	Total Recoverable	Water	3005A	
280-160467-3	W-3	Total Recoverable	Water	3005A	
280-160467-6	W-5B	Total Recoverable	Water	3005A	
280-160467-7	W-6	Total Recoverable	Water	3005A	
280-160467-8	W-6B	Total Recoverable	Water	3005A	
280-160467-10	W-7	Total Recoverable	Water	3005A	
280-160467-11	W-9	Total Recoverable	Water	3005A	
280-160467-12	W-12	Total Recoverable	Water	3005A	
280-160467-13	W-14	Total Recoverable	Water	3005A	
280-160467-14	W-16	Total Recoverable	Water	3005A	
280-160467-15	MW-3	Total Recoverable	Water	3005A	
280-160467-16	MW-5	Total Recoverable	Water	3005A	
280-160467-17	W-11	Total Recoverable	Water	3005A	
MB 280-576579/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-576579/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-160467-2 MS	W-2C	Total Recoverable	Water	3005A	
280-160467-2 MSD	W-2C	Total Recoverable	Water	3005A	

Analysis Batch: 576852

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-2	W-2C	Total Recoverable	Water	6020B	576579
280-160467-3	W-3	Total Recoverable	Water	6020B	576579
280-160467-6	W-5B	Total Recoverable	Water	6020B	576579
280-160467-7	W-6	Total Recoverable	Water	6020B	576579
280-160467-8	W-6B	Total Recoverable	Water	6020B	576579
280-160467-10	W-7	Total Recoverable	Water	6020B	576579
280-160467-11	W-9	Total Recoverable	Water	6020B	576579
280-160467-12	W-12	Total Recoverable	Water	6020B	576579
280-160467-13	W-14	Total Recoverable	Water	6020B	576579
280-160467-14	W-16	Total Recoverable	Water	6020B	576579
280-160467-15	MW-3	Total Recoverable	Water	6020B	576579
280-160467-16	MW-5	Total Recoverable	Water	6020B	576579
280-160467-17	W-11	Total Recoverable	Water	6020B	576579
MB 280-576579/1-A	Method Blank	Total Recoverable	Water	6020B	576579
LCS 280-576579/2-A	Lab Control Sample	Total Recoverable	Water	6020B	576579
280-160467-2 MS	W-2C	Total Recoverable	Water	6020B	576579
280-160467-2 MSD	W-2C	Total Recoverable	Water	6020B	576579

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-3

Client Sample ID: W-2C

Lab Sample ID: 280-160467-2

Date Collected: 03/31/22 10:40

Matrix: Water

Date Received: 04/02/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	576579	06/01/22 09:40	MCR	TAL DEN
Total Recoverable	Analysis	6020B		1			576852	06/01/22 20:53	LMT	TAL DEN

Client Sample ID: W-3

Lab Sample ID: 280-160467-3

Date Collected: 03/31/22 12:30

Matrix: Water

Date Received: 04/02/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	576579	06/01/22 09:40	MCR	TAL DEN
Total Recoverable	Analysis	6020B		1			576852	06/01/22 21:12	LMT	TAL DEN

Client Sample ID: W-5B

Lab Sample ID: 280-160467-6

Date Collected: 03/30/22 15:45

Matrix: Water

Date Received: 04/02/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	576579	06/01/22 09:40	MCR	TAL DEN
Total Recoverable	Analysis	6020B		1			576852	06/01/22 21:16	LMT	TAL DEN

Client Sample ID: W-6

Lab Sample ID: 280-160467-7

Date Collected: 03/30/22 10:40

Matrix: Water

Date Received: 04/02/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	576579	06/01/22 09:40	MCR	TAL DEN
Total Recoverable	Analysis	6020B		1			576852	06/01/22 21:27	LMT	TAL DEN

Client Sample ID: W-6B

Lab Sample ID: 280-160467-8

Date Collected: 03/30/22 12:35

Matrix: Water

Date Received: 04/02/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	576579	06/01/22 09:40	MCR	TAL DEN
Total Recoverable	Analysis	6020B		1			576852	06/01/22 21:31	LMT	TAL DEN

Client Sample ID: W-7

Lab Sample ID: 280-160467-10

Date Collected: 03/31/22 17:30

Matrix: Water

Date Received: 04/02/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	576579	06/01/22 09:40	MCR	TAL DEN
Total Recoverable	Analysis	6020B		1			576852	06/01/22 21:35	LMT	TAL DEN

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-3

Client Sample ID: W-9

Date Collected: 03/31/22 14:50

Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-11

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	576579	06/01/22 09:40	MCR	TAL DEN
Total Recoverable	Analysis	6020B		1			576852	06/01/22 21:38	LMT	TAL DEN

Client Sample ID: W-12

Date Collected: 04/01/22 12:30

Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-12

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	576579	06/01/22 09:40	MCR	TAL DEN
Total Recoverable	Analysis	6020B		1			576852	06/01/22 21:42	LMT	TAL DEN

Client Sample ID: W-14

Date Collected: 04/01/22 12:40

Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-13

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	576579	06/01/22 09:40	MCR	TAL DEN
Total Recoverable	Analysis	6020B		1			576852	06/01/22 21:46	LMT	TAL DEN

Client Sample ID: W-16

Date Collected: 04/01/22 10:50

Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-14

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	576579	06/01/22 09:40	MCR	TAL DEN
Total Recoverable	Analysis	6020B		1			576852	06/01/22 21:50	LMT	TAL DEN

Client Sample ID: MW-3

Date Collected: 03/29/22 11:45

Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-15

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	576579	06/01/22 09:40	MCR	TAL DEN
Total Recoverable	Analysis	6020B		1			576852	06/01/22 21:53	LMT	TAL DEN

Client Sample ID: MW-5

Date Collected: 03/31/22 15:45

Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-16

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	576579	06/01/22 09:40	MCR	TAL DEN
Total Recoverable	Analysis	6020B		1			576852	06/01/22 22:05	LMT	TAL DEN

Eurofins Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-3

Client Sample ID: W-11

Date Collected: 04/01/22 11:00

Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-17

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	576579	06/01/22 09:40	MCR	TAL DEN
Total Recoverable	Analysis	6020B		1			576852	06/01/22 22:09	LMT	TAL DEN

Laboratory References:

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

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-3

Laboratory: Eurofins Denver

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

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-23

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

Chain of Custody Record

Client Information		Sampler: <u>Kent J. F. Davis</u>		Lab PM: <u>Harrington, Danielle M</u>		Carrier Tracking No(s): <u>280-110862-32017.2</u>		SOC No: <u>280-110862-32017.2</u>	
Client Contact: <u>Molly Reeves</u>		Phone: <u>7209337496</u>		E-Mail: <u>Danielle.Harrington@Eurofinset.com</u>		State of Origin: <u>CO</u>		Page: <u>1</u> of 2	
Company: <u>HDR Inc</u>		PWSID: <u>7209337496</u>		Analysis Requested		Job #:		Preservation Codes:	
Address: <u>1670 Broadway Suite 3400</u>		Due Date Requested: <u>std</u>		6010C, 6020A, 7470A Dissolved Metals - Canton		6010C, 6020A, 7470A Total Metals - Canton		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:	
City: <u>Denver</u>		TAT Requested (days): <u>std</u>		2320B alkalinity, 9040B pH, 9056A_28DCchloride, Fluoride, Sulfate		2540D - TSS/2540C TDS		M - Hexane N - None O - AshNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)	
State, Zip: <u>CO, 80202</u>		Compliance Project: <u>Δ Yes Δ No</u>		Perform MS/MSD (Yes or No)		Radium -226 9135 and Radium -228 Method 9320/ Ra2226Ra2228GFPc - ETA St. Louis			
Phone: <u>734-263-7138(Tel)</u>		PO #: <u>DEN-021</u>		Field Filtered Sample (Yes or No)		6010C, 6020A, 7470A Dissolved Metals - Canton			
Email: <u>Molly.Reeves@hdrinc.com</u>		WO #: <u>28014376</u>		Matrix (W=water, S=solid, O=overwater, A=air)		6010C, 6020A, 7470A Dissolved Metals - Canton			
Project Name: <u>Xcel Energy GW CCR Monitoring - Comanche</u>		Project #: <u>28014376</u>		Sample Type (C=Comp, G=grab)		6010C, 6020A, 7470A Dissolved Metals - Canton			
Site: <u>COLORADO</u>		SSOW#: <u></u>		Sample Date		6010C, 6020A, 7470A Dissolved Metals - Canton			
Groundwater- CCR (App III and App IV)				Sample Time		6010C, 6020A, 7470A Dissolved Metals - Canton			
Sample Identification		Sample Date		Sample Time		6010C, 6020A, 7470A Dissolved Metals - Canton			
W-2A		03/31/22		1020		6010C, 6020A, 7470A Dissolved Metals - Canton			
W-2C		03/31/22		1040		6010C, 6020A, 7470A Dissolved Metals - Canton			
W-3		03/31/22		1230		6010C, 6020A, 7470A Dissolved Metals - Canton			
W-3B		03/31/22		1335		6010C, 6020A, 7470A Dissolved Metals - Canton			
W-5		03/30/22		1420		6010C, 6020A, 7470A Dissolved Metals - Canton			
W-5B		03/30/22		1545		6010C, 6020A, 7470A Dissolved Metals - Canton			
W-6		03/30/22		1040		6010C, 6020A, 7470A Dissolved Metals - Canton			
W-6B		03/30/22		1235		6010C, 6020A, 7470A Dissolved Metals - Canton			
W-6D		03/30/22		1040		6010C, 6020A, 7470A Dissolved Metals - Canton			
W-7		03/31/22		1730		6010C, 6020A, 7470A Dissolved Metals - Canton			
W-9		03/31/22		1450		6010C, 6020A, 7470A Dissolved Metals - Canton			
Possible Hazard Identification		Poison B ☐ Unknown ☐ Radiological ☐		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		280-160467 Chain of Custody			
Non-Hazard ☐ Flammable ☐ Skin Irritant ☐		Deliverable Requested: I, II, III, IV, Other (specify)		Return To Client ☐ Archive For ☐ Months		280-160467 Chain of Custody			
Empty Kit Relinquished by:		Date:		Special Instructions/QC Requirements:		280-160467 Chain of Custody			
Relinquished by: <u>T. A. Kent</u>		Date: <u>2 April 2022 0915</u>		Received by: <u>HTD R</u>		280-160467 Chain of Custody			
Relinquished by:		Date/Time:		Received by:		280-160467 Chain of Custody			
Relinquished by:		Date/Time:		Received by:		280-160467 Chain of Custody			
Custody Seals Intact: <u>Δ Yes Δ No</u>		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: <u>26.0, 26.7, 26.8, 26.1, 26.2, 26.1</u>		280-160467 Chain of Custody			

[illegible]



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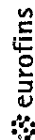


280-160467 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

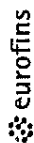
Client Information			
Client <u>Dewer</u>			
City/State	CITY	STATE	Project
		<u>CO</u>	
Receipt Information			
Date/Time Received	DATE	TIME	Received By
	<u>4/5/22</u>	<u>0945</u>	<u>N</u>
Delivery Type ☐ UPS ☒ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee			
☐ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?	☒ Yes ☐ No	If yes Cooler ID	
Multiple Coolers?	☐ Yes ☒ No	If yes Cooler # _____ of _____	
Cooler Custody Seals Present?	☒ Yes ☐ No	If yes Cooler custody seals intact? ☒ Yes ☐ No	
Sample Custody Seals Present?	☐ Yes ☒ No	If yes Sample custody seals intact? ☐ Yes ☐ No	
Trip Blank Present?	☐ Yes ☒ No	If yes Which VOA samples are in cooler? ↓	
Temperature Record			
Coolant	☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other _____	☒ NONE	
Thermometer ID	<u>N</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>12.4</u>	Corrected Temp (°C)	<u>12.4</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? ☐ Yes ☐ No			
a) If yes Is there evidence that the chilling process began? ☐ Yes ☐ No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No			
NOTE If yes, contact PM before proceeding If no, proceed with login			
Additional Comments			

Chain of Custody Record



Client Information (Sub Contract Lab)		Lab PM: Harrington, Danielle M		Carrier Tracking No(s): 280-609071 1						
Client Contact: Shipping/Receiving		E-Mail: Danielle.Harrington@Eurofins.com		Page: Page 1 of 2						
Company: Eurofins Environment Testing North Cent		Accreditations Required (See note): DoD A2LA		Job #: 280-160467 1						
Address: 3019 Venture Way		Due Date Requested: 4/21/2022		Preservation Codes:						
City: Cedar Falls	TAT Requested (days):	A HCL M Hexane B NaOH N None C Zn Acetate O AsNaO2 D Nitric Acid P Na2O4S E NaHSO4 Q Na2SO3 F MeOH R Na2S2O3 G Amchlor S H2SO4 H Ascorbic Acid T TSP Dodecylhydrate I Ice U Acetone J DI Water V MCAA K EDTA W pH 4-5 L EDA Z other (specify) Other								
State Zip: IA, 50613	PO #:									
Phone: 319-277-2401(Tel) 319-277-2425(Fax)	WO #:									
Email:	Project #:									
Xcel Energy GW CCR Monitoring Comanche	28014376									
Site: Xcel Energy CCR - Comanche Station	SSOW#:									
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=oil, T=trace analyte)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C/3005A (MOD) Boron	7470A/7470A Prep Mercury	Total Number of Containers	Special Instructions/Note:
W-2A (280-160467-1)	3/31/22	10:20 Mountain		Water	X	X	X	X	1	
W-2C (280-160467-2)	3/31/22	10:40 Mountain		Water	X	X	X	X	1	
W-3 (280-160467-3)	3/31/22	12:30 Mountain		Water	X	X	X	X	1	
W-3B (280-160467-4)	3/31/22	13:35 Mountain		Water	X	X	X	X	1	
W-5 (280-160467-5)	3/31/22	14:20 Mountain		Water	X	X	X	X	1	
W-5B (280-160467-6)	3/31/22	15:45 Mountain		Water	X	X	X	X	1	
W-6 (280-160467 7)	3/31/22	10:40 Mountain		Water	X	X	X	X	1	
W-6B (280-160467-8)	3/31/22	12:35 Mountain		Water	X	X	X	X	1	
W-6D (280-160467-9)	3/31/22	10:40 Mountain		Water	X	X	X	X	1	
Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins TestAmerica.										
Possible Hazard Identification Unconfirmed Deliverable Requested: I II III IV Other (specify) Primary Deliverable Rank: 2 Empty Kit Relinquished by: Date: Time: Method of Shipment:										
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) ☐ Return To Client ☐ Disposal By Lab ☐ Archive For Months										
Special Instructions/QC Requirements:										
Received by: Date/Time: Company:										
Relinquished by: Date/Time: Company:										
Relinquished by: Date/Time: Company:										
Custody Seals Intact: Custody Seal No. Cooler Temperature(s) °C and Other Remarks:										
A Yes A No										

Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler	Lab Pw:	Carrier Tracking No(s):	COC No:							
Client Contact Shipping/Receiving		Phone:	Harrington, Danielle M		280-609071.2							
Company: Eurofins Environment Testing North Centr		E-mail:	Danielle.Harrington@Eurofinset.com	State of Origin: Colorado	Page: Page 2 of 2							
Address: 3019 Venture Way		Due Date Requested: 4/21/2022	Accreditations Required (See note): DoD - A2LA									
City: Cedar Falls		TAT Requested (days):	Preservation Codes:									
State, Zip: IA, 50613		PO #:	A HCL M Hexane B NaOH N None C Zn Acetate O AsNaO2 D Nitric Acid P Na2O4S E NaHSO4 Q Na2SO3 F MeOH R Na2S2O3 G Anchlor S H2SO4 H Ascorbic Acid T TSP Dodecahydrate I Ice U Acetone J DI Water V MCAA K EDTA W pH 4-5 L EDA Z other (specify) Other									
Project Name: Xcel Energy GW CCR Monitoring Comanche		WO #:										
Site: Xcel Energy CCR Comanche Station		Project #: 28014376										
		SSOW#:										
Sample Identification	Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=other)	Field Filled Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020A/3005A (MOD) 13 Total Metals (w/collision cell)	6010C/3005A (MOD) Boron	7470A/7470A Prep Mercury	Total Number of Containers	Special Instructions/Note:
W-7 (280-160467-10)		3/31/22	17:30 Mountain		Water	X	X	X	X		1	
W-9 (280-160467-11)		3/31/22	14:50 Mountain		Water	X	X	X	X		1	
W-12 (280-160467-12)		3/31/22	12:30 Mountain		Water	X	X	X	X		1	
W-14 (280-160467-13)		3/31/22	12:40 Mountain		Water	X	X	X	X		1	
W-16 (280-160467-14)		3/31/22	10:50 Mountain		Water	X	X	X	X		1	
MW-5 (280-160467-16)		3/31/22	15:45 Mountain		Water	X	X	X	X		1	
W-11 (280-160467-17)		3/31/22	11:00 Mountain		Water	X	X	X	X		1	
W-3EB (280-160467-18)		3/31/22	13:15 Mountain		Water	X	X	X	X		1	

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

Possible Hazard Identification

Unconfirmed
Deliverable Requested: I, II, III, IV Other (specify) _____ Primary Deliverable Rank: 2

Special Instructions/QC Requirements: _____

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

Empty Kit Relinquished by: _____ Date: _____ Time: _____ Method of Shipment: _____

Relinquished by: *AM Neuen* Date: *4/22/22* Time: *1515* Company: *ETADEN*
 Relinquished by: _____ Date: _____ Time: _____ Company: _____
 Relinquished by: _____ Date: _____ Time: _____ Company: _____

Custody Seals Intact: _____ Custody Seal No. _____
 Δ Yes Δ No

Cooler Temperature(s) °C and Other Remarks: _____



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America



280-160467 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client <u>Denver</u>			
City/State	CITY	STATE	Project
		<u>CO</u>	
Receipt Information			
Date/Time Received	DATE	TIME	Received By
	<u>4-8-22</u>	<u>935</u>	<u>[Signature]</u>
Delivery Type ☐ UPS ☒ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee			
☐ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler? ☒ Yes ☐ No If yes Cooler ID _____			
Multiple Coolers? ☐ Yes ☒ No If yes Cooler # _____ of _____			
Cooler Custody Seals Present? ☒ Yes ☐ No If yes Cooler custody seals intact? ☒ Yes ☐ No			
Sample Custody Seals Present? ☐ Yes ☒ No If yes Sample custody seals intact? ☐ Yes ☐ No			
Trip Blank Present? ☐ Yes ☒ No If yes Which VOA samples are in cooler? ↓			
Temperature Record			
Coolant ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other _____ ☐ NONE			
Thermometer ID		Correction Factor (°C)	
<u>0</u>		<u>0</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C)		Corrected Temp (°C)	
<u>0.9</u>		<u>0.9</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? ☐ Yes ☐ No			
a) If yes Is there evidence that the chilling process began? ☐ Yes ☐ No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No			
NOTE: If yes, contact PM before proceeding If no, proceed with login			
Additional Comments			



Chain of Custody Record

[illegible]

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-160467-3

Login Number: 160467

List Number: 1

Creator: Rystrom, Joshua R

List Source: Eurofins Denver

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

ANALYTICAL REPORT

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-160467-4

Client Project/Site: Xcel Energy GW CCR Monitoring -
Comanche

For:
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Attn: Molly Reeves



Authorized for release by:

6/20/2022 1:15:20 PM

Matthew Gardner, Project Manager I
Matthew.Gardner@et.eurofinsus.com

Designee for

Danielle Harrington, Project Manager II
(303)736-0176
Danielle.Harrington@et.eurofinsus.com

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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-4

Qualifiers

Metals

Qualifier	Qualifier Description
^6+	Interference Check Standard (ICSA and/or ICSAB) is outside acceptance limits, high biased.
B	Compound was found in the blank and sample.
H	Sample was prepped or analyzed beyond the specified holding time
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-4

Job ID: 280-160467-4

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-160467-4

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 4/2/2022 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 6 coolers at receipt time were 0.7° C, 0.7° C, 0.8° C, 0.9° C, 0.9° C and 1.2° C.

RECEIPT EXCEPTIONS

Eurofins Denver received sample W-7 with a pH>2, so we used 1mL of nitric to preserve them.

A Chain-of-Custody (COC) was not received with sample W-7.

DISSOLVED METALS - Method 6010C/6020B

Low levels of Molybdenum are present in the method blank associated with QC Batch 280-578391. Because the concentration in the method blank is not present at a level greater than the reporting limit, corrective action is deemed unnecessary.

The interference check standard solution (ICSA) associated with batch 280-578391 had results for one or more elements at a level greater than 1/2 the RL. The initial ICSA result (2.9 ppb) was >1/2 the RL of 3 ppb. The vendor acknowledges that these elements are trace impurities in the ICSA standard. These results are not indicative of a matrix interference.

The accuracy and precision of the 6020B MS/MSD performed on a laboratory generated sample in QC Batch 280-578391 could not be reliably evaluated, as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

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

DISSOLVED MERCURY - Method 7470A

The analysis for Dissolved Mercury Method 7470A for W-7 was performed outside of the prescribed hold time due to client request for analysis after hold time expiration

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

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-4

Client Sample ID: W-7

Lab Sample ID: 280-160467-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.88		0.10	0.0015	mg/L	1		6010C	Dissolved
Antimony	0.00045	J	0.0020	0.00040	mg/L	1		6020B	Dissolved
Arsenic	0.0012	J	0.0050	0.00033	mg/L	1		6020B	Dissolved
Barium	0.016	^6+	0.0010	0.00029	mg/L	1		6020B	Dissolved
Cadmium	0.0065		0.0010	0.00027	mg/L	1		6020B	Dissolved
Chromium	0.0025		0.0020	0.00050	mg/L	1		6020B	Dissolved
Cobalt	0.020		0.0010	0.000092	mg/L	1		6020B	Dissolved
Lead	0.00052	J	0.0010	0.00018	mg/L	1		6020B	Dissolved
Calcium	440000		200	38	ug/L	1		6020B	Dissolved
Molybdenum	0.0053	B	0.0020	0.00014	mg/L	1		6020B	Dissolved
Selenium	2.1		0.0050	0.00037	mg/L	1		6020B	Dissolved
Thallium	0.0052		0.0010	0.000089	mg/L	1		6020B	Dissolved

This Detection Summary does not include radiochemical test results.

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Method Summary

Client: HDR Inc

Job ID: 280-160467-4

Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL DEN
6020B	Metals (ICP/MS)	SW846	TAL DEN
7470A	Mercury (CVAA)	SW846	TAL DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL DEN
7470A	Preparation, Mercury	SW846	TAL DEN
FILTRATION	Sample Filtration	None	TAL DEN

Protocol References:

None = None

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

Laboratory References:

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

Sample Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-4

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-160467-10	W-7	Water	03/31/22 17:30	04/02/22 09:15

1

2

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14

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-4

Method: 6010C - Metals (ICP) - Dissolved

Client Sample ID: W-7
Date Collected: 03/31/22 17:30
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.88		0.10	0.0015	mg/L		06/15/22 18:56	06/17/22 02:14	1

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

Client Sample ID: W-7
Date Collected: 03/31/22 17:30
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00045	J	0.0020	0.00040	mg/L		06/16/22 08:39	06/17/22 13:43	1
Arsenic	0.0012	J	0.0050	0.00033	mg/L		06/16/22 08:39	06/17/22 13:43	1
Barium	0.016	^6+	0.0010	0.00029	mg/L		06/16/22 08:39	06/17/22 13:43	1
Beryllium	ND		0.0010	0.000080	mg/L		06/16/22 08:39	06/17/22 13:43	1
Cadmium	0.0065		0.0010	0.00027	mg/L		06/16/22 08:39	06/17/22 13:43	1
Chromium	0.0025		0.0020	0.00050	mg/L		06/16/22 08:39	06/17/22 13:43	1
Cobalt	0.020		0.0010	0.000092	mg/L		06/16/22 08:39	06/17/22 13:43	1
Lead	0.00052	J	0.0010	0.00018	mg/L		06/16/22 08:39	06/17/22 13:43	1
Calcium	440000		200	38	ug/L		06/16/22 08:39	06/17/22 13:43	1
Molybdenum	0.0053	B	0.0020	0.00014	mg/L		06/16/22 08:39	06/17/22 13:43	1
Selenium	2.1		0.0050	0.00037	mg/L		06/16/22 08:39	06/17/22 13:43	1
Thallium	0.0052		0.0010	0.000089	mg/L		06/16/22 08:39	06/17/22 13:43	1

Method: 7470A - Mercury (CVAA) - Dissolved

Client Sample ID: W-7
Date Collected: 03/31/22 17:30
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	H	0.20	0.027	ug/L		06/15/22 18:40	06/15/22 23:08	1

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-4

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-578063/1-E
Matrix: Water
Analysis Batch: 578391

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 578093

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		06/16/22 08:39	06/17/22 12:55	1
Arsenic	ND		0.0050	0.00033	mg/L		06/16/22 08:39	06/17/22 12:55	1
Barium	ND	^6+	0.0010	0.00029	mg/L		06/16/22 08:39	06/17/22 12:55	1
Beryllium	ND		0.0010	0.000080	mg/L		06/16/22 08:39	06/17/22 12:55	1
Cadmium	ND		0.0010	0.00027	mg/L		06/16/22 08:39	06/17/22 12:55	1
Chromium	ND		0.0020	0.00050	mg/L		06/16/22 08:39	06/17/22 12:55	1
Cobalt	ND		0.0010	0.000092	mg/L		06/16/22 08:39	06/17/22 12:55	1
Lead	ND		0.0010	0.00018	mg/L		06/16/22 08:39	06/17/22 12:55	1
Calcium	ND		200	38	ug/L		06/16/22 08:39	06/17/22 12:55	1
Molybdenum	0.000405	J	0.0020	0.00014	mg/L		06/16/22 08:39	06/17/22 12:55	1
Selenium	ND		0.0050	0.00037	mg/L		06/16/22 08:39	06/17/22 12:55	1
Thallium	ND		0.0010	0.000089	mg/L		06/16/22 08:39	06/17/22 12:55	1

Lab Sample ID: LCS 280-578063/2-E
Matrix: Water
Analysis Batch: 578391

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 578093

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0410		mg/L		102	80 - 111
Arsenic	0.0400	0.0400		mg/L		100	92 - 112
Barium	0.0400	0.0401	^6+	mg/L		100	92 - 117
Beryllium	0.0400	0.0399		mg/L		100	87 - 118
Cadmium	0.0400	0.0401		mg/L		100	91 - 114
Chromium	0.0400	0.0407		mg/L		102	91 - 114
Cobalt	0.0400	0.0413		mg/L		103	94 - 115
Lead	0.0400	0.0398		mg/L		100	95 - 116
Calcium	800	819		ug/L		102	80 - 120
Molybdenum	0.0400	0.0399		mg/L		100	84 - 117
Selenium	0.0400	0.0390		mg/L		98	90 - 115
Thallium	0.0400	0.0400		mg/L		100	94 - 115

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-578063/1-F
Matrix: Water
Analysis Batch: 578187

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 578149

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		06/15/22 18:40	06/15/22 22:48	1

Lab Sample ID: LCS 280-578063/2-F
Matrix: Water
Analysis Batch: 578187

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 578149

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	5.00	5.03		ug/L		101	84 - 120

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-4

Metals

Filtration Batch: 578063

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-10	W-7	Dissolved	Water	FILTRATION	
MB 280-578063/1-E	Method Blank	Dissolved	Water	FILTRATION	
MB 280-578063/1-F	Method Blank	Dissolved	Water	FILTRATION	
LCS 280-578063/2-E	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 280-578063/2-F	Lab Control Sample	Dissolved	Water	FILTRATION	

Prep Batch: 578078

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-10	W-7	Dissolved	Water	3005A	578063

Prep Batch: 578093

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-10	W-7	Dissolved	Water	3005A	578063
MB 280-578063/1-E	Method Blank	Dissolved	Water	3005A	578063
LCS 280-578063/2-E	Lab Control Sample	Dissolved	Water	3005A	578063

Prep Batch: 578149

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-10	W-7	Dissolved	Water	7470A	578063
MB 280-578063/1-F	Method Blank	Dissolved	Water	7470A	578063
LCS 280-578063/2-F	Lab Control Sample	Dissolved	Water	7470A	578063

Analysis Batch: 578187

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-10	W-7	Dissolved	Water	7470A	578149
MB 280-578063/1-F	Method Blank	Dissolved	Water	7470A	578149
LCS 280-578063/2-F	Lab Control Sample	Dissolved	Water	7470A	578149

Analysis Batch: 578342

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-10	W-7	Dissolved	Water	6010C	578078

Analysis Batch: 578391

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-10	W-7	Dissolved	Water	6020B	578093
MB 280-578063/1-E	Method Blank	Dissolved	Water	6020B	578093
LCS 280-578063/2-E	Lab Control Sample	Dissolved	Water	6020B	578093

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-4

Client Sample ID: W-7

Lab Sample ID: 280-160467-10

Date Collected: 03/31/22 17:30

Matrix: Water

Date Received: 04/02/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			200 mL	200 mL	578063	06/14/22 17:00	MAB	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	578078	06/15/22 18:56	KMS	TAL DEN
Dissolved	Analysis	6010C		1			578342	06/17/22 02:14	LMT	TAL DEN
Dissolved	Filtration	FILTRATION			200 mL	200 mL	578063	06/14/22 17:00	MAB	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	578093	06/16/22 08:39	PFM	TAL DEN
Dissolved	Analysis	6020B		1			578391	06/17/22 13:43	LMT	TAL DEN
Dissolved	Filtration	FILTRATION			200 mL	200 mL	578063	06/14/22 17:00	MAB	TAL DEN
Dissolved	Prep	7470A			30 mL	50 mL	578149	06/15/22 18:40	CEH	TAL DEN
Dissolved	Analysis	7470A		1			578187	06/15/22 23:08	CEH	TAL DEN

Laboratory References:

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

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-4

Laboratory: Eurofins Denver

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

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-23

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	Calcium

Chain of Custody Record

Client Information		Sampler: <u>Kent J. F. Davis</u>		Lab PM: <u>Harrington, Danielle M</u>		Carrier Tracking No(s): <u>280-110862-32017.2</u>		SOC No: <u>280-110862-32017.2</u>	
Client Contact: <u>Molly Reeves</u>		Phone: <u>7209337496</u>		E-Mail: <u>Danielle.Harrington@Eurofinset.com</u>		State of Origin: <u>CO</u>		Page: <u>1</u> of 2	
Company: <u>HDR Inc</u>		PWSID: <u>7209337496</u>		Analysis Requested		Job #:		Preservation Codes:	
Address: <u>1670 Broadway Suite 3400</u>		Due Date Requested: <u>std</u>		6010C, 6020A, 7470A Dissolved Metals - Canton		6010C, 6020A, 7470A Total Metals - Canton		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:	
City: <u>Denver</u>		TAT Requested (days): <u>std</u>		2320B alkalinity, 9040B pH, 9056A_28DCchloride, Fluoride, Sulfate		2540D - TSS/2540C TDS		M - Hexane N - None O - AshNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)	
State, Zip: <u>CO, 80202</u>		Compliance Project: <u>Δ Yes Δ No</u>		Perform MS/MSD (Yes or No)		Field Filtered Sample (Yes or No)		Total Number of Containers	
Phone: <u>734-263-7138(Tel)</u>		PO #: <u>DEN-021</u>		Sample Date		Sample Time		Special Instructions/Note:	
Email: <u>Molly.Reeves@hdrinc.com</u>		WO #: <u>28014376</u>		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=soil, BT=Tissue, A=Air)			
Project Name: <u>Xcel Energy GW CCR Monitoring - Comanche</u>		Project #: <u>28014376</u>		Preservation Code:					
Site: <u>COLORADO</u>		SSOW#: <u></u>							
Groundwater- CCR (App III and App IV)									
Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=soil, BT=Tissue, A=Air)	
<u>W-2A</u>		<u>03-31-22</u>		<u>1020</u>		<u>G</u>		<u>Water</u>	
<u>W-2C</u>		<u>03-31-22</u>		<u>1040</u>		<u>G</u>		<u>Water</u>	
<u>W-3</u>		<u>03-31-22</u>		<u>1230</u>		<u>G</u>		<u>W</u>	
<u>W-3B</u>		<u>03-31-22</u>		<u>1335</u>		<u>G</u>		<u>W</u>	
<u>W-5</u>		<u>03-30-22</u>		<u>1420</u>		<u>G</u>		<u>W</u>	
<u>W-5B</u>		<u>03-30-22</u>		<u>1545</u>		<u>G</u>		<u>W</u>	
<u>W-6</u>		<u>03-30-22</u>		<u>1040</u>		<u>G</u>		<u>W</u>	
<u>W-6B</u>		<u>03-30-22</u>		<u>1235</u>		<u>G</u>		<u>W</u>	
<u>W-6D</u>		<u>03-30-22</u>		<u>1040</u>		<u>G</u>		<u>W</u>	
<u>W-7</u>		<u>03-31-22</u>		<u>1730</u>		<u>G</u>		<u>W</u>	
<u>W-9</u>		<u>03-31-22</u>		<u>1450</u>		<u>G</u>		<u>W</u>	
Possible Hazard Identification		Poison B ☐ Unknown ☐ Radiological ☐		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months			
Non-Hazard ☐ Flammable ☐ Skin Irritant ☐		Deliverable Requested: I, II, III, IV, Other (specify)		Special Instructions/QC Requirements:					
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:			
Relinquished by: <u>T. A. Kent</u>		Date/Time: <u>2 April 2022 0915</u>		Company: <u>HDR</u>		Received by: <u>W. R.</u>		Date/Time: <u>4-1-2022 0915</u>	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
Custody Seals Intact: <u>Δ Yes Δ No</u>		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: <u>26.0, 26.7, 26.8, 26.1, 26.2, 26.1</u>					

Chain of Custody Record

Sample: J. Kent, F. Davis, Ray

Client Information		Lab P/N: Harrington, Danielle M		Carrier Tracking No(s): 280-110862-32017.2	
Client Contact: Molly Reeves		Phone: 7209337496		State of Origin: CO	
Company: HDR Inc		PWSID:		Job #: Page 2 of 2	
Address: 1670 Broadway Suite 3400		Due Date Requested: std		Analysis Requested	
City: Denver		TAT Requested (days): std		Preservation Codes:	
State, Zip: CO, 80202		Compliance Project: Δ Yes Δ No		A - HCL M - Hexane B - NaOH N - None O - AsNaO2 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:	
Phone: 734-263-7138(Tel)		PO #: DEN-021		Total Number of containers	
Email: Molly.Reeves@hdrinc.com		WO #:		Special Instructions/Note:	
Project Name: Xcel Energy GW CCR Monitoring - Comanche		Project #: 28014376		App III + TSS	
Site: COLORADO		SSOW#:		App III + TSS	
Groundwater- CCR (App III and App IV)				App III, IV + TSS	
Sample Identification		Sample Date		Sample Time	
W-12		04-01-22		1230	
W-14		04-01-22		1240	
W-16		04-01-22		1050	
MW-3		03-29-22		1145	
MW-5		03-31-22		1545	
W-11		04-01-22		1100	
Sample Type (C=Comp, G=grab)		Preservation Code		Matrix (W=water, S=solid, O=organic, A=air)	
G		G		Water	
G		G		Water	
G		G		W	
G		G		W	
G		G		W	
G		G		W	
Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		6010C, 6020A, 7470A Dissolved Metals - Canton	
X		X		2320B alkalinity, 9040B pH, 9056A_28DChloride, Fluoride, Sulfate	
X		X		6010C, 6020A, 7470A Total Metals - Canton	
X		X		2540D - TSS/2540C TDS	
X		X		Radium -226 9135 and Radium -228 Method 9320/ Ra2226Ra22228GFPC - ETA St. Louis	
X		X		Curb, herb, Mg, K, Na	
Possible Hazard Identification		Poison B		Skin Irritant	
Non-Hazard		Flammable		Deliverable Requested: I, II, III, IV, Other (specify)	
Empty Kit Relinquished by:		Date:		Time:	
Relinquished by: Tavares		4/12/22		0915	
Relinquished by:		Date/Time:		Company: HDR	
Relinquished by:		Date/Time:		Company:	
Custody Seals Intact:		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:	
Δ Yes Δ No					

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-160467-4

Login Number: 160467

List Number: 1

Creator: Rystrom, Joshua R

List Source: Eurofins Denver

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

ANALYTICAL REPORT

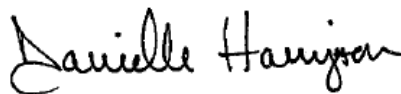
Eurofins Denver
4955 Yarrow Street
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Laboratory Job ID: 280-160467-5

Client Project/Site: Xcel Energy GW CCR Monitoring -
Comanche

For:
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Attn: Molly Reeves



Authorized for release by:
7/12/2022 2:20:19 PM

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-5

Qualifiers

Metals

Qualifier	Qualifier Description
^~	Continuing Calibration Verification (CCV) is outside acceptance limits, low biased.
^2	Calibration Blank (ICB and/or CCB) is outside acceptance limits.
E	Result exceeded calibration range.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-5

Job ID: 280-160467-5

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-160467-5

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 04/02/2022; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt were 0.7°C, 0.7°C, 0.8°C, 0.9°C, 0.9°C and 1.2°C.

Receipt Exceptions

The laboratory received these sample with a pH>2, so we used 1mL of nitric to preserve them. W-16 (280-160467-14)

Per client request on 07/08/2022, this report only contains the results for sample W-16 (280-160467-14) and for a short list of analyses.

TOTAL RECOVERABLE METALS- Method 6020A

Sample W-16 (280-160467-14) required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Laboratory generated MS/MSD analysis data have been provided. The MS/MSD for method 6020A exhibited multiple spike compound recoveries outside the QC limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The accuracy and precision of the multiple compounds for Method 6020A MS/MSD performed on a laboratory generated sample could not be reliably evaluated, as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The continuing calibration blank and continuing calibration verification failed for multiple analytes for batch 280-350746. The results have been reported at client's request. Results should be considered biased low.

Method 6020A: Due to sample matrix effect on the internal standard (ISTD), a dilution was required for the following samples: W-16 (280-160467-14)

GENERAL CHEMISTRY- VARIOUS

Sample W-16 (280-160467-14) required dilution prior to analysis for various analyses. The reporting limits have been adjusted accordingly.

The accuracy and precision of the Sulfate MS/MSD performed on a sample W-9 could not be reliably evaluated, as the concentrations

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-5

Job ID: 280-160467-5 (Continued)

Laboratory: Eurofins Denver (Continued)

present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The Total Alkalinity sample duplicate analysis performed on a laboratory generated sample exhibited RPD data outside the QC limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The Total Dissolved Solids sample duplicate analysis performed on sample W-16 exhibited RPD data outside the QC limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

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

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-5

Client Sample ID: W-16

Lab Sample ID: 280-160467-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	410		5.0	1.9	mg/L	10		6020A	Total
									Recoverable
Calcium	490		50	19	mg/L	100		6020A	Total
									Recoverable
Cobalt	0.0093	^2	0.0050	0.0019	mg/L	10		6020A	Total
									Recoverable
Sodium	1400	^-	10	6.1	mg/L	10		6020A	Total
									Recoverable
Sodium	1900		100	61	mg/L	100		6020A	Total
									Recoverable
Potassium	28	^-	5.0	1.5	mg/L	10		6020A	Total
									Recoverable
Potassium	38	J	50	15	mg/L	100		6020A	Total
									Recoverable
Magnesium	1700	E ^-	5.0	1.5	mg/L	10		6020A	Total
									Recoverable
Magnesium	2300		50	15	mg/L	100		6020A	Total
									Recoverable
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	18.2	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	250		15	5.1	mg/L	5		9056A	Total/NA
Sulfate	13000		500	100	mg/L	100		9056A	Total/NA
Bicarbonate Alkalinity as CaCO3	850		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Suspended Solids	6.4		4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

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Method Summary

Client: HDR Inc

Job ID: 280-160467-5

Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Method	Method Description	Protocol	Laboratory
6020A	Metals (ICP/MS)	SW846	TAL CF
9040B	pH	SW846	TAL DEN
9056A	Anions, Ion Chromatography	SW846	TAL DEN
SM 2320B	Alkalinity	SM	TAL DEN
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL 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:

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

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

Sample Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-5

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-160467-14	W-16	Water	04/01/22 10:50	04/02/22 09:15

1

2

3

4

5

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12

13

14

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-5

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Client Sample ID: W-16
Date Collected: 04/01/22 10:50
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	410		5.0	1.9	mg/L		04/11/22 09:15	04/22/22 03:05	10
Calcium	490		50	19	mg/L		04/11/22 09:15	04/22/22 16:40	100
Cobalt	0.0093	^2	0.0050	0.0019	mg/L		04/11/22 09:15	04/22/22 03:05	10
Cobalt	ND		0.050	0.019	mg/L		04/11/22 09:15	04/22/22 16:40	100
Sodium	1400	^-	10	6.1	mg/L		04/11/22 09:15	04/22/22 03:05	10
Sodium	1900		100	61	mg/L		04/11/22 09:15	04/22/22 16:40	100
Potassium	28	^-	5.0	1.5	mg/L		04/11/22 09:15	04/22/22 03:05	10
Potassium	38	J	50	15	mg/L		04/11/22 09:15	04/22/22 16:40	100
Magnesium	1700	E ^-	5.0	1.5	mg/L		04/11/22 09:15	04/22/22 03:05	10
Magnesium	2300		50	15	mg/L		04/11/22 09:15	04/22/22 16:40	100

General Chemistry

Client Sample ID: W-16
Date Collected: 04/01/22 10:50
Date Received: 04/02/22 09:15

Lab Sample ID: 280-160467-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU			04/14/22 11:38	1
Temperature	18.2	HF	1.0	1.0	Degrees C			04/14/22 11:38	1
Chloride	250		15	5.1	mg/L			04/16/22 02:10	5
Sulfate	13000		500	100	mg/L			04/16/22 02:25	100
Bicarbonate Alkalinity as CaCO3	850		10	3.1	mg/L			04/13/22 16:25	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			04/13/22 16:25	1
Total Suspended Solids	6.4		4.0	1.1	mg/L			04/05/22 16:36	1

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-5

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-349370/1-A

Matrix: Water

Analysis Batch: 350830

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 349370

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		0.50	0.19	mg/L		04/11/22 09:15	04/22/22 14:38	1
Cobalt	ND		0.00050	0.00019	mg/L		04/11/22 09:15	04/22/22 14:38	1
Sodium	ND		1.0	0.61	mg/L		04/11/22 09:15	04/22/22 14:38	1
Potassium	ND		0.50	0.15	mg/L		04/11/22 09:15	04/22/22 14:38	1
Magnesium	ND		0.50	0.15	mg/L		04/11/22 09:15	04/22/22 14:38	1

Lab Sample ID: LCS 310-349370/2-A

Matrix: Water

Analysis Batch: 350830

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 349370

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.200	0.211		mg/L		105	80 - 120
Arsenic	0.200	0.211		mg/L		106	80 - 120
Barium	0.100	0.104		mg/L		104	80 - 120
Beryllium	0.100	0.108		mg/L		108	80 - 120
Cadmium	0.100	0.102		mg/L		102	80 - 120
Calcium	2.00	1.99		mg/L		99	80 - 120
Chromium	0.100	0.106		mg/L		106	80 - 120
Cobalt	0.100	0.103		mg/L		103	80 - 120
Lead	0.200	0.205		mg/L		103	80 - 120
Lithium	0.200	0.217		mg/L		108	80 - 120
Molybdenum	0.200	0.210		mg/L		105	80 - 120
Selenium	0.400	0.408		mg/L		102	80 - 120
Thallium	0.200	0.208		mg/L		104	80 - 120
Sodium	2.00	2.25		mg/L		113	80 - 120
Potassium	2.00	2.15		mg/L		107	80 - 120
Magnesium	2.00	2.14		mg/L		107	80 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-571889/4

Matrix: Water

Analysis Batch: 571889

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH adj. to 25 deg C	7.00	7.0		SU		100	99 - 101

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-571994/6

Matrix: Water

Analysis Batch: 571994

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			04/15/22 15:29	1
Sulfate	ND		5.0	1.0	mg/L			04/15/22 15:29	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-5

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

Lab Sample ID: LCS 280-571994/4

Matrix: Water

Analysis Batch: 571994

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	101		mg/L		101	90 - 110
Sulfate	100	100		mg/L		100	90 - 110

Lab Sample ID: LCSD 280-571994/5

Matrix: Water

Analysis Batch: 571994

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	101		mg/L		101	90 - 110	0	10
Sulfate	100	100		mg/L		100	90 - 110	0	10

Lab Sample ID: MRL 280-571994/3

Matrix: Water

Analysis Batch: 571994

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.00	4.60		mg/L		92	50 - 150
Sulfate	5.00	4.21	J	mg/L		84	50 - 150

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-571820/6

Matrix: Water

Analysis Batch: 571820

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			04/13/22 13:07	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			04/13/22 13:07	1

Lab Sample ID: LCS 280-571820/4

Matrix: Water

Analysis Batch: 571820

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	200	189		mg/L		95	89 - 109

Lab Sample ID: LCSD 280-571820/5

Matrix: Water

Analysis Batch: 571820

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Alkalinity	200	191		mg/L		96	89 - 109	1	10

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-5

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 280-570875/2

Matrix: Water

Analysis Batch: 570875

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			04/05/22 16:36	1

Lab Sample ID: LCS 280-570875/1

Matrix: Water

Analysis Batch: 570875

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	86.4		mg/L		86	79 - 114

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-5

Metals

Prep Batch: 349370

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-14	W-16	Total Recoverable	Water	3005A	
MB 310-349370/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 310-349370/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 350746

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-14	W-16	Total Recoverable	Water	6020A	349370

Analysis Batch: 350830

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-14	W-16	Total Recoverable	Water	6020A	349370
MB 310-349370/1-A	Method Blank	Total Recoverable	Water	6020A	349370
LCS 310-349370/2-A	Lab Control Sample	Total Recoverable	Water	6020A	349370

General Chemistry

Analysis Batch: 570875

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-14	W-16	Total/NA	Water	SM 2540D	
MB 280-570875/2	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-570875/1	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 571820

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-14	W-16	Total/NA	Water	SM 2320B	
MB 280-571820/6	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-571820/4	Lab Control Sample	Total/NA	Water	SM 2320B	
LCSD 280-571820/5	Lab Control Sample Dup	Total/NA	Water	SM 2320B	

Analysis Batch: 571889

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-14	W-16	Total/NA	Water	9040B	
LCS 280-571889/4	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 571994

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160467-14	W-16	Total/NA	Water	9056A	
280-160467-14	W-16	Total/NA	Water	9056A	
MB 280-571994/6	Method Blank	Total/NA	Water	9056A	
LCS 280-571994/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-571994/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-571994/3	Lab Control Sample	Total/NA	Water	9056A	

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-5

Client Sample ID: W-16

Lab Sample ID: 280-160467-14

Date Collected: 04/01/22 10:50

Matrix: Water

Date Received: 04/02/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	QTZ5	TAL CF
Total Recoverable	Analysis	6020A		100			350830	04/22/22 16:40	DHM5	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	349370	04/11/22 09:15	QTZ5	TAL CF
Total Recoverable	Analysis	6020A		10			350746	04/22/22 03:05	DHM5	TAL CF
Total/NA	Analysis	9040B		1			571889	04/14/22 11:38	KEG	TAL DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	571994	04/16/22 02:10	RAF	TAL DEN
Total/NA	Analysis	9056A		100	10 mL	10 mL	571994	04/16/22 02:25	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			571820	04/13/22 16:25	KEG	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	570875	04/05/22 16:36	SVC	TAL DEN

Laboratory References:

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

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

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160467-5

Laboratory: Eurofins Denver

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

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-23

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
9040B		Water	Temperature

Laboratory: Eurofins Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Colorado	Petroleum Storage Tank Program	IA100001 (OR)	09-29-22
Georgia	State	IA100001 (OR)	09-29-22
Illinois	NELAP	200024	06-20-22
Iowa	State	007	12-01-21 *
Kansas	NELAP	E-10341	01-31-23
Minnesota	NELAP	019-999-319	12-31-22
Minnesota (Petrofund)	State	3349	01-18-24
North Dakota	State	R-186	09-29-22
Oregon	NELAP	IA100001	09-29-22

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

Chain of Custody Record

Client Information		Sampler: <u>Kent J. F. Davis</u>		Lab PM: <u>Harrington, Danielle M</u>		Carrier Tracking No(s): <u>280-110862-32017.2</u>		SOC No: <u>280-110862-32017.2</u>	
Client Contact: <u>Molly Reeves</u>		Phone: <u>7209337496</u>		E-Mail: <u>Danielle.Harrington@Eurofinset.com</u>		State of Origin: <u>CO</u>		Page: <u>1</u> of 2	
Company: <u>HDR Inc</u>		PWSID: <u>7209337496</u>		Analysis Requested		Job #:		Preservation Codes:	
Address: <u>1670 Broadway Suite 3400</u>		Due Date Requested: <u>std</u>		6010C, 6020A, 7470A Dissolved Metals - Canton		6010C, 6020A, 7470A Total Metals - Canton		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:	
City: <u>Denver</u>		TAT Requested (days): <u>std</u>		2320B alkalinity, 9040B pH, 9056A_28DCchloride, Fluoride, Sulfate		2540D - TSS/2540C TDS		M - Hexane N - None O - AshNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)	
State, Zip: <u>CO, 80202</u>		Compliance Project: <u>Δ Yes Δ No</u>		6010C, 6020A, 7470A Dissolved Metals - Canton		6010C, 6020A, 7470A Total Metals - Canton			
Phone: <u>734-263-7138(Tel)</u>		PO #: <u>DEN-021</u>		Field Filtered Sample (Yes or No)		2540D - TSS/2540C TDS			
Email: <u>Molly.Reeves@hdrinc.com</u>		WO #: <u></u>		Perform MS/MSD (Yes or No)		Radium -226 9135 and Radium -228 Method 9320/ Ra226Ra228228GFPc - ETA St. Louis			
Project Name: <u>Xcel Energy GW CCR Monitoring - Comanche</u>		Project #: <u>28014376</u>		Sample Date		Sample Time		Sample Type (C=Comp, G=grab) BT=Tissue, A=Air	
Site: <u>COLORADO</u>		SSOW#: <u></u>		Sample Date		Sample Time		Matrix (W=water, S=solid, O=soil, A=air)	
Groundwater- CCR (App III and App IV)				Sample Date		Sample Time		Preservation Code:	
Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=grab) BT=Tissue, A=Air		Field Filtered Sample (Yes or No)	
W-2A		03/31/22		1020		G		Water	
W-2C		03/31/22		1040		G		Water	
W-3		03/31/22		1230		G		W	
W-3B		03/31/22		1335		G		W	
W-5		03/30/22		1420		G		W	
W-5B		03/30/22		1545		G		W	
W-6		03/30/22		1040		G		W	
W-6B		03/30/22		1235		G		W	
W-6D		03/30/22		1040		G		W	
W-7		03/31/22		1730		G		W	
W-9		03/31/22		1450		G		W	
Possible Hazard Identification		Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological ☐		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months		Special Instructions/Note:	
Deliverable Requested: I, II, III, IV, Other (specify)		Empty Kit Relinquished by: <u>Davis</u>		Date: <u>2 April 2022 0915</u>		Date: <u>4-1-2022 915</u>		Company: <u>HTA DEN</u>	
Relinquished by: <u>Davis</u>		Date: <u>2 April 2022 0915</u>		Date: <u>4-1-2022 915</u>		Date: <u>4-1-2022 915</u>		Company: <u>HTA DEN</u>	
Relinquished by: <u>Davis</u>		Date: <u>2 April 2022 0915</u>		Date: <u>4-1-2022 915</u>		Date: <u>4-1-2022 915</u>		Company: <u>HTA DEN</u>	
Custody Seals Intact: <u>Δ Yes Δ No</u>		Custody Seal No.: <u>28014376</u>		Cooler Temperature(s) °C and Other Remarks: <u>26.0, 27.0, 28.0, 29.0, 30.0, 31.0, 32.0, 33.0, 34.0, 35.0, 36.0, 37.0, 38.0, 39.0, 40.0, 41.0, 42.0, 43.0, 44.0, 45.0, 46.0, 47.0, 48.0, 49.0, 50.0, 51.0, 52.0, 53.0, 54.0, 55.0, 56.0, 57.0, 58.0, 59.0, 60.0, 61.0, 62.0, 63.0, 64.0, 65.0, 66.0, 67.0, 68.0, 69.0, 70.0, 71.0, 72.0, 73.0, 74.0, 75.0, 76.0, 77.0, 78.0, 79.0, 80.0, 81.0, 82.0, 83.0, 84.0, 85.0, 86.0, 87.0, 88.0, 89.0, 90.0, 91.0, 92.0, 93.0, 94.0, 95.0, 96.0, 97.0, 98.0, 99.0, 100.0</u>		Ver: 01/16/2019			

[illegible]



Environment Testing
America

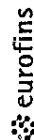


280-160467 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client <u>Dewer</u>			
City/State	CITY	STATE	Project
		<u>CO</u>	
Receipt Information			
Date/Time Received	DATE	TIME	Received By
	<u>4/5/22</u>	<u>0945</u>	<u>N</u>
Delivery Type ☐ UPS ☒ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee			
☐ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?	☒ Yes ☐ No	If yes Cooler ID	
Multiple Coolers?	☐ Yes ☒ No	If yes Cooler # _____ of _____	
Cooler Custody Seals Present?	☒ Yes ☐ No	If yes Cooler custody seals intact? ☒ Yes ☐ No	
Sample Custody Seals Present?	☐ Yes ☒ No	If yes Sample custody seals intact? ☐ Yes ☐ No	
Trip Blank Present?	☐ Yes ☒ No	If yes Which VOA samples are in cooler? ↓	
Temperature Record			
Coolant	☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other _____	☒ NONE	
Thermometer ID	<u>N</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>12.4</u>	Corrected Temp (°C) <u>12.4</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? ☐ Yes ☐ No			
a) If yes Is there evidence that the chilling process began? ☐ Yes ☐ No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No			
NOTE If yes, contact PM before proceeding If no, proceed with login			
Additional Comments			

Chain of Custody Record



Client Information (Sub Contract Lab)		Lab PM: Harrington, Danielle M		Carrier Tracking No(s): 280-609071 1	
Client Contact: Shipping/Receiving		E-Mail: Danielle.Harrington@Eurofins.com		Page: Page 1 of 2	
Company: Eurofins Environment Testing North Cent		Accreditations Required (See note): DoD A2LA		Job #: 280-160467 1	
Address: 3019 Venture Way		Due Date Requested: 4/21/2022		Preservation Codes:	
City: Cedar Falls		TAT Requested (days):		A HCL M Hexane	
State/Zip: IA, 50613		PO #:		B NaOH N None	
Phone: 319-277-2401(Tel) 319-277-2425(Fax)		WO #:		C Zn Acetate O AsNaO2	
Email:		Project #: 28014376		D Nitric Acid P Na2O4S	
Project Name: Xcel Energy GW CCR Monitoring Comanche		SSOW#:		E NaHSO4 Q Na2SO3	
Site: Xcel Energy CCR - Comanche Station				F MeOH R Na2S2O3	
				G Amchlor S H2SO4	
				H Ascorbic Acid T TSP Dodecahydrate	
				I Ice U Acetone	
				J DI Water V MCAA	
				K EDTA W pH 4-5	
				L EDA Z other (specify)	
				Other	
Sample Identification - Client ID (Lab ID)		Sample Date		Sample Time	
W-2A (280-160467-1)		3/31/22		10:20 Mountain	
W-2C (280-160467-2)		3/31/22		10:40 Mountain	
W-3 (280-160467-3)		3/31/22		12:30 Mountain	
W-3B (280-160467-4)		3/31/22		13:35 Mountain	
W-5 (280-160467-5)		3/31/22		14:20 Mountain	
W-5B (280-160467-6)		3/31/22		15:45 Mountain	
W-6 (280-160467 7)		3/31/22		10:40 Mountain	
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W-5B (280-160467-6)		3/31/22			

Client Information (Sub Contract Lab)				Lab Pk:	Carrier Tracking No(s):	COC No:		
Shipping/Receiving				Harrington, Danielle M	280-609071.2	280-609071.2		
Company:				E-Mail:	State of Origin:	Page:		
Eurofins Environment Testing North Centr				Danielle.Harrington@Eurofinset.com	Colorado	Page 2 of 2		
Address:				Job #:				
3019 Venture Way				280-160467-1				
City:				Preservation Codes:				
Cedar Falls				A HCL M Hexane				
State, Zip:				B NaOH N None				
IA, 50613				C Zn Acetate O AsNaO2				
Phone:				D Nitric Acid P Na2O4S				
319-277-2401(Tel) 319-277-2425(Fax)				E NaHSO4 Q Na2SO3				
Email:				F MeOH R Na2S2O3				
Project Name:				G Amchlor S H2SO4				
Xcel Energy GW CCR Monitoring Comanche				H Ascorbic Acid T TSP Dodecahydrate				
Site:				I Ice U Acetone				
Xcel Energy CCR Comanche Station				J DI Water V MCAA				
Project #:				K EDTA W pH 4-5				
28014376				L EDA Z other (specify)				
SSOW#:				Other				
Sample Identification Client ID (Lab ID)				Total Number of Containers				
W-7 (280-160467-10)	3/31/22	17:30 Mountain	Water	Field Filled Sample (Yes or No)	6020A/3005A (MOD) 13 Total Metals (W/collision cell)	6010C/3005A (MOD) Boron	7470A/7470A Prep Mercury	Special Instructions/Note:
W-9 (280-160467-11)	3/31/22	14:50 Mountain	Water					
W-12 (280-160467-12)	3/31/22	12:30 Mountain	Water					
W-14 (280-160467-13)	3/31/22	12:40 Mountain	Water					
W-16 (280-160467-14)	3/31/22	10:50 Mountain	Water					
MW-5 (280-160467-16)	3/31/22	15:45 Mountain	Water					
W-11 (280-160467-17)	3/31/22	11:00 Mountain	Water					
W-3EB (280-160467-18)	3/31/22	13:15 Mountain	Water					

Possible Hazard Identification

Unconfirmed

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

Primary Deliverable Rank: 2

Empty Kit Relinquished by:

Relinquished by: *[Signature]* Date/Time: *4/4/22 15:15*

Relinquished by: *[Signature]* Date/Time: *4/4/22 15:15*

Relinquished by: *[Signature]* Date/Time: *4/4/22 15:15*

Custody Seals Intact: *[Signature]* Custody Seal No. *1515*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months

Special Instructions/QC Requirements:

Method of Shipment

Received by: *[Signature]* Date/Time: *4/4/22 15:15*

Received by: *[Signature]* Date/Time: *4/4/22 15:15*

Received by: *[Signature]* Date/Time: *4/4/22 15:15*

Cooler Temperature(s) °C and Other Remarks:



Environment Testing
America



280-160467 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client <u>Denver</u>			
City/State	CITY	STATE	Project
		<u>CO</u>	
Receipt Information			
Date/Time Received	DATE	TIME	Received By
	<u>4-8-22</u>	<u>935</u>	<u>[Signature]</u>
Delivery Type ☐ UPS ☒ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee			
☐ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler? ☒ Yes ☐ No If yes Cooler ID _____			
Multiple Coolers? ☐ Yes ☒ No If yes Cooler # _____ of _____			
Cooler Custody Seals Present? ☒ Yes ☐ No If yes Cooler custody seals intact? ☒ Yes ☐ No			
Sample Custody Seals Present? ☐ Yes ☒ No If yes Sample custody seals intact? ☐ Yes ☐ No			
Trip Blank Present? ☐ Yes ☒ No If yes Which VOA samples are in cooler? ↓			
Temperature Record			
Coolant ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other _____ ☐ NONE			
Thermometer ID		Correction Factor (°C)	
<u>0</u>		<u>0</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C)		Corrected Temp (°C)	
<u>0.9</u>		<u>0.9</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? ☐ Yes ☐ No			
a) If yes Is there evidence that the chilling process began? ☐ Yes ☐ No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No			
NOTE: If yes, contact PM before proceeding If no, proceed with login			
Additional Comments			

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-160467-5

Login Number: 160467

List Number: 1

Creator: Rystrom, Joshua R

List Source: Eurofins Denver

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

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-160467-5

Login Number: 160467

List Number: 2

Creator: Homolar, Dana J

List Source: Eurofins Cedar Falls

List Creation: 04/05/22 01:45 PM

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?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-160467-5

Login Number: 160467

List Number: 4

Creator: Kizer, Preston V

List Source: Eurofins Cedar Falls

List Creation: 04/08/22 12:58 PM

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.	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?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

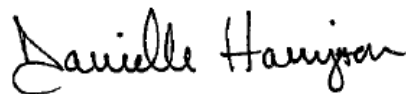
Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-160577-1

Client Project/Site: Xcel Energy GW CCR Monitoring -
Comanche

For:
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Attn: Molly Reeves



Authorized for release by:
5/2/2022 1:38:44 PM

Danielle Harrington, Project Manager II
(303)736-0176
Danielle.Harrington@et.eurofinsus.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-1

Qualifiers

Metals

Qualifier	Qualifier Description
^+	Continuing Calibration Verification (CCV) is outside acceptance limits, high biased.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-1

Job ID: 280-160577-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-160577-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 04/06/2022; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt were 0.9°C and 3.0°C.

Please note, the container label for the following sample did not match the information listed on the Chain-of-Custody (COC): W-4 (280-160577-6). This sample is logged for all analysis, only the partially filled container was received for this sample. It is marked for all of the tests on the COC. All preserved analysis has been canceled.

TOTAL RECOVERABLE METALS- METHOD 6010C/6020A

Several samples required dilution prior to analysis due to matrix interferences or high analyte concentrations. The reporting limits have been adjusted accordingly.

Method 6010C: The reference method requires samples to be preserved to a pH of <2. The following samples were received with insufficient preservation at a pH of >2: MW-1B (280-160577-1) and MW-2B (280-160577-2). The sample(s) was preserved to the appropriate pH in the laboratory.

Method 6020A: The reference method requires samples to be preserved to a pH of <2. The following samples were received with insufficient preservation at a pH of >2: MW-1B (280-160577-1) and MW-2B (280-160577-2). The sample(s) was preserved to the appropriate pH in the laboratory.

Laboratory generated MS/MSD analysis data have been provided. The MS/MSD for method 6020A exhibited multiple spike compound recoveries outside the QC limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The accuracy and precision of the multiple Method 6020A MS/MSD analytes performed on a laboratory generated sample could not be reliably evaluated, as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The continuing calibration verification (CCV) associated with batch 310-350753 recovered above the upper control limit for Beryllium. The samples associated with this CCV were non-detects for the affected analytes; therefore, corrective action is deemed unnecessary.

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-1

Job ID: 280-160577-1 (Continued)

Laboratory: Eurofins Denver (Continued)

Method 6020A: Due to sample matrix effect on the internal standard (ISTD), a dilution was required for the following samples: MW-1B (280-160577-1), MW-2B (280-160577-2), MW-4B (280-160577-3), MW-6 (280-160577-4), W-1 (280-160577-5), MW-7 (280-160577-7) and MW-7D (280-160577-8).

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

TOTAL MERCURY

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

GENERAL CHEMISTRY - VARIOUS

Several samples required dilution prior to analysis for various methods. The reporting limits have been adjusted accordingly.

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

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-1

Client Sample ID: MW-1B

Lab Sample ID: 280-160577-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.0	J	2.0	0.56	mg/L	10		6010C	Total
									Recoverable
Cadmium	0.0023		0.0020	0.0011	mg/L	20		6020A	Total
									Recoverable
Calcium	420		10	3.8	mg/L	20		6020A	Total
									Recoverable
Cobalt	0.049		0.010	0.0038	mg/L	20		6020A	Total
									Recoverable
Lithium	3.2		0.20	0.050	mg/L	20		6020A	Total
									Recoverable
Selenium	0.70		0.10	0.019	mg/L	20		6020A	Total
									Recoverable
pH adj. to 25 deg C	7.1	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	18.3	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	410		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	40		2.5	0.83	mg/L	5		9056A	Total/NA
Sulfate	18000		1000	210	mg/L	200		9056A	Total/NA
Alkalinity	1500		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	1500		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	32000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	5.6		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-2B

Lab Sample ID: 280-160577-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.4	J	4.0	1.1	mg/L	20		6010C	Total
									Recoverable
Antimony	0.021	J	0.040	0.014	mg/L	20		6020A	Total
									Recoverable
Cadmium	0.0013	J	0.0020	0.0011	mg/L	20		6020A	Total
									Recoverable
Calcium	510		10	3.8	mg/L	20		6020A	Total
									Recoverable
Cobalt	0.038		0.010	0.0038	mg/L	20		6020A	Total
									Recoverable
Lithium	5.7		0.20	0.050	mg/L	20		6020A	Total
									Recoverable
Selenium	2.4		0.10	0.019	mg/L	20		6020A	Total
									Recoverable
Thallium	0.012	J	0.020	0.0052	mg/L	20		6020A	Total
									Recoverable
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	18.9	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	550		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	51		5.0	1.7	mg/L	10		9056A	Total/NA
Sulfate	30000		1000	210	mg/L	200		9056A	Total/NA
Alkalinity	1900		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	1900		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	46000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	12		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-4B

Lab Sample ID: 280-160577-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.57		0.40	0.11	mg/L	2		6010C	Total
									Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-1

Client Sample ID: MW-4B (Continued)

Lab Sample ID: 280-160577-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.019		0.0080	0.0035	mg/L	4		6020A	Total
									Recoverable
Calcium	630		2.0	0.76	mg/L	4		6020A	Total
									Recoverable
Cobalt	0.0062		0.0020	0.00076	mg/L	4		6020A	Total
									Recoverable
Lithium	0.83		0.040	0.010	mg/L	4		6020A	Total
									Recoverable
Molybdenum	0.017		0.0080	0.0048	mg/L	4		6020A	Total
									Recoverable
Selenium	1.5		0.020	0.0038	mg/L	4		6020A	Total
									Recoverable
pH adj. to 25 deg C	7.3	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	19.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	180		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	8.4		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	3000		100	21	mg/L	20		9056A	Total/NA
Alkalinity	640		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	640		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	6000		40	19	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	3.6	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-6

Lab Sample ID: 280-160577-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	2.2		0.60	0.17	mg/L	3		6010C	Total
									Recoverable
Barium	0.0076	J	0.0080	0.0035	mg/L	4		6020A	Total
									Recoverable
Calcium	500		2.0	0.76	mg/L	4		6020A	Total
									Recoverable
Lithium	0.22		0.040	0.010	mg/L	4		6020A	Total
									Recoverable
Molybdenum	0.010		0.0080	0.0048	mg/L	4		6020A	Total
									Recoverable
Selenium	0.97		0.020	0.0038	mg/L	4		6020A	Total
									Recoverable
pH adj. to 25 deg C	7.7	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	19.1	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	190		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	9.0		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	4300		250	52	mg/L	50		9056A	Total/NA
Alkalinity	130		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	130		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	6200		40	19	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	6.0		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-1

Lab Sample ID: 280-160577-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	3.5		3.0	0.84	mg/L	15		6010C	Total
									Recoverable
Calcium	500		10	3.8	mg/L	20		6020A	Total
									Recoverable
Lithium	2.3		0.20	0.050	mg/L	20		6020A	Total
									Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-1

Client Sample ID: W-1 (Continued)

Lab Sample ID: 280-160577-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Selenium	0.75		0.10	0.019	mg/L	20		6020A	Total Recoverable
Sodium	7900		20	12	mg/L	20		6020A	Total Recoverable
Potassium	13		10	3.0	mg/L	20		6020A	Total Recoverable
Magnesium	3700		50	15	mg/L	100		6020A	Total Recoverable
pH adj. to 25 deg C	7.5	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	19.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	620		30	10	mg/L	10		9056A	Total/NA
Fluoride	41		5.0	1.7	mg/L	10		9056A	Total/NA
Sulfate	22000		2500	520	mg/L	500		9056A	Total/NA
Alkalinity	840		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	840		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	36000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	12		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-4

Lab Sample ID: 280-160577-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
pH adj. to 25 deg C	8.0	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.7	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	480		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	49		5.0	1.7	mg/L	10		9056A	Total/NA
Sulfate	25000		2500	520	mg/L	500		9056A	Total/NA
Alkalinity	450		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	450		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	39000		1000	470	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-7

Lab Sample ID: 280-160577-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.76	J	1.2	0.34	mg/L	6		6010C	Total Recoverable
Calcium	570		10	3.8	mg/L	20		6020A	Total Recoverable
Cobalt	0.0087	J	0.010	0.0038	mg/L	20		6020A	Total Recoverable
Lithium	2.1		0.20	0.050	mg/L	20		6020A	Total Recoverable
Selenium	0.46		0.10	0.019	mg/L	20		6020A	Total Recoverable
Sodium	3000		20	12	mg/L	20		6020A	Total Recoverable
Potassium	40		10	3.0	mg/L	20		6020A	Total Recoverable
Magnesium	1100		10	3.0	mg/L	20		6020A	Total Recoverable
pH adj. to 25 deg C	7.3	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.7	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	290		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	15		2.5	0.83	mg/L	5		9056A	Total/NA
Sulfate	7100		1000	210	mg/L	200		9056A	Total/NA
Alkalinity	680		10	3.1	mg/L	1		SM 2320B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-1

Client Sample ID: MW-7 (Continued)

Lab Sample ID: 280-160577-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Bicarbonate Alkalinity as CaCO3	680		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	12000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	5.2		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-7D

Lab Sample ID: 280-160577-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.77	J	1.2	0.34	mg/L	6		6010C	Total Recoverable
Calcium	570		10	3.8	mg/L	20		6020A	Total Recoverable
Cobalt	0.0086	J	0.010	0.0038	mg/L	20		6020A	Total Recoverable
Lithium	2.1		0.20	0.050	mg/L	20		6020A	Total Recoverable
Selenium	0.48		0.10	0.019	mg/L	20		6020A	Total Recoverable
Sodium	3000		20	12	mg/L	20		6020A	Total Recoverable
Potassium	41		10	3.0	mg/L	20		6020A	Total Recoverable
Magnesium	1100		10	3.0	mg/L	20		6020A	Total Recoverable
pH adj. to 25 deg C	7.4	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.2	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	290		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	15		2.5	0.83	mg/L	5		9056A	Total/NA
Sulfate	2800		1000	210	mg/L	200		9056A	Total/NA
Alkalinity	910		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	910		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	12000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	3.2	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Method Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL CF
6020A	Metals (ICP/MS)	SW846	TAL CF
7470A	Mercury (CVAA)	SW846	TAL CF
9040B	pH	SW846	TAL DEN
9056A	Anions, Ion Chromatography	SW846	TAL DEN
SM 2320B	Alkalinity	SM	TAL DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL DEN
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL CF
7470A	Preparation, Mercury	SW846	TAL 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:

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

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

Sample Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-160577-1	MW-1B	Water	04/04/22 16:50	04/06/22 08:05
280-160577-2	MW-2B	Water	04/05/22 12:20	04/06/22 08:05
280-160577-3	MW-4B	Water	04/04/22 13:20	04/06/22 08:05
280-160577-4	MW-6	Water	04/04/22 15:05	04/06/22 08:05
280-160577-5	W-1	Water	04/05/22 12:55	04/06/22 08:05
280-160577-6	W-4	Water	04/05/22 13:30	04/06/22 08:05
280-160577-7	MW-7	Water	04/05/22 10:25	04/06/22 08:05
280-160577-8	MW-7D	Water	04/05/22 10:25	04/06/22 08:05

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-1

Method: 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: MW-1B
Date Collected: 04/04/22 16:50
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.0	J	2.0	0.56	mg/L		04/12/22 08:30	04/14/22 11:28	10

Client Sample ID: MW-2B
Date Collected: 04/05/22 12:20
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.4	J	4.0	1.1	mg/L		04/12/22 08:30	04/14/22 11:30	20

Client Sample ID: MW-4B
Date Collected: 04/04/22 13:20
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.57		0.40	0.11	mg/L		04/12/22 08:30	04/14/22 11:32	2

Client Sample ID: MW-6
Date Collected: 04/04/22 15:05
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	2.2		0.60	0.17	mg/L		04/12/22 08:30	04/14/22 11:34	3

Client Sample ID: W-1
Date Collected: 04/05/22 12:55
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	3.5		3.0	0.84	mg/L		04/12/22 08:30	04/14/22 11:36	15

Client Sample ID: MW-7
Date Collected: 04/05/22 10:25
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.76	J	1.2	0.34	mg/L		04/12/22 08:30	04/14/22 11:38	6

Client Sample ID: MW-7D
Date Collected: 04/05/22 10:25
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.77	J	1.2	0.34	mg/L		04/12/22 08:30	04/14/22 11:40	6

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Client Sample ID: MW-1B
Date Collected: 04/04/22 16:50
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.040	0.014	mg/L		04/18/22 09:00	04/22/22 04:42	20
Arsenic	ND		0.040	0.015	mg/L		04/18/22 09:00	04/22/22 04:42	20
Barium	ND		0.040	0.018	mg/L		04/18/22 09:00	04/22/22 04:42	20
Beryllium	ND	^+	0.020	0.0054	mg/L		04/18/22 09:00	04/22/22 04:42	20
Cadmium	0.0023		0.0020	0.0011	mg/L		04/18/22 09:00	04/22/22 04:42	20
Calcium	420		10	3.8	mg/L		04/18/22 09:00	04/22/22 04:42	20
Chromium	ND		0.10	0.022	mg/L		04/18/22 09:00	04/22/22 04:42	20

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-1

Method: 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

Client Sample ID: MW-1B
Date Collected: 04/04/22 16:50
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	0.049		0.010	0.0038	mg/L		04/18/22 09:00	04/22/22 04:42	20
Lead	ND		0.010	0.0048	mg/L		04/18/22 09:00	04/22/22 04:42	20
Lithium	3.2		0.20	0.050	mg/L		04/18/22 09:00	04/22/22 04:42	20
Molybdenum	ND		0.040	0.024	mg/L		04/18/22 09:00	04/22/22 04:42	20
Selenium	0.70		0.10	0.019	mg/L		04/18/22 09:00	04/22/22 04:42	20
Thallium	ND		0.020	0.0052	mg/L		04/18/22 09:00	04/22/22 04:42	20

Client Sample ID: MW-2B
Date Collected: 04/05/22 12:20
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.021	J	0.040	0.014	mg/L		04/18/22 09:00	04/22/22 05:02	20
Arsenic	ND		0.040	0.015	mg/L		04/18/22 09:00	04/22/22 05:02	20
Barium	ND		0.040	0.018	mg/L		04/18/22 09:00	04/22/22 05:02	20
Beryllium	ND		0.020	0.0054	mg/L		04/18/22 09:00	04/22/22 05:02	20
Cadmium	0.0013	J	0.0020	0.0011	mg/L		04/18/22 09:00	04/22/22 05:02	20
Calcium	510		10	3.8	mg/L		04/18/22 09:00	04/22/22 05:02	20
Chromium	ND		0.10	0.022	mg/L		04/18/22 09:00	04/22/22 05:02	20
Cobalt	0.038		0.010	0.0038	mg/L		04/18/22 09:00	04/22/22 05:02	20
Lead	ND		0.010	0.0048	mg/L		04/18/22 09:00	04/22/22 05:02	20
Lithium	5.7		0.20	0.050	mg/L		04/18/22 09:00	04/22/22 05:02	20
Molybdenum	ND		0.040	0.024	mg/L		04/18/22 09:00	04/22/22 05:02	20
Selenium	2.4		0.10	0.019	mg/L		04/18/22 09:00	04/22/22 05:02	20
Thallium	0.012	J	0.020	0.0052	mg/L		04/18/22 09:00	04/22/22 05:02	20

Client Sample ID: MW-4B
Date Collected: 04/04/22 13:20
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0080	0.0028	mg/L		04/18/22 09:00	04/22/22 05:06	4
Arsenic	ND		0.0080	0.0030	mg/L		04/18/22 09:00	04/22/22 05:06	4
Barium	0.019		0.0080	0.0035	mg/L		04/18/22 09:00	04/22/22 05:06	4
Beryllium	ND		0.0040	0.0011	mg/L		04/18/22 09:00	04/22/22 05:06	4
Cadmium	ND		0.00040	0.00022	mg/L		04/18/22 09:00	04/22/22 05:06	4
Calcium	630		2.0	0.76	mg/L		04/18/22 09:00	04/22/22 05:06	4
Chromium	ND		0.020	0.0044	mg/L		04/18/22 09:00	04/22/22 05:06	4
Cobalt	0.0062		0.0020	0.00076	mg/L		04/18/22 09:00	04/22/22 05:06	4
Lead	ND		0.0020	0.00096	mg/L		04/18/22 09:00	04/22/22 05:06	4
Lithium	0.83		0.040	0.010	mg/L		04/18/22 09:00	04/22/22 05:06	4
Molybdenum	0.017		0.0080	0.0048	mg/L		04/18/22 09:00	04/22/22 05:06	4
Selenium	1.5		0.020	0.0038	mg/L		04/18/22 09:00	04/22/22 05:06	4
Thallium	ND		0.0040	0.0010	mg/L		04/18/22 09:00	04/22/22 05:06	4

Client Sample ID: MW-6
Date Collected: 04/04/22 15:05
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0080	0.0028	mg/L		04/18/22 09:00	04/22/22 05:10	4
Arsenic	ND		0.0080	0.0030	mg/L		04/18/22 09:00	04/22/22 05:10	4
Barium	0.0076	J	0.0080	0.0035	mg/L		04/18/22 09:00	04/22/22 05:10	4

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-1

Method: 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

Client Sample ID: MW-6
Date Collected: 04/04/22 15:05
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.0040	0.0011	mg/L		04/18/22 09:00	04/22/22 05:10	4
Cadmium	ND		0.00040	0.00022	mg/L		04/18/22 09:00	04/22/22 05:10	4
Calcium	500		2.0	0.76	mg/L		04/18/22 09:00	04/22/22 05:10	4
Chromium	ND		0.020	0.0044	mg/L		04/18/22 09:00	04/22/22 05:10	4
Cobalt	ND		0.0020	0.00076	mg/L		04/18/22 09:00	04/22/22 05:10	4
Lead	ND		0.0020	0.00096	mg/L		04/18/22 09:00	04/22/22 05:10	4
Lithium	0.22		0.040	0.010	mg/L		04/18/22 09:00	04/22/22 05:10	4
Molybdenum	0.010		0.0080	0.0048	mg/L		04/18/22 09:00	04/22/22 05:10	4
Selenium	0.97		0.020	0.0038	mg/L		04/18/22 09:00	04/22/22 05:10	4
Thallium	ND		0.0040	0.0010	mg/L		04/18/22 09:00	04/22/22 05:10	4

Client Sample ID: W-1
Date Collected: 04/05/22 12:55
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.040	0.014	mg/L		04/18/22 09:00	04/22/22 05:18	20
Arsenic	ND		0.040	0.015	mg/L		04/18/22 09:00	04/22/22 05:18	20
Barium	ND		0.040	0.018	mg/L		04/18/22 09:00	04/22/22 05:18	20
Beryllium	ND		0.020	0.0054	mg/L		04/18/22 09:00	04/22/22 05:18	20
Cadmium	ND		0.0020	0.0011	mg/L		04/18/22 09:00	04/22/22 05:18	20
Calcium	500		10	3.8	mg/L		04/18/22 09:00	04/22/22 05:18	20
Chromium	ND		0.10	0.022	mg/L		04/18/22 09:00	04/22/22 05:18	20
Cobalt	ND		0.010	0.0038	mg/L		04/18/22 09:00	04/22/22 05:18	20
Lead	ND		0.010	0.0048	mg/L		04/18/22 09:00	04/22/22 05:18	20
Lithium	2.3		0.20	0.050	mg/L		04/18/22 09:00	04/22/22 05:18	20
Molybdenum	ND		0.040	0.024	mg/L		04/18/22 09:00	04/22/22 05:18	20
Selenium	0.75		0.10	0.019	mg/L		04/18/22 09:00	04/22/22 05:18	20
Thallium	ND		0.020	0.0052	mg/L		04/18/22 09:00	04/22/22 05:18	20
Sodium	7900		20	12	mg/L		04/18/22 09:00	04/22/22 05:18	20
Potassium	13		10	3.0	mg/L		04/18/22 09:00	04/22/22 05:18	20
Magnesium	3700		50	15	mg/L		04/18/22 09:00	04/27/22 13:23	100

Client Sample ID: MW-7
Date Collected: 04/05/22 10:25
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.040	0.014	mg/L		04/18/22 09:00	04/22/22 05:21	20
Arsenic	ND		0.040	0.015	mg/L		04/18/22 09:00	04/22/22 05:21	20
Barium	ND		0.040	0.018	mg/L		04/18/22 09:00	04/22/22 05:21	20
Beryllium	ND		0.020	0.0054	mg/L		04/18/22 09:00	04/22/22 05:21	20
Cadmium	ND		0.0020	0.0011	mg/L		04/18/22 09:00	04/22/22 05:21	20
Calcium	570		10	3.8	mg/L		04/18/22 09:00	04/22/22 05:21	20
Chromium	ND		0.10	0.022	mg/L		04/18/22 09:00	04/22/22 05:21	20
Cobalt	0.0087	J	0.010	0.0038	mg/L		04/18/22 09:00	04/22/22 05:21	20
Lead	ND		0.010	0.0048	mg/L		04/18/22 09:00	04/22/22 05:21	20
Lithium	2.1		0.20	0.050	mg/L		04/18/22 09:00	04/22/22 05:21	20
Molybdenum	ND		0.040	0.024	mg/L		04/18/22 09:00	04/22/22 05:21	20
Selenium	0.46		0.10	0.019	mg/L		04/18/22 09:00	04/22/22 05:21	20
Thallium	ND		0.020	0.0052	mg/L		04/18/22 09:00	04/22/22 05:21	20
Sodium	3000		20	12	mg/L		04/18/22 09:00	04/22/22 05:21	20

Eurofins Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-1

Method: 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

Client Sample ID: MW-7
Date Collected: 04/05/22 10:25
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium	40		10	3.0	mg/L		04/18/22 09:00	04/22/22 05:21	20
Magnesium	1100		10	3.0	mg/L		04/18/22 09:00	04/22/22 05:21	20

Client Sample ID: MW-7D
Date Collected: 04/05/22 10:25
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.040	0.014	mg/L		04/18/22 09:00	04/22/22 05:25	20
Arsenic	ND		0.040	0.015	mg/L		04/18/22 09:00	04/22/22 05:25	20
Barium	ND		0.040	0.018	mg/L		04/18/22 09:00	04/22/22 05:25	20
Beryllium	ND		0.020	0.0054	mg/L		04/18/22 09:00	04/22/22 05:25	20
Cadmium	ND		0.0020	0.0011	mg/L		04/18/22 09:00	04/22/22 05:25	20
Calcium	570		10	3.8	mg/L		04/18/22 09:00	04/22/22 05:25	20
Chromium	ND		0.10	0.022	mg/L		04/18/22 09:00	04/22/22 05:25	20
Cobalt	0.0086	J	0.010	0.0038	mg/L		04/18/22 09:00	04/22/22 05:25	20
Lead	ND		0.010	0.0048	mg/L		04/18/22 09:00	04/22/22 05:25	20
Lithium	2.1		0.20	0.050	mg/L		04/18/22 09:00	04/22/22 05:25	20
Molybdenum	ND		0.040	0.024	mg/L		04/18/22 09:00	04/22/22 05:25	20
Selenium	0.48		0.10	0.019	mg/L		04/18/22 09:00	04/22/22 05:25	20
Thallium	ND		0.020	0.0052	mg/L		04/18/22 09:00	04/22/22 05:25	20
Sodium	3000		20	12	mg/L		04/18/22 09:00	04/22/22 05:25	20
Potassium	41		10	3.0	mg/L		04/18/22 09:00	04/22/22 05:25	20
Magnesium	1100		10	3.0	mg/L		04/18/22 09:00	04/22/22 05:25	20

Method: 7470A - Mercury (CVAA)

Client Sample ID: W-1
Date Collected: 04/05/22 12:55
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		04/20/22 13:43	04/21/22 14:26	1

Client Sample ID: MW-7
Date Collected: 04/05/22 10:25
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		04/20/22 13:43	04/21/22 14:28	1

Client Sample ID: MW-7D
Date Collected: 04/05/22 10:25
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		04/20/22 13:43	04/21/22 14:30	1

General Chemistry

Client Sample ID: MW-1B
Date Collected: 04/04/22 16:50
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.1	HF	0.1	0.1	SU			04/18/22 12:22	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-1

General Chemistry (Continued)

Client Sample ID: MW-1B
Date Collected: 04/04/22 16:50
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Temperature	18.3	HF	1.0	1.0	Degrees C			04/18/22 12:22	1
Chloride	410		15	5.1	mg/L			04/20/22 05:35	5
Fluoride	40		2.5	0.83	mg/L			04/20/22 05:35	5
Sulfate	18000		1000	210	mg/L			04/20/22 16:44	200
Alkalinity	1500		10	3.1	mg/L			04/13/22 23:54	1
Bicarbonate Alkalinity as CaCO3	1500		10	3.1	mg/L			04/13/22 23:54	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			04/13/22 23:54	1
Total Dissolved Solids (TDS)	32000		1000	470	mg/L			04/11/22 12:28	1
Total Suspended Solids	5.6		4.0	1.1	mg/L			04/07/22 16:25	1

Client Sample ID: MW-2B
Date Collected: 04/05/22 12:20
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU			04/18/22 12:25	1
Temperature	18.9	HF	1.0	1.0	Degrees C			04/18/22 12:25	1
Chloride	550		15	5.1	mg/L			04/20/22 17:03	5
Fluoride	51		5.0	1.7	mg/L			04/20/22 17:18	10
Sulfate	30000		1000	210	mg/L			04/20/22 17:34	200
Alkalinity	1900		10	3.1	mg/L			04/14/22 00:11	1
Bicarbonate Alkalinity as CaCO3	1900		10	3.1	mg/L			04/14/22 00:11	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			04/14/22 00:11	1
Total Dissolved Solids (TDS)	46000		1000	470	mg/L			04/12/22 10:46	1
Total Suspended Solids	12		4.0	1.1	mg/L			04/07/22 16:25	1

Client Sample ID: MW-4B
Date Collected: 04/04/22 13:20
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.3	HF	0.1	0.1	SU			04/18/22 12:29	1
Temperature	19.0	HF	1.0	1.0	Degrees C			04/18/22 12:29	1
Chloride	180		15	5.1	mg/L			04/20/22 17:50	5
Fluoride	8.4		0.50	0.17	mg/L			04/20/22 06:07	1
Sulfate	3000		100	21	mg/L			04/20/22 18:06	20
Alkalinity	640		10	3.1	mg/L			04/14/22 00:20	1
Bicarbonate Alkalinity as CaCO3	640		10	3.1	mg/L			04/14/22 00:20	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			04/14/22 00:20	1
Total Dissolved Solids (TDS)	6000		40	19	mg/L			04/11/22 12:28	1
Total Suspended Solids	3.6	J	4.0	1.1	mg/L			04/10/22 17:14	1

Client Sample ID: MW-6
Date Collected: 04/04/22 15:05
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.7	HF	0.1	0.1	SU			04/18/22 12:33	1
Temperature	19.1	HF	1.0	1.0	Degrees C			04/18/22 12:33	1
Chloride	190		15	5.1	mg/L			04/20/22 18:54	5
Fluoride	9.0		0.50	0.17	mg/L			04/20/22 06:23	1
Sulfate	4300		250	52	mg/L			04/22/22 07:12	50
Alkalinity	130		10	3.1	mg/L			04/14/22 00:26	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-1

General Chemistry (Continued)

Client Sample ID: MW-6
Date Collected: 04/04/22 15:05
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO ₃	130		10	3.1	mg/L			04/14/22 00:26	1
Carbonate Alkalinity as CaCO ₃	ND		10	3.1	mg/L			04/14/22 00:26	1
Total Dissolved Solids (TDS)	6200		40	19	mg/L			04/11/22 12:28	1
Total Suspended Solids	6.0		4.0	1.1	mg/L			04/07/22 16:25	1

Client Sample ID: W-1
Date Collected: 04/05/22 12:55
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.5	HF	0.1	0.1	SU			04/18/22 12:37	1
Temperature	19.6	HF	1.0	1.0	Degrees C			04/18/22 12:37	1
Chloride	620		30	10	mg/L			04/20/22 19:25	10
Fluoride	41		5.0	1.7	mg/L			04/20/22 19:25	10
Sulfate	22000		2500	520	mg/L			04/20/22 19:41	500
Alkalinity	840		10	3.1	mg/L			04/14/22 00:35	1
Bicarbonate Alkalinity as CaCO ₃	840		10	3.1	mg/L			04/14/22 00:35	1
Carbonate Alkalinity as CaCO ₃	ND		10	3.1	mg/L			04/14/22 00:35	1
Total Dissolved Solids (TDS)	36000		1000	470	mg/L			04/12/22 10:46	1
Total Suspended Solids	12		4.0	1.1	mg/L			04/07/22 16:25	1

Client Sample ID: W-4
Date Collected: 04/05/22 13:30
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.0	HF	0.1	0.1	SU			04/18/22 12:41	1
Temperature	20.7	HF	1.0	1.0	Degrees C			04/18/22 12:41	1
Chloride	480		15	5.1	mg/L			04/20/22 19:57	5
Fluoride	49		5.0	1.7	mg/L			04/22/22 09:22	10
Sulfate	25000		2500	520	mg/L			04/20/22 20:13	500
Alkalinity	450		10	3.1	mg/L			04/14/22 00:53	1
Bicarbonate Alkalinity as CaCO ₃	450		10	3.1	mg/L			04/14/22 00:53	1
Carbonate Alkalinity as CaCO ₃	ND		10	3.1	mg/L			04/14/22 00:53	1
Total Dissolved Solids (TDS)	39000		1000	470	mg/L			04/12/22 10:46	1

Client Sample ID: MW-7
Date Collected: 04/05/22 10:25
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.3	HF	0.1	0.1	SU			04/18/22 12:45	1
Temperature	20.7	HF	1.0	1.0	Degrees C			04/18/22 12:45	1
Chloride	290		15	5.1	mg/L			04/20/22 20:29	5
Fluoride	15		2.5	0.83	mg/L			04/20/22 20:29	5
Sulfate	7100		1000	210	mg/L			04/20/22 20:44	200
Alkalinity	680		10	3.1	mg/L			04/14/22 01:02	1
Bicarbonate Alkalinity as CaCO ₃	680		10	3.1	mg/L			04/14/22 01:02	1
Carbonate Alkalinity as CaCO ₃	ND		10	3.1	mg/L			04/14/22 01:02	1
Total Dissolved Solids (TDS)	12000		1000	470	mg/L			04/12/22 10:46	1
Total Suspended Solids	5.2		4.0	1.1	mg/L			04/07/22 16:25	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-1

General Chemistry

Client Sample ID: MW-7D
Date Collected: 04/05/22 10:25
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.4	HF	0.1	0.1	SU			04/18/22 12:49	1
Temperature	20.2	HF	1.0	1.0	Degrees C			04/18/22 12:49	1
Chloride	290		15	5.1	mg/L			04/20/22 21:00	5
Fluoride	15		2.5	0.83	mg/L			04/20/22 21:00	5
Sulfate	2800		1000	210	mg/L			04/20/22 21:16	200
Alkalinity	910		10	3.1	mg/L			04/14/22 01:12	1
Bicarbonate Alkalinity as CaCO3	910		10	3.1	mg/L			04/14/22 01:12	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			04/14/22 01:12	1
Total Dissolved Solids (TDS)	12000		1000	470	mg/L			04/12/22 10:46	1
Total Suspended Solids	3.2	J	4.0	1.1	mg/L			04/07/22 16:25	1

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 310-349471/1-A
Matrix: Water
Analysis Batch: 349818

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 349471

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.20	0.056	mg/L		04/12/22 08:30	04/13/22 16:24	1

Lab Sample ID: LCS 310-349471/2-A
Matrix: Water
Analysis Batch: 349818

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 349471

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	2.16		mg/L		108	80 - 120

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-350098/1-A
Matrix: Water
Analysis Batch: 350696

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 350098

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00069	mg/L		04/18/22 09:00	04/21/22 15:38	1
Arsenic	ND		0.0020	0.00075	mg/L		04/18/22 09:00	04/21/22 15:38	1
Barium	ND		0.0020	0.00088	mg/L		04/18/22 09:00	04/21/22 15:38	1
Beryllium	ND		0.0010	0.00027	mg/L		04/18/22 09:00	04/21/22 15:38	1
Cadmium	ND		0.00010	0.000055	mg/L		04/18/22 09:00	04/21/22 15:38	1
Calcium	ND		0.50	0.19	mg/L		04/18/22 09:00	04/21/22 15:38	1
Chromium	ND		0.0050	0.0011	mg/L		04/18/22 09:00	04/21/22 15:38	1
Cobalt	ND		0.00050	0.00019	mg/L		04/18/22 09:00	04/21/22 15:38	1
Lead	ND		0.00050	0.00024	mg/L		04/18/22 09:00	04/21/22 15:38	1
Lithium	ND		0.010	0.0025	mg/L		04/18/22 09:00	04/21/22 15:38	1
Molybdenum	ND		0.0020	0.0012	mg/L		04/18/22 09:00	04/21/22 15:38	1
Selenium	ND		0.0050	0.00096	mg/L		04/18/22 09:00	04/21/22 15:38	1
Thallium	ND		0.0010	0.00026	mg/L		04/18/22 09:00	04/21/22 15:38	1
Sodium	ND		1.0	0.61	mg/L		04/18/22 09:00	04/21/22 15:38	1
Potassium	ND		0.50	0.15	mg/L		04/18/22 09:00	04/21/22 15:38	1
Magnesium	ND		0.50	0.15	mg/L		04/18/22 09:00	04/21/22 15:38	1

Lab Sample ID: LCS 310-350098/2-A ^10
Matrix: Water
Analysis Batch: 350696

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 350098

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	2.00	2.22		mg/L		111	80 - 120
Arsenic	2.00	2.30		mg/L		115	80 - 120
Barium	1.00	1.06		mg/L		106	80 - 120
Beryllium	1.00	1.15		mg/L		115	80 - 120
Cadmium	1.00	1.07		mg/L		107	80 - 120
Calcium	20.0	20.6		mg/L		103	80 - 120
Chromium	1.00	1.12		mg/L		112	80 - 120
Cobalt	1.00	1.09		mg/L		109	80 - 120
Lead	2.00	2.21		mg/L		111	80 - 120
Lithium	2.00	2.29		mg/L		115	80 - 120
Molybdenum	2.00	2.23		mg/L		112	80 - 120

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-1

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

Lab Sample ID: LCS 310-350098/2-A ^10

Matrix: Water

Analysis Batch: 350696

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 350098

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Selenium	4.00	4.24		mg/L		106	80 - 120
Thallium	2.00	2.15		mg/L		107	80 - 120

Lab Sample ID: 280-160577-4 DU

Matrix: Water

Analysis Batch: 350753

Client Sample ID: MW-6

Prep Type: Total Recoverable

Prep Batch: 350098

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Antimony	ND		ND		mg/L		NC	20
Arsenic	ND		ND		mg/L		NC	20
Barium	0.0076	J	0.00728	J	mg/L		5	20
Beryllium	ND		ND		mg/L		NC	20
Cadmium	ND		ND		mg/L		NC	20
Calcium	500		476		mg/L		5	20
Chromium	ND		ND		mg/L		NC	20
Cobalt	ND		ND		mg/L		NC	20
Lead	ND		ND		mg/L		NC	20
Lithium	0.22		0.212		mg/L		2	20
Molybdenum	0.010		0.00970		mg/L		7	20
Selenium	0.97		0.928		mg/L		5	20
Thallium	ND		ND		mg/L		NC	20
Sodium	1100		1010		mg/L		5	20
Potassium	11		10.2		mg/L		5	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-350501/1-A

Matrix: Water

Analysis Batch: 350701

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 350501

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00011	mg/L		04/20/22 13:43	04/21/22 14:13	1

Lab Sample ID: LCS 310-350501/2-A

Matrix: Water

Analysis Batch: 350701

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 350501

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00167	0.00174		mg/L		104	80 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-572205/4

Matrix: Water

Analysis Batch: 572205

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH adj. to 25 deg C	7.00	7.1		SU		101	99 - 101

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-572161/13

Matrix: Water

Analysis Batch: 572161

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		5.0	1.0	mg/L			04/21/22 20:26	1

Lab Sample ID: LCS 280-572161/11

Matrix: Water

Analysis Batch: 572161

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	100	102		mg/L		102	90 - 110

Lab Sample ID: LCSD 280-572161/12

Matrix: Water

Analysis Batch: 572161

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	100	102		mg/L		102	90 - 110	0	10

Lab Sample ID: MRL 280-572161/10

Matrix: Water

Analysis Batch: 572161

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	5.00	5.60		mg/L		112	50 - 150

Lab Sample ID: 280-160577-4 MS

Matrix: Water

Analysis Batch: 572161

Client Sample ID: MW-6

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	4300		2500	7170		mg/L		115	80 - 120

Lab Sample ID: 280-160577-4 MSD

Matrix: Water

Analysis Batch: 572161

Client Sample ID: MW-6

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	4300		2500	7140		mg/L		114	80 - 120	0	20

Lab Sample ID: 280-160577-4 DU

Matrix: Water

Analysis Batch: 572161

Client Sample ID: MW-6

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfate	4300		4220		mg/L		2	15

Lab Sample ID: MB 280-572280/13

Matrix: Water

Analysis Batch: 572280

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			04/19/22 14:04	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-1

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

Lab Sample ID: MB 280-572280/13

Matrix: Water

Analysis Batch: 572280

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.50	0.17	mg/L			04/19/22 14:04	1
Sulfate	ND		5.0	1.0	mg/L			04/19/22 14:04	1

Lab Sample ID: MB 280-572280/55

Matrix: Water

Analysis Batch: 572280

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			04/20/22 02:09	1
Fluoride	ND		0.50	0.17	mg/L			04/20/22 02:09	1
Sulfate	ND		5.0	1.0	mg/L			04/20/22 02:09	1

Lab Sample ID: LCS 280-572280/11

Matrix: Water

Analysis Batch: 572280

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	100		mg/L		100	90 - 110
Fluoride	5.00	4.83		mg/L		97	90 - 110
Sulfate	100	97.7		mg/L		98	90 - 110

Lab Sample ID: LCS 280-572280/53

Matrix: Water

Analysis Batch: 572280

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	102		mg/L		102	90 - 110
Fluoride	5.00	5.32		mg/L		106	90 - 110
Sulfate	100	99.5		mg/L		99	90 - 110

Lab Sample ID: LCSD 280-572280/12

Matrix: Water

Analysis Batch: 572280

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	100		mg/L		100	90 - 110	0	10
Fluoride	5.00	4.88		mg/L		98	90 - 110	1	10
Sulfate	100	98.1		mg/L		98	90 - 110	0	10

Lab Sample ID: LCSD 280-572280/54

Matrix: Water

Analysis Batch: 572280

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	101		mg/L		101	90 - 110	1	10
Fluoride	5.00	5.28		mg/L		106	90 - 110	1	10
Sulfate	100	98.6		mg/L		99	90 - 110	1	10

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-1

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

Lab Sample ID: MRL 280-572280/10

Matrix: Water

Analysis Batch: 572280

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.00	4.07		mg/L		81	50 - 150
Fluoride	0.500	0.540		mg/L		108	50 - 150
Sulfate	5.00	4.21	J	mg/L		84	50 - 150

Lab Sample ID: MB 280-572399/6

Matrix: Water

Analysis Batch: 572399

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			04/20/22 11:56	1
Fluoride	ND		0.50	0.17	mg/L			04/20/22 11:56	1
Sulfate	ND		5.0	1.0	mg/L			04/20/22 11:56	1

Lab Sample ID: LCS 280-572399/4

Matrix: Water

Analysis Batch: 572399

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	103		mg/L		103	90 - 110
Fluoride	5.00	5.26		mg/L		105	90 - 110
Sulfate	100	99.7		mg/L		100	90 - 110

Lab Sample ID: LCSD 280-572399/5

Matrix: Water

Analysis Batch: 572399

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	102		mg/L		102	90 - 110	1	10
Fluoride	5.00	5.22		mg/L		104	90 - 110	1	10
Sulfate	100	98.9		mg/L		99	90 - 110	1	10

Lab Sample ID: MRL 280-572399/3

Matrix: Water

Analysis Batch: 572399

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.00	4.09		mg/L		82	50 - 150
Fluoride	0.500	0.510		mg/L		102	50 - 150
Sulfate	5.00	4.26	J	mg/L		85	50 - 150

Lab Sample ID: MB 280-572533/52

Matrix: Water

Analysis Batch: 572533

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.50	0.17	mg/L			04/22/22 02:14	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-1

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

Lab Sample ID: LCS 280-572533/50

Matrix: Water

Analysis Batch: 572533

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	5.00	5.37		mg/L		107	90 - 110

Lab Sample ID: LCSD 280-572533/51

Matrix: Water

Analysis Batch: 572533

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Fluoride	5.00	5.37		mg/L		107	90 - 110	0	10

Lab Sample ID: MRL 280-572533/3

Matrix: Water

Analysis Batch: 572533

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	0.500	0.486	J	mg/L		97	50 - 150

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-571820/84

Matrix: Water

Analysis Batch: 571820

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	ND		10	3.1	mg/L			04/13/22 23:13	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			04/13/22 23:13	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			04/13/22 23:13	1

Lab Sample ID: LCS 280-571820/83

Matrix: Water

Analysis Batch: 571820

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	200	189		mg/L		94	89 - 109

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

Lab Sample ID: MB 280-571444/1

Matrix: Water

Analysis Batch: 571444

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 (TDS)	ND		10	4.7	mg/L			04/11/22 12:28	1

Lab Sample ID: LCS 280-571444/2

Matrix: Water

Analysis Batch: 571444

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 (TDS)	503	492		mg/L		98	88 - 114

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-1

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

Lab Sample ID: 280-160577-4 DU
Matrix: Water
Analysis Batch: 571444

Client Sample ID: MW-6
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Total Dissolved Solids (TDS)	6200		6120		mg/L		0.8	10

Lab Sample ID: MB 280-571583/1
Matrix: Water
Analysis Batch: 571583

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 (TDS)	ND		10	4.7	mg/L			04/12/22 10:46	1

Lab Sample ID: LCS 280-571583/2
Matrix: Water
Analysis Batch: 571583

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 (TDS)	503	498		mg/L		99	88 - 114

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 280-571169/2
Matrix: Water
Analysis Batch: 571169

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			04/07/22 16:25	1

Lab Sample ID: LCS 280-571169/1
Matrix: Water
Analysis Batch: 571169

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	92.8		mg/L		93	79 - 114

Lab Sample ID: 280-160577-8 DU
Matrix: Water
Analysis Batch: 571169

Client Sample ID: MW-7D
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Total Suspended Solids	3.2	J	3.20	J	mg/L		0	10

Lab Sample ID: MB 280-571369/3
Matrix: Water
Analysis Batch: 571369

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			04/10/22 17:14	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-1

Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

Lab Sample ID: LCS 280-571369/1

Matrix: Water

Analysis Batch: 571369

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	86.4		mg/L		86	79 - 114

Lab Sample ID: LCSD 280-571369/2

Matrix: Water

Analysis Batch: 571369

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	100	90.0		mg/L		90	79 - 114	4	20

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-1

Metals

Prep Batch: 349471

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160577-1	MW-1B	Total Recoverable	Water	3005A	
280-160577-2	MW-2B	Total Recoverable	Water	3005A	
280-160577-3	MW-4B	Total Recoverable	Water	3005A	
280-160577-4	MW-6	Total Recoverable	Water	3005A	
280-160577-5	W-1	Total Recoverable	Water	3005A	
280-160577-7	MW-7	Total Recoverable	Water	3005A	
280-160577-8	MW-7D	Total Recoverable	Water	3005A	
MB 310-349471/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 310-349471/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 349818

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 310-349471/1-A	Method Blank	Total Recoverable	Water	6010C	349471
LCS 310-349471/2-A	Lab Control Sample	Total Recoverable	Water	6010C	349471

Analysis Batch: 349866

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160577-1	MW-1B	Total Recoverable	Water	6010C	349471
280-160577-2	MW-2B	Total Recoverable	Water	6010C	349471
280-160577-3	MW-4B	Total Recoverable	Water	6010C	349471
280-160577-4	MW-6	Total Recoverable	Water	6010C	349471
280-160577-5	W-1	Total Recoverable	Water	6010C	349471
280-160577-7	MW-7	Total Recoverable	Water	6010C	349471
280-160577-8	MW-7D	Total Recoverable	Water	6010C	349471

Prep Batch: 350098

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160577-1	MW-1B	Total Recoverable	Water	3005A	
280-160577-2	MW-2B	Total Recoverable	Water	3005A	
280-160577-3	MW-4B	Total Recoverable	Water	3005A	
280-160577-4	MW-6	Total Recoverable	Water	3005A	
280-160577-5	W-1	Total Recoverable	Water	3005A	
280-160577-7	MW-7	Total Recoverable	Water	3005A	
280-160577-8	MW-7D	Total Recoverable	Water	3005A	
MB 310-350098/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 310-350098/2-A ^10	Lab Control Sample	Total Recoverable	Water	3005A	
280-160577-4 DU	MW-6	Total Recoverable	Water	3005A	

Prep Batch: 350501

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160577-5	W-1	Total/NA	Water	7470A	
280-160577-7	MW-7	Total/NA	Water	7470A	
280-160577-8	MW-7D	Total/NA	Water	7470A	
MB 310-350501/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-350501/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 350696

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 310-350098/1-A	Method Blank	Total Recoverable	Water	6020A	350098
LCS 310-350098/2-A ^10	Lab Control Sample	Total Recoverable	Water	6020A	350098

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-1

Metals

Analysis Batch: 350701

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160577-5	W-1	Total/NA	Water	7470A	350501
280-160577-7	MW-7	Total/NA	Water	7470A	350501
280-160577-8	MW-7D	Total/NA	Water	7470A	350501
MB 310-350501/1-A	Method Blank	Total/NA	Water	7470A	350501
LCS 310-350501/2-A	Lab Control Sample	Total/NA	Water	7470A	350501

Analysis Batch: 350753

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160577-1	MW-1B	Total Recoverable	Water	6020A	350098
280-160577-2	MW-2B	Total Recoverable	Water	6020A	350098
280-160577-3	MW-4B	Total Recoverable	Water	6020A	350098
280-160577-4	MW-6	Total Recoverable	Water	6020A	350098
280-160577-5	W-1	Total Recoverable	Water	6020A	350098
280-160577-7	MW-7	Total Recoverable	Water	6020A	350098
280-160577-8	MW-7D	Total Recoverable	Water	6020A	350098
280-160577-4 DU	MW-6	Total Recoverable	Water	6020A	350098

Analysis Batch: 351263

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160577-5	W-1	Total Recoverable	Water	6020A	350098

General Chemistry

Analysis Batch: 571169

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160577-1	MW-1B	Total/NA	Water	SM 2540D	
280-160577-2	MW-2B	Total/NA	Water	SM 2540D	
280-160577-4	MW-6	Total/NA	Water	SM 2540D	
280-160577-5	W-1	Total/NA	Water	SM 2540D	
280-160577-7	MW-7	Total/NA	Water	SM 2540D	
280-160577-8	MW-7D	Total/NA	Water	SM 2540D	
MB 280-571169/2	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-571169/1	Lab Control Sample	Total/NA	Water	SM 2540D	
280-160577-8 DU	MW-7D	Total/NA	Water	SM 2540D	

Analysis Batch: 571369

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160577-3	MW-4B	Total/NA	Water	SM 2540D	
MB 280-571369/3	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-571369/1	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-571369/2	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 571444

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160577-1	MW-1B	Total/NA	Water	SM 2540C	
280-160577-3	MW-4B	Total/NA	Water	SM 2540C	
280-160577-4	MW-6	Total/NA	Water	SM 2540C	
MB 280-571444/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-571444/2	Lab Control Sample	Total/NA	Water	SM 2540C	
280-160577-4 DU	MW-6	Total/NA	Water	SM 2540C	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-1

General Chemistry

Analysis Batch: 571583

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160577-2	MW-2B	Total/NA	Water	SM 2540C	
280-160577-5	W-1	Total/NA	Water	SM 2540C	
280-160577-6	W-4	Total/NA	Water	SM 2540C	
280-160577-7	MW-7	Total/NA	Water	SM 2540C	
280-160577-8	MW-7D	Total/NA	Water	SM 2540C	
MB 280-571583/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-571583/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 571820

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160577-1	MW-1B	Total/NA	Water	SM 2320B	
280-160577-2	MW-2B	Total/NA	Water	SM 2320B	
280-160577-3	MW-4B	Total/NA	Water	SM 2320B	
280-160577-4	MW-6	Total/NA	Water	SM 2320B	
280-160577-5	W-1	Total/NA	Water	SM 2320B	
280-160577-6	W-4	Total/NA	Water	SM 2320B	
280-160577-7	MW-7	Total/NA	Water	SM 2320B	
280-160577-8	MW-7D	Total/NA	Water	SM 2320B	
MB 280-571820/84	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-571820/83	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 572161

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160577-4	MW-6	Total/NA	Water	9056A	
MB 280-572161/13	Method Blank	Total/NA	Water	9056A	
LCS 280-572161/11	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-572161/12	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-572161/10	Lab Control Sample	Total/NA	Water	9056A	
280-160577-4 MS	MW-6	Total/NA	Water	9056A	
280-160577-4 MSD	MW-6	Total/NA	Water	9056A	
280-160577-4 DU	MW-6	Total/NA	Water	9056A	

Analysis Batch: 572205

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160577-1	MW-1B	Total/NA	Water	9040B	
280-160577-2	MW-2B	Total/NA	Water	9040B	
280-160577-3	MW-4B	Total/NA	Water	9040B	
280-160577-4	MW-6	Total/NA	Water	9040B	
280-160577-5	W-1	Total/NA	Water	9040B	
280-160577-6	W-4	Total/NA	Water	9040B	
280-160577-7	MW-7	Total/NA	Water	9040B	
280-160577-8	MW-7D	Total/NA	Water	9040B	
LCS 280-572205/4	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 572280

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160577-1	MW-1B	Total/NA	Water	9056A	
280-160577-3	MW-4B	Total/NA	Water	9056A	
280-160577-4	MW-6	Total/NA	Water	9056A	
MB 280-572280/13	Method Blank	Total/NA	Water	9056A	
MB 280-572280/55	Method Blank	Total/NA	Water	9056A	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-1

General Chemistry (Continued)

Analysis Batch: 572280 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 280-572280/11	Lab Control Sample	Total/NA	Water	9056A	
LCS 280-572280/53	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-572280/12	Lab Control Sample Dup	Total/NA	Water	9056A	
LCSD 280-572280/54	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-572280/10	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 572399

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160577-1	MW-1B	Total/NA	Water	9056A	
280-160577-2	MW-2B	Total/NA	Water	9056A	
280-160577-2	MW-2B	Total/NA	Water	9056A	
280-160577-2	MW-2B	Total/NA	Water	9056A	
280-160577-3	MW-4B	Total/NA	Water	9056A	
280-160577-3	MW-4B	Total/NA	Water	9056A	
280-160577-4	MW-6	Total/NA	Water	9056A	
280-160577-5	W-1	Total/NA	Water	9056A	
280-160577-5	W-1	Total/NA	Water	9056A	
280-160577-6	W-4	Total/NA	Water	9056A	
280-160577-6	W-4	Total/NA	Water	9056A	
280-160577-7	MW-7	Total/NA	Water	9056A	
280-160577-7	MW-7	Total/NA	Water	9056A	
280-160577-8	MW-7D	Total/NA	Water	9056A	
280-160577-8	MW-7D	Total/NA	Water	9056A	
MB 280-572399/6	Method Blank	Total/NA	Water	9056A	
LCS 280-572399/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-572399/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-572399/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 572533

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160577-6	W-4	Total/NA	Water	9056A	
MB 280-572533/52	Method Blank	Total/NA	Water	9056A	
LCS 280-572533/50	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-572533/51	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-572533/3	Lab Control Sample	Total/NA	Water	9056A	

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-1

Client Sample ID: MW-1B

Date Collected: 04/04/22 16:50

Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	349471	04/12/22 08:30	ACM2	TAL CF
Total Recoverable	Analysis	6010C		10			349866	04/14/22 11:28	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	350098	04/18/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6020A		20			350753	04/22/22 04:42	SAP	TAL CF
Total/NA	Analysis	9040B		1			572205	04/18/22 12:22	KEG	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	572280	04/20/22 05:35	RAF	TAL DEN
Total/NA	Analysis	9056A		200	5 mL	5 mL	572399	04/20/22 16:44	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			571820	04/13/22 23:54	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	571444	04/11/22 12:28	LRB	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	571169	04/07/22 16:25	SVC	TAL DEN

Client Sample ID: MW-2B

Date Collected: 04/05/22 12:20

Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	349471	04/12/22 08:30	ACM2	TAL CF
Total Recoverable	Analysis	6010C		20			349866	04/14/22 11:30	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	350098	04/18/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6020A		20			350753	04/22/22 05:02	SAP	TAL CF
Total/NA	Analysis	9040B		1			572205	04/18/22 12:25	KEG	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	572399	04/20/22 17:03	RAF	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	572399	04/20/22 17:18	RAF	TAL DEN
Total/NA	Analysis	9056A		200	5 mL	5 mL	572399	04/20/22 17:34	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			571820	04/14/22 00:11	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	571583	04/12/22 10:46	LRB	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	571169	04/07/22 16:25	SVC	TAL DEN

Client Sample ID: MW-4B

Date Collected: 04/04/22 13:20

Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	349471	04/12/22 08:30	ACM2	TAL CF
Total Recoverable	Analysis	6010C		2			349866	04/14/22 11:32	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	350098	04/18/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6020A		4			350753	04/22/22 05:06	SAP	TAL CF
Total/NA	Analysis	9040B		1			572205	04/18/22 12:29	KEG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	572280	04/20/22 06:07	RAF	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	572399	04/20/22 17:50	RAF	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	572399	04/20/22 18:06	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			571820	04/14/22 00:20	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	571444	04/11/22 12:28	LRB	TAL DEN

Eurofins Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-1

Client Sample ID: MW-4B

Lab Sample ID: 280-160577-3

Date Collected: 04/04/22 13:20

Matrix: Water

Date Received: 04/06/22 08:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	571369	04/10/22 17:14	SVC	TAL DEN

Client Sample ID: MW-6

Lab Sample ID: 280-160577-4

Date Collected: 04/04/22 15:05

Matrix: Water

Date Received: 04/06/22 08:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	349471	04/12/22 08:30	ACM2	TAL CF
Total Recoverable	Analysis	6010C		3			349866	04/14/22 11:34	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	350098	04/18/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6020A		4			350753	04/22/22 05:10	SAP	TAL CF
Total/NA	Analysis	9040B		1			572205	04/18/22 12:33	KEG	TAL DEN
Total/NA	Analysis	9056A		50	10 mL	10 mL	572161	04/22/22 07:12	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	572280	04/20/22 06:23	RAF	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	572399	04/20/22 18:54	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			571820	04/14/22 00:26	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	571444	04/11/22 12:28	LRB	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	571169	04/07/22 16:25	SVC	TAL DEN

Client Sample ID: W-1

Lab Sample ID: 280-160577-5

Date Collected: 04/05/22 12:55

Matrix: Water

Date Received: 04/06/22 08:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	349471	04/12/22 08:30	ACM2	TAL CF
Total Recoverable	Analysis	6010C		15			349866	04/14/22 11:36	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	350098	04/18/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6020A		20			350753	04/22/22 05:18	SAP	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	350098	04/18/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6020A		100			351263	04/27/22 13:23	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	350501	04/20/22 13:43	EAM	TAL CF
Total/NA	Analysis	7470A		1			350701	04/21/22 14:26	EAM	TAL CF
Total/NA	Analysis	9040B		1			572205	04/18/22 12:37	KEG	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	572399	04/20/22 19:25	RAF	TAL DEN
Total/NA	Analysis	9056A		500	5 mL	5 mL	572399	04/20/22 19:41	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			571820	04/14/22 00:35	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	571583	04/12/22 10:46	LRB	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	571169	04/07/22 16:25	SVC	TAL DEN

Eurofins Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-1

Client Sample ID: W-4

Lab Sample ID: 280-160577-6

Date Collected: 04/05/22 13:30

Matrix: Water

Date Received: 04/06/22 08:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9040B		1			572205	04/18/22 12:41	KEG	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	572399	04/20/22 19:57	RAF	TAL DEN
Total/NA	Analysis	9056A		500	5 mL	5 mL	572399	04/20/22 20:13	RAF	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	572533	04/22/22 09:22	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			571820	04/14/22 00:53	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	571583	04/12/22 10:46	LRB	TAL DEN

Client Sample ID: MW-7

Lab Sample ID: 280-160577-7

Date Collected: 04/05/22 10:25

Matrix: Water

Date Received: 04/06/22 08:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	349471	04/12/22 08:30	ACM2	TAL CF
Total Recoverable	Analysis	6010C		6			349866	04/14/22 11:38	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	350098	04/18/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6020A		20			350753	04/22/22 05:21	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	350501	04/20/22 13:43	EAM	TAL CF
Total/NA	Analysis	7470A		1			350701	04/21/22 14:28	EAM	TAL CF
Total/NA	Analysis	9040B		1			572205	04/18/22 12:45	KEG	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	572399	04/20/22 20:29	RAF	TAL DEN
Total/NA	Analysis	9056A		200	5 mL	5 mL	572399	04/20/22 20:44	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			571820	04/14/22 01:02	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	571583	04/12/22 10:46	LRB	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	571169	04/07/22 16:25	SVC	TAL DEN

Client Sample ID: MW-7D

Lab Sample ID: 280-160577-8

Date Collected: 04/05/22 10:25

Matrix: Water

Date Received: 04/06/22 08:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	349471	04/12/22 08:30	ACM2	TAL CF
Total Recoverable	Analysis	6010C		6			349866	04/14/22 11:40	CTB	TAL CF
Total Recoverable	Prep	3005A			50 mL	50 mL	350098	04/18/22 09:00	ACM2	TAL CF
Total Recoverable	Analysis	6020A		20			350753	04/22/22 05:25	SAP	TAL CF
Total/NA	Prep	7470A			30 mL	40 mL	350501	04/20/22 13:43	EAM	TAL CF
Total/NA	Analysis	7470A		1			350701	04/21/22 14:30	EAM	TAL CF
Total/NA	Analysis	9040B		1			572205	04/18/22 12:49	KEG	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	572399	04/20/22 21:00	RAF	TAL DEN
Total/NA	Analysis	9056A		200	5 mL	5 mL	572399	04/20/22 21:16	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			571820	04/14/22 01:12	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	571583	04/12/22 10:46	LRB	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	571169	04/07/22 16:25	SVC	TAL DEN

Eurofins Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-1

Laboratory References:

TAL CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401
TAL DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

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Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-1

Laboratory: Eurofins Denver

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

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-23

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
9040B		Water	Temperature

Laboratory: Eurofins Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Colorado	Petroleum Storage Tank Program	IA100001 (OR)	09-29-22
Georgia	State	IA100001 (OR)	09-29-22
Illinois	NELAP	200024	11-29-22
Iowa	State	007	12-01-21 *
Kansas	NELAP	E-10341	01-31-23
Minnesota	NELAP	019-999-319	12-31-22
Minnesota (Petrofund)	State	3349	01-18-24
North Dakota	State	R-186	09-29-22
Oregon	NELAP	IA100001	09-29-22

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

Ver: 01/16/2019

Chain of Custody Record

Client Information		Sampler: <u>Tava Kent</u>		Lab PM: <u>Harrington, Danielle M</u>	Carrier Tracking No(s):	COC No: <u>280-110862-32017.2</u>
Client Contact: <u>Molly Reeves</u>		Phone: <u>7209337496</u>		E-Mail: <u>Danielle.Harrington@Eurofinset.com</u>	State of Origin: <u>CO</u>	Page: <u>1 of 1</u>
Company: <u>HDR Inc</u>		PWSID:		Job #:		
Address: <u>1670 Broadway Suite 3400</u>		Due Date Requested: <u>std</u>		Analysis Requested		
City: <u>Denver</u>		TAT Requested (days): <u>std</u>		Barcode: 		
State, Zip: <u>CO, 80202</u>		Compliance Project: <u>Yes</u> ☒ <u>No</u> ☐		280-160577 Chain of Custody		
Phone: <u>734-263-7138(Tel)</u>		PO #: <u>DEN-021</u>		Preservation Codes:		
Email: <u>Molly.Reeves@hdrinc.com</u>		WO #: <u>28014376</u>		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:		
Project Name: <u>Xcel Energy GW CCR Monitoring - Comanche</u>		Project #: <u>28014376</u>		Special Instructions/Note:		
Site: <u>COLORADO</u>		SSOW#:		Total Number of containers		
Groundwater- CCR (App III and App IV)						

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/soil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C, 6020A, 7470A Dissolved Metals - Canton	2220B alkalinity, 9040B pH, 9056A, 280Chloride, Fluoride, Sulfate	6010C, 6020A, 7470A Total Metals - Canton	2540D - TSS/2540C TDS	Radium - 226 9135 and Radium - 228 Method 9320/ R2226Ra2228GFPc - EPA St. Louis	Carb, bich, Mg, K, Na
MW-1B	04-04-22	1650	G	Water	N	N	X	X	X	X	X	X
MW-2B	04-05-22	1720	G	Water	N	N	X	X	X	X	X	X
MW-4B	04-04-22	1320	G	W	N	N	X	X	X	X	X	X
MW-6	04-04-22	1505	G	W	N	N	X	X	X	X	X	X
W-1	04-05-22	1255	G	W	N	N	X	X	X	X	X	X
W-4	04-05-22	1330	G	W	N	N	X	X	X	X	X	X
MW-7	04-05-22	1025	G	W	N	N	X	X	X	X	X	X
MW-7D	04-05-22	1025	G	W	N	N	X	X	X	X	X	X

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

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

Empty Kit Relinquished by: _____ Date: _____ Time: _____

Relinquished by: Tava Kent Date/Time: 06 APR 2022 0807 Company: HDR

Relinquished by: _____ Date/Time: _____ Company: _____

Relinquished by: _____ Date/Time: _____ Company: _____

Custody Seals Intact: Yes ☒ No ☐ Custody Seal No.: _____

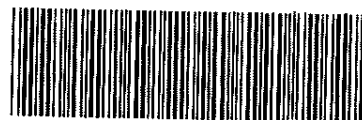
Cooler Temperature(s) °C and Other Remarks: 0.8, 2.9 CF +0.1 1K 4.12

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

Special Instructions/QC Requirements:



Environment Testing
America



280-160577 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client <u>EETA Denver</u>			
City/State	CITY <u>Arvada</u>	STATE <u>CO</u>	Project
Receipt Information			
Date/Time Received	DATE <u>4/7/22</u>	TIME <u>1445</u>	Received By <u>MRH</u>
Delivery Type ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?		☒ Yes ☐ No	If yes Cooler ID
Multiple Coolers?		☐ Yes ☒ No	If yes Cooler # _____ of _____
Cooler Custody Seals Present?		☒ Yes ☐ No	If yes Cooler custody seals intact? ☒ Yes ☐ No
Sample Custody Seals Present?		☐ Yes ☒ No	If yes Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?		☐ Yes ☒ No	If yes Which VOA samples are in cooler? ↓
Temperature Record			
Coolant ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other _____ ☐ NONE			
Thermometer ID <u>0</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>3.0</u>		Corrected Temp (°C) <u>3.0</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? ☐ Yes ☐ No a) If yes Is there evidence that the chilling process began? ☐ Yes ☐ No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No			
NOTE If yes, contact PM before proceeding If no, proceed with login			
Additional Comments			

Chain of Custody Record



Client Information (Sub Contract Lab)		Lab PM: Harrington, Danielle M		Carrier Tracking No(s):		COC No: 280-609487 1	
Client Contact: Shipping/Receiving		Phone:		State of Origin: Colorado		Page: Page 1 of 1	
Company: Eurofins Environment Testing North Cent		Accreditations Required (See note): DoD A2LA		Job #:		280-160577-1	
Address: 3019 Venture Way		Due Date Requested: 4/26/2022		Analysis Requested		Preservation Codes:	
City: Cedar Falls		TAT Requested (days):		6020A/3005A (MOD) 13 Total Metals (w/collision cell)		A HCL M Hexane	
State, Zip: IA, 50613		PO #:		6010C/3005A (MOD) Boron		B NaOH N None	
Phone: 319-277-2401(Tel) 319-277-2425(Fax)		WO #:		7470A/7470A Prep Mercury		C Zn Acetate O AsNaO2	
Email:		Project #:		Field Filtered Sample (Yes or No)		D Nitric Acid P Na2O4S	
Project Name: Xcel Energy GW CCR Monitoring Comanche		28014376		Perform MS/MSD (Yes or No)		E NaHSO4 Q Na2SO3	
Site: Xcel Energy CCR Comanche Station		SSOW#:		Field Filtered Sample (Yes or No)		F MeOH R Na2SO3	
				Sample Date		G Anichlor S H2SO4	
				Sample Time		H Ascorbic Acid T TSP Dodecathylate	
				Sample Type (C=Comp, G=grab)		I Ice U Acetone	
				Matrix (V=water, S=solid, O=variable)		J DI Water V MCAA	
				Preservation Code:		K EDTA W pH 4-5	
				Sample ID (Lab ID)		L EDA Z other (specify)	
				Sample Identification		Other	
				Sample Date		Special Instructions/Note:	
				Sample Time			
				Sample Type (C=Comp, G=grab)			
				Matrix (V=water, S=solid, O=variable)			
				Preservation Code:			
				Sample Date			
				Sample Time			
				Sample Type (C=Comp, G=grab)			
				Matrix (V=water, S=solid, O=variable)			
				Preservation Code:			
				Sample Date			
				Sample Time			
				Sample Type (C=Comp, G=grab)			
				Matrix (V=water, S=solid, O=variable)			
				Preservation Code:			
				Sample Date			
				Sample Time			
				Sample Type (C=Comp, G=grab)			
				Matrix (V=water, S=solid, O=variable)			
				Preservation Code:			
				Sample Date			
				Sample Time			
				Sample Type (C=Comp, G=grab)			
				Matrix (V=water, S=solid, O=variable)			
				Preservation Code:			
				Sample Date			
				Sample Time			
				Sample Type (C=Comp, G=grab)			
				Matrix (V=water, S=solid, O=variable)			
				Preservation Code:			
				Sample Date			
				Sample Time			
				Sample Type (C=Comp, G=grab)			
				Matrix (V=water, S=solid, O=variable)			
				Preservation Code:			
				Sample Date			
				Sample Time			
				Sample Type (C=Comp, G=grab)			
				Matrix (V=water, S=solid, O=variable)			
				Preservation Code:			
				Sample Date			
				Sample Time			
				Sample Type (C=Comp, G=grab)			
				Matrix (V=water, S=solid, O=variable)			
				Preservation Code:			
				Sample Date			
				Sample Time			
				Sample Type (C=Comp, G=grab)			
				Matrix (V=water, S=solid, O=variable)			
				Preservation Code:			
				Sample Date			
				Sample Time			
				Sample Type (C=Comp, G=grab)			
				Matrix (V=water, S=solid, O=variable)			
				Preservation Code:			
				Sample Date			
				Sample Time			
				Sample Type (C=Comp, G=grab)			
				Matrix (V=water, S=solid, O=variable)			
				Preservation Code:			
				Sample Date			
				Sample Time			
				Sample Type (C=Comp, G=grab)			
				Matrix (V=water, S=solid, O=variable)			
				Preservation Code:			
				Sample Date			
				Sample Time			
				Sample Type (C=Comp, G=grab)			
				Matrix (V=water, S=solid, O=variable)			
				Preservation Code:			
				Sample Date			
				Sample Time			
				Sample Type (C=Comp, G=grab)			
				Matrix (V=water, S=solid, O=variable)			
				Preservation Code:			
				Sample Date			
				Sample Time			
				Sample Type (C=Comp, G=grab)			
				Matrix (V=water, S=solid, O=variable)			
				Preservation Code:			
				Sample Date			
				Sample Time			
				Sample Type (C=Comp, G=grab)			
				Matrix (V=water, S=solid, O=variable)			
				Preservation Code:			
				Sample Date			
				Sample Time			
				Sample Type (C=Comp, G=grab)			
				Matrix (V=water, S=solid, O=variable)			
				Preservation Code:			
				Sample Date			
				Sample Time			
				Sample Type (C=Comp, G=grab)			
				Matrix (V=water, S=solid, O=variable)			
				Preservation Code:			
				Sample Date			
				Sample Time			
				Sample Type (C=Comp, G=grab)			
				Matrix (V=water, S=solid, O=variable)			
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				Sample Type (C=Comp, G=grab)			
				Matrix (V=water, S=solid, O=variable)			
				Preservation Code:			
				Sample Date			
				Sample Time			



Environment Testing
America

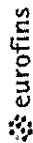


280-160577 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client <u>Denver</u>			
City/State	CITY	STATE	Project
		<u>CO</u>	
Receipt Information			
Date/Time Received	DATE	TIME	Received By
	<u>4 8 22</u>	<u>935</u>	<u>[Signature]</u>
Delivery Type ☐ UPS ☒ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee			
☐ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler? ☒ Yes ☐ No If yes Cooler ID _____			
Multiple Coolers? ☐ Yes ☒ No If yes Cooler # _____ of _____			
Cooler Custody Seals Present? ☒ Yes ☐ No If yes Cooler custody seals intact? ☒ Yes ☐ No			
Sample Custody Seals Present? ☐ Yes ☒ No If yes Sample custody seals intact? ☐ Yes ☐ No			
Trip Blank Present? ☐ Yes ☒ No If yes Which VOA samples are in cooler? ↓ _____			
Temperature Record			
Coolant ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other _____ ☐ NONE			
Thermometer ID <u>0</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>0.9</u>		Corrected Temp (°C) <u>0.9</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? ☐ Yes ☐ No			
a) If yes Is there evidence that the chilling process began? ☐ Yes ☐ No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No			
NOTE If yes, contact PM before proceeding If no, proceed with login			
Additional Comments			

Chain of Custody Record

Environment Testing
America

Client Information (Sub Contract Lab)		Sampler	Lab PM:	Carrier Tracking No(s):	IOC No:							
Client Contact: Shipping/Receiving		Phone:	Harrington, Danielle M		280-809609.1							
Company:			E-Mail:	State of Origin:	Page:							
Eurofins Environment Testing North Centr			Danielle.Harrington@et.eurofinsus.com	Colorado	Page 1 of 1							
Address:		Due Date Requested:	Accreditations Required (See note):									
3019 Venture Way		4/26/2022	DoD A2LA									
City:		TAT Requested (days):	Analysis Requested									
Cedar Falls												
State, Zip:												
IA, 50613												
Phone:		PO #:										
319-277-2401(Tel) 319-277-2425(Fax)												
Email:		WO #:										
Project Name:		Project #:										
Xcel Energy GW CCR Monitoring Comanche		28014376										
Site:		SSOW#:										
Xcel Energy CCR Comanche Station												
Sample Identification	Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Weigh, Swab, Swirl, Dredge, Soil, etc.)	Field Filled Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020A/3005A (MOD) 13 Total Metals (w/collision cell)	6010C/3005A (MOD) Boron	7401A/7470A Prep Mercury	Total Number of Containers	Special Instructions/Note:
MW-1B (280-160577-1)		4/4/22	16:50 Mountain		Water	X	X	X	X		1	
MW-2B (280-160577-2)		4/5/22	12:20 Mountain		Water	X	X	X	X		1	
MW-4B (280-160577-3)		4/4/22	13:20 Mountain		Water	X	X	X	X		1	
MW-6 (280-160577-4)		4/4/22	15:05 Mountain		Water	X	X	X	X		1	
MW-7 (280-160577-5)		4/5/22	12:55 Mountain		Water	X	X	X	X		1	
MW-7 (280-160577-6)		4/5/22	10:25 Mountain		Water	X	X	X	X		1	
MW-7B (280-160577-8)		4/5/22	10:25 Mountain		Water	X	X	X	X		1	
Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins TestAmerica.												
Possible Hazard Identification												
Unconfirmed												
Deliverable Requested: I II III IV Other (specify)												
Primary Deliverable Rank: 2												
Empty Kit Relinquished by												
Relinquished by												
Relinquished by												
Relinquished by												
Custody Seals Intact: ☐ Yes ☐ No												
Custody Seal No.												
Cooler Temperature(s) °C and Other Remarks:												

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-160577-1

Login Number: 160577

List Number: 1

Creator: Roehsner, Karen P

List Source: Eurofins Denver

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

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-160577-1

Login Number: 160577

List Number: 3

Creator: Kizer, Preston V

List Source: Eurofins Cedar Falls

List Creation: 04/07/22 05:36 PM

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?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-160577-1

Login Number: 160577

List Number: 4

Creator: Kizer, Preston V

List Source: Eurofins Cedar Falls

List Creation: 04/08/22 12:58 PM

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.	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?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

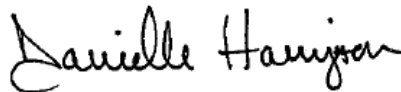
Laboratory Job ID: 280-160577-2

Client Project/Site: Xcel Energy GW CCR Monitoring -
Comanche

For:

HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Attn: Molly Reeves



Authorized for release by:
5/5/2022 2:45:43 PM

Danielle Harrington, Project Manager II
(303)736-0176
Danielle.Harrington@et.eurofinsus.com

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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-2

Qualifiers

Rad

Qualifier	Qualifier Description
G	The Sample MDC is greater than the requested RL.
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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-2

Job ID: 280-160577-2

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-160577-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 04/06/2022; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt were 0.9°C and 3.0°C

RADIUM-226 (GFPC)- Method 9315

The following samples were prepared at a reduced aliquot due to Matrix: W-1 (280-160577-5), MW-7 (280-160577-7) and MW-7D (280-160577-8).

Method 9315_Ra226: Radium-226 batch 559311The detection goal was not met for the following sample(s). Sample was prepped at a reduced volume due to the presence of matrix interferences: MW-7 (280-160577-7). Analytical results are reported with the detection limit achieved.

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

RADIUM-228- Method 9320

The following samples were prepared at a reduced aliquot due to Matrix: W-1 (280-160577-5), MW-7 (280-160577-7) and MW-7D (280-160577-8).

Method 9320_Ra228: Radium 228 Batch 160-559319The following sample(s) did not meet the requested limit (RL) due to the reduced sample volume attributed to the presence of matrix interference and the high activity of the samples. During preparation the analyst visually noted matrix effects. The data have been reported with this narrative. MW-7 (280-160577-7)

Radium-228 was detected in method blank MB 160-559319/20-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

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

RADIUM-226/RADIUM-228 (GFPC)

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

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-2

Client Sample ID: W-1

Lab Sample ID: 280-160577-5

☐ No Detections.

Client Sample ID: MW-7

Lab Sample ID: 280-160577-7

☐ No Detections.

Client Sample ID: MW-7D

Lab Sample ID: 280-160577-8

☐ No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Method Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-2

Method	Method Description	Protocol	Laboratory
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

Protocol References:

None = None

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:

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

Sample Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-160577-5	W-1	Water	04/05/22 12:55	04/06/22 08:05
280-160577-7	MW-7	Water	04/05/22 10:25	04/06/22 08:05
280-160577-8	MW-7D	Water	04/05/22 10:25	04/06/22 08:05

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-2

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: W-1
Date Collected: 04/05/22 12:55
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.207	U	0.325	0.325	1.00	0.559	pCi/L	04/08/22 12:44	05/02/22 22:32	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	80.8		40 - 110					04/08/22 12:44	05/02/22 22:32	1

Client Sample ID: MW-7
Date Collected: 04/05/22 10:25
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.26	U G	1.01	1.02	1.00	1.50	pCi/L	04/08/22 12:44	05/02/22 22:32	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.8		40 - 110					04/08/22 12:44	05/02/22 22:32	1

Client Sample ID: MW-7D
Date Collected: 04/05/22 10:25
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.880		0.405	0.413	1.00	0.461	pCi/L	04/08/22 12:44	05/02/22 22:32	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.3		40 - 110					04/08/22 12:44	05/02/22 22:32	1

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: W-1
Date Collected: 04/05/22 12:55
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.32		0.497	0.541	1.00	0.558	pCi/L	04/08/22 13:34	05/02/22 14:56	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	80.8		40 - 110					04/08/22 13:34	05/02/22 14:56	1
Y Carrier	84.9		40 - 110					04/08/22 13:34	05/02/22 14:56	1

Client Sample ID: MW-7
Date Collected: 04/05/22 10:25
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	5.16	G	1.30	1.39	1.00	1.56	pCi/L	04/08/22 13:34	05/02/22 14:57	1

Eurofins Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-2

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	82.8		40 - 110	04/08/22 13:34	05/02/22 14:57	1
Y Carrier	86.0		40 - 110	04/08/22 13:34	05/02/22 14:57	1

Client Sample ID: MW-7D
Date Collected: 04/05/22 10:25
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-8
Matrix: Water

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.36		0.524	0.567	1.00	0.617	pCi/L	04/08/22 13:34	05/02/22 14:57	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.3		40 - 110					04/08/22 13:34	05/02/22 14:57	1
Y Carrier	83.4		40 - 110					04/08/22 13:34	05/02/22 14:57	1

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

Client Sample ID: W-1
Date Collected: 04/05/22 12:55
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.53		0.594	0.631	5.00	0.559	pCi/L		05/04/22 18:35	1

Client Sample ID: MW-7
Date Collected: 04/05/22 10:25
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	6.42		1.65	1.72	5.00	1.56	pCi/L		05/04/22 18:35	1

Client Sample ID: MW-7D
Date Collected: 04/05/22 10:25
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	3.24		0.662	0.701	5.00	0.617	pCi/L		05/04/22 18:35	1

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-2

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-559311/20-A
Matrix: Water
Analysis Batch: 563488

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 559311

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.1361	U	0.124	0.125	1.00	0.316	pCi/L	04/08/22 12:44	05/03/22 09:00	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.0		40 - 110					04/08/22 12:44	05/03/22 09:00	1

Lab Sample ID: LCS 160-559311/1-A
Matrix: Water
Analysis Batch: 563255

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 559311

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226		11.3	9.035		1.25	1.00	0.357	pCi/L	80	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits							
Ba Carrier	81.8		40 - 110							

Lab Sample ID: LCSD 160-559311/2-A
Matrix: Water
Analysis Batch: 563255

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 559311

Analyte		Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-226		11.3	8.664		1.17	1.00	0.254	pCi/L	76	75 - 125	0.15	1
Carrier	LCSD %Yield	LCSD Qualifier	Limits									
Ba Carrier	92.8		40 - 110									

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-559319/20-A
Matrix: Water
Analysis Batch: 563272

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 559319

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.7283		0.279	0.287	1.00	0.386	pCi/L	04/08/22 13:34	05/02/22 15:00	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.0		40 - 110					04/08/22 13:34	05/02/22 15:00	1
Y Carrier	83.7		40 - 110					04/08/22 13:34	05/02/22 15:00	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-2

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

Lab Sample ID: LCS 160-559319/1-A
Matrix: Water
Analysis Batch: 563255

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 559319

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-228		8.66	9.317		1.11	1.00	0.404	pCi/L	108	75 - 125		
	LCS	LCS										
Carrier	%Yield	Qualifier	Limits									
Ba Carrier	81.8		40 - 110									
Y Carrier	85.2		40 - 110									

Lab Sample ID: LCSD 160-559319/2-A
Matrix: Water
Analysis Batch: 563255

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 559319

Analyte		Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-228		8.66	8.857		1.04	1.00	0.349	pCi/L	102	75 - 125	0.21	1
	LCSD	LCSD										
Carrier	%Yield	Qualifier	Limits									
Ba Carrier	92.8		40 - 110									
Y Carrier	84.1		40 - 110									

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-2

Rad

Prep Batch: 559311

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160577-5	W-1	Total/NA	Water	PrecSep-21	
280-160577-7	MW-7	Total/NA	Water	PrecSep-21	
280-160577-8	MW-7D	Total/NA	Water	PrecSep-21	
MB 160-559311/20-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-559311/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-559311/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 559319

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160577-5	W-1	Total/NA	Water	PrecSep_0	
280-160577-7	MW-7	Total/NA	Water	PrecSep_0	
280-160577-8	MW-7D	Total/NA	Water	PrecSep_0	
MB 160-559319/20-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-559319/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-559319/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-2

Client Sample ID: W-1

Date Collected: 04/05/22 12:55

Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			758.11 mL	1.0 g	559311	04/08/22 12:44	HRT	TAL SL
Total/NA	Analysis	9315		1			563273	05/02/22 22:32	CLP	TAL SL
Total/NA	Prep	PrecSep_0			758.11 mL	1.0 g	559319	04/08/22 13:34	HRT	TAL SL
Total/NA	Analysis	9320		1			563255	05/02/22 14:56	CLP	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			563705	05/04/22 18:35	EMH	TAL SL

Client Sample ID: MW-7

Date Collected: 04/05/22 10:25

Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			259.50 mL	1.0 g	559311	04/08/22 12:44	HRT	TAL SL
Total/NA	Analysis	9315		1			563273	05/02/22 22:32	CLP	TAL SL
Total/NA	Prep	PrecSep_0			259.50 mL	1.0 g	559319	04/08/22 13:34	HRT	TAL SL
Total/NA	Analysis	9320		1			563255	05/02/22 14:57	CLP	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			563705	05/04/22 18:35	EMH	TAL SL

Client Sample ID: MW-7D

Date Collected: 04/05/22 10:25

Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			743.11 mL	1.0 g	559311	04/08/22 12:44	HRT	TAL SL
Total/NA	Analysis	9315		1			563273	05/02/22 22:32	CLP	TAL SL
Total/NA	Prep	PrecSep_0			743.11 mL	1.0 g	559319	04/08/22 13:34	HRT	TAL SL
Total/NA	Analysis	9320		1	1.0 mL	1.0 mL	563255	05/02/22 14:57	CLP	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			563705	05/04/22 18:35	EMH	TAL SL

Laboratory References:

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

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-2

Laboratory: Eurofins St. Louis

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

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-22
California	Los Angeles County Sanitation Districts	10259	06-30-22
California	State	2886	07-01-22
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-22
HI - RadChem Recognition	State	n/a	06-30-22
Illinois	NELAP	200023	11-30-22
Iowa	State	373	12-01-22
Kansas	NELAP	E-10236	10-31-22
Kentucky (DW)	State	KY90125	12-31-22
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-22
Louisiana	NELAP	04080	06-30-22
Louisiana (DW)	State	LA011	12-31-22
Maryland	State	310	09-30-22
MI - RadChem Recognition	State	9005	06-30-22
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-22
New Jersey	NELAP	MO002	06-30-22
New York	NELAP	11616	04-01-23
North Dakota	State	R-207	06-30-22
NRC	NRC	24-24817-01	12-31-22
Oklahoma	NELAP	9997	08-31-22
Oregon	NELAP	4157	09-01-22
Pennsylvania	NELAP	68-00540	02-28-23
South Carolina	State	85002001	06-30-22
Texas	NELAP	T104704193	07-31-22
US Fish & Wildlife	US Federal Programs	058448	07-31-22
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	08-01-22
Virginia	NELAP	10310	06-14-22
Washington	State	C592	08-30-22
West Virginia DEP	State	381	10-31-22

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Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-160577-2

Login Number: 160577

List Source: Eurofins Denver

List Number: 1

Creator: Roehsner, Karen P

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

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-160577-2

Login Number: 160577

List Number: 2

Creator: Worthington, Sierra M

List Source: Eurofins St. Louis

List Creation: 04/07/22 02:32 PM

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

Tracer/Carrier Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-2

Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	
280-160577-5	W-1	80.8	
280-160577-7	MW-7	82.8	
280-160577-8	MW-7D	82.3	
LCS 160-559311/1-A	Lab Control Sample	81.8	
LCSD 160-559311/2-A	Lab Control Sample Dup	92.8	
MB 160-559311/20-A	Method Blank	95.0	
Tracer/Carrier Legend			
Ba = Ba Carrier			

Method: 9320 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)
280-160577-5	W-1	80.8	84.9
280-160577-7	MW-7	82.8	86.0
280-160577-8	MW-7D	82.3	83.4
LCS 160-559319/1-A	Lab Control Sample	81.8	85.2
LCSD 160-559319/2-A	Lab Control Sample Dup	92.8	84.1
MB 160-559319/20-A	Method Blank	95.0	83.7
Tracer/Carrier Legend			
Ba = Ba Carrier			
Y = Y Carrier			

ANALYTICAL REPORT

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

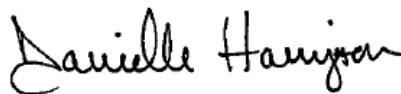
Laboratory Job ID: 280-160577-3

Client Project/Site: Xcel Energy GW CCR Monitoring -
Comanche

For:

HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Attn: Molly Reeves



Authorized for release by:

6/3/2022 9:35:07 PM

Danielle Harrington, Project Manager II
(303)736-0176

Danielle.Harrington@et.eurofinsus.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-3

Qualifiers

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-3

Job ID: 280-160577-3

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-160577-3

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 04/06/2022; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt were 0.9°C and 3.0°C

Receipt Exceptions

Per client request on 05/27/2022, Denver performed the Method 6020B analysis for Antimony and Arsenic on all samples. Please note, No COC received with workshare samples returning from Cedar Falls.

6020B ICP-MS

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

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-3

Client Sample ID: MW-1B

Lab Sample ID: 280-160577-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	0.00083	J	0.0020	0.00040	mg/L	1		6020B	Total
Arsenic	0.00034	J	0.0050	0.00033	mg/L	1		6020B	Recoverable
									Total
									Recoverable

Client Sample ID: MW-2B

Lab Sample ID: 280-160577-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	0.00060	J	0.0020	0.00040	mg/L	1		6020B	Total
Arsenic	0.00049	J	0.0050	0.00033	mg/L	1		6020B	Recoverable
									Total
									Recoverable

Client Sample ID: W-1

Lab Sample ID: 280-160577-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0011	J	0.0050	0.00033	mg/L	1		6020B	Total
									Recoverable

Client Sample ID: MW-7

Lab Sample ID: 280-160577-7

No Detections.

Client Sample ID: MW-7D

Lab Sample ID: 280-160577-8

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Method Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-3

Method	Method Description	Protocol	Laboratory
6020B	Metals (ICP/MS)	SW846	TAL DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL DEN

Protocol References:

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

Laboratory References:

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

Sample Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-160577-1	MW-1B	Water	04/04/22 16:50	04/06/22 08:05
280-160577-2	MW-2B	Water	04/05/22 12:20	04/06/22 08:05
280-160577-5	W-1	Water	04/05/22 12:55	04/06/22 08:05
280-160577-7	MW-7	Water	04/05/22 10:25	04/06/22 08:05
280-160577-8	MW-7D	Water	04/05/22 10:25	04/06/22 08:05

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-3

Method: 6020B - Metals (ICP/MS) - Total Recoverable

Client Sample ID: MW-1B
Date Collected: 04/04/22 16:50
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00083	J	0.0020	0.00040	mg/L		06/01/22 09:40	06/01/22 22:12	1
Arsenic	0.00034	J	0.0050	0.00033	mg/L		06/01/22 09:40	06/01/22 22:12	1

Client Sample ID: MW-2B
Date Collected: 04/05/22 12:20
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00060	J	0.0020	0.00040	mg/L		06/01/22 09:40	06/01/22 22:16	1
Arsenic	0.00049	J	0.0050	0.00033	mg/L		06/01/22 09:40	06/01/22 22:16	1

Client Sample ID: W-1
Date Collected: 04/05/22 12:55
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		06/01/22 09:40	06/01/22 22:20	1
Arsenic	0.0011	J	0.0050	0.00033	mg/L		06/01/22 09:40	06/01/22 22:20	1

Client Sample ID: MW-7
Date Collected: 04/05/22 10:25
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		06/01/22 09:40	06/01/22 22:24	1
Arsenic	ND		0.0050	0.00033	mg/L		06/01/22 09:40	06/01/22 22:24	1

Client Sample ID: MW-7D
Date Collected: 04/05/22 10:25
Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		06/01/22 09:40	06/01/22 22:27	1
Arsenic	ND		0.0050	0.00033	mg/L		06/01/22 09:40	06/01/22 22:27	1

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-3

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-576579/1-A

Matrix: Water

Analysis Batch: 576852

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 576579

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		06/01/22 09:40	06/01/22 20:46	1
Arsenic	ND		0.0050	0.00033	mg/L		06/01/22 09:40	06/01/22 20:46	1

Lab Sample ID: LCS 280-576579/2-A

Matrix: Water

Analysis Batch: 576852

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 576579

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0416		mg/L		104	80 - 111
Arsenic	0.0400	0.0400		mg/L		100	92 - 112

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-3

Metals

Prep Batch: 576579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160577-1	MW-1B	Total Recoverable	Water	3005A	
280-160577-2	MW-2B	Total Recoverable	Water	3005A	
280-160577-5	W-1	Total Recoverable	Water	3005A	
280-160577-7	MW-7	Total Recoverable	Water	3005A	
280-160577-8	MW-7D	Total Recoverable	Water	3005A	
MB 280-576579/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-576579/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 576852

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-160577-1	MW-1B	Total Recoverable	Water	6020B	576579
280-160577-2	MW-2B	Total Recoverable	Water	6020B	576579
280-160577-5	W-1	Total Recoverable	Water	6020B	576579
280-160577-7	MW-7	Total Recoverable	Water	6020B	576579
280-160577-8	MW-7D	Total Recoverable	Water	6020B	576579
MB 280-576579/1-A	Method Blank	Total Recoverable	Water	6020B	576579
LCS 280-576579/2-A	Lab Control Sample	Total Recoverable	Water	6020B	576579

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-3

Client Sample ID: MW-1B

Date Collected: 04/04/22 16:50

Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	576579	06/01/22 09:40	MCR	TAL DEN
Total Recoverable	Analysis	6020B		1			576852	06/01/22 22:12	LMT	TAL DEN

Client Sample ID: MW-2B

Date Collected: 04/05/22 12:20

Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	576579	06/01/22 09:40	MCR	TAL DEN
Total Recoverable	Analysis	6020B		1			576852	06/01/22 22:16	LMT	TAL DEN

Client Sample ID: W-1

Date Collected: 04/05/22 12:55

Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	576579	06/01/22 09:40	MCR	TAL DEN
Total Recoverable	Analysis	6020B		1			576852	06/01/22 22:20	LMT	TAL DEN

Client Sample ID: MW-7

Date Collected: 04/05/22 10:25

Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	576579	06/01/22 09:40	MCR	TAL DEN
Total Recoverable	Analysis	6020B		1			576852	06/01/22 22:24	LMT	TAL DEN

Client Sample ID: MW-7D

Date Collected: 04/05/22 10:25

Date Received: 04/06/22 08:05

Lab Sample ID: 280-160577-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	576579	06/01/22 09:40	MCR	TAL DEN
Total Recoverable	Analysis	6020B		1			576852	06/01/22 22:27	LMT	TAL DEN

Laboratory References:

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

Eurofins Denver

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-160577-3

Laboratory: Eurofins Denver

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

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-23

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

Chain of Custody Record

Client Information		Sampler: <u>Tava Kent</u>		Lab PM: <u>Harrington, Danielle M</u>	Carrier Tracking No(s):	COC No: <u>280-110862-32017.2</u>
Client Contact: <u>Molly Reeves</u>		Phone: <u>7209337496</u>		E-Mail: <u>Danielle.Harrington@Eurofinset.com</u>	State of Origin: <u>CO</u>	Page: <u>1 of 1</u>
Company: <u>HDR Inc</u>		PWSID:		Job #:		
Address: <u>1670 Broadway Suite 3400</u>		Due Date Requested: <u>std</u>		Analysis Requested		
City: <u>Denver</u>		TAT Requested (days): <u>std</u>		Barcode: 		
State, Zip: <u>CO, 80202</u>		Compliance Project: <u>Yes</u> ☒ <u>No</u> ☐		280-160577 Chain of Custody		
Phone: <u>734-263-7138(Tel)</u>		PO #: <u>DEN-021</u>		Preservation Codes:		
Email: <u>Molly.Reeves@hdrinc.com</u>		WO #: <u></u>		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:		
Project Name: <u>Xcel Energy GW CCR Monitoring - Comanche</u>		Project #: <u>28014376</u>		Total Number of containers		
Site: <u>COLORADO</u>		SSOW #: <u></u>		Special Instructions/Note:		
Groundwater- CCR (App III and App IV)						

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/soil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C, 6020A, 7470A Dissolved Metals - Canton	2220B alkalinity, 9040B pH, 9056A, 280Chloride, Fluoride, Sulfate	6010C, 6020A, 7470A Total Metals - Canton	2540D - TSS/2540C TDS	Radium - 226 9135 and Radium - 228 Method 9320/	Ra2226Ra2228GFPc - EPA St. Louis	Carb, bichr, Mg, K, Na
MW-1B	04-04-22	1650	G	Water	N	N	X	X	X	X	X	X	X
MW-2B	04-05-22	1720	G	Water	N	N	X	X	X	X	X	X	X
MW-4B	04-04-22	1320	G	W	N	N	X	X	X	X	X	X	X
MW-6	04-04-22	1505	G	W	N	N	X	X	X	X	X	X	X
W-1	04-05-22	1255	G	W	N	N	X	X	X	X	X	X	X
W-4	04-05-22	1330	G	W	N	N	X	X	X	X	X	X	X
MW-7	04-05-22	1025	G	W	N	N	X	X	X	X	X	X	X
MW-7D	04-05-22	1025	G	W	N	N	X	X	X	X	X	X	X

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

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

Empty Kit Relinquished by: _____ Date: _____ Time: _____

Relinquished by: Tava Kent Date/Time: 06 APR 2022 0807 Company: HDR

Relinquished by: _____ Date/Time: _____ Company: _____

Relinquished by: _____ Date/Time: _____ Company: _____

Custody Seals Intact: Yes ☒ No ☐ Custody Seal No.: _____

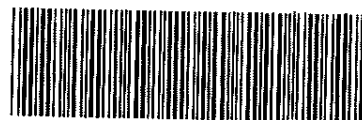
Cooler Temperature(s) °C and Other Remarks: 0.8, 2.9 CF +0.1 1K 12

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

Special Instructions/QC Requirements:



Environment Testing
America



280-160577 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client <u>EETA Denver</u>			
City/State	CITY <u>Arvada</u>	STATE <u>CO</u>	Project
Receipt Information			
Date/Time Received	DATE <u>4/7/22</u>	TIME <u>1445</u>	Received By <u>MRH</u>
Delivery Type ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?		☒ Yes ☐ No	If yes Cooler ID
Multiple Coolers?		☐ Yes ☒ No	If yes Cooler # _____ of _____
Cooler Custody Seals Present?		☒ Yes ☐ No	If yes Cooler custody seals intact? ☒ Yes ☐ No
Sample Custody Seals Present?		☐ Yes ☒ No	If yes Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?		☐ Yes ☒ No	If yes Which VOA samples are in cooler? ↓
Temperature Record			
Coolant ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other _____ ☐ NONE			
Thermometer ID <u>0</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>3.0</u>		Corrected Temp (°C) <u>3.0</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? ☐ Yes ☐ No a) If yes Is there evidence that the chilling process began? ☐ Yes ☐ No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No			
NOTE If yes, contact PM before proceeding If no, proceed with login			
Additional Comments			

[illegible]



Environment Testing
America

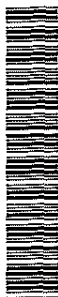
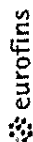


280-160577 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client <u>Denver</u>			
City/State	CITY	STATE	Project
		<u>CO</u>	
Receipt Information			
Date/Time Received	DATE	TIME	Received By
	<u>4 8 22</u>	<u>935</u>	<u>[Signature]</u>
Delivery Type ☐ UPS ☒ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee			
☐ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other. _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler? ☒ Yes ☐ No If yes Cooler ID _____			
Multiple Coolers? ☐ Yes ☒ No If yes Cooler # _____ of _____			
Cooler Custody Seals Present? ☒ Yes ☐ No If yes Cooler custody seals intact? ☒ Yes ☐ No			
Sample Custody Seals Present? ☐ Yes ☒ No If yes Sample custody seals intact? ☐ Yes ☐ No			
Trip Blank Present? ☐ Yes ☒ No If yes Which VOA samples are in cooler? ↓ _____			
Temperature Record			
Coolant ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other. _____ ☐ NONE			
Thermometer ID		Correction Factor (°C)	
<u>0</u>		<u>0</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C)		Corrected Temp (°C)	
<u>0.9</u>		<u>0.9</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? ☐ Yes ☐ No			
a) If yes Is there evidence that the chilling process began? ☐ Yes ☐ No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No			
NOTE If yes, contact PM before proceeding If no, proceed with login			
Additional Comments			

Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler	Lab PM:	Carrier Tracking No(s):		IOC No:
Client Contact: Shipping/Receiving		Phone:	Harrington, Danielle M	State of Origin: Colorado		280-809609.1
Company: Eurofins Environment Testing North Cent		E-Mail: Danielle.Harrington@et.eurofinsus.com		Page: Page 1 of 1		Job #: 280-160577.1
Address: 3019 Venture Way		Accreditations Required (See note): DoD A2LA		Preservation Codes:		
City: Cedar Falls	State, Zip: IA, 50613	PO #:	WO #:	Analysis Requested		
Phone: 319-277-2401(Tel) 319-277-2425(Fax)	Project #: 28014376		Due Date Requested: 4/26/2022		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	
Email:	Site: Xcel Energy CCR Comanche Station		TAT Requested (days):		Total Number of Containers	
Sample Identification		Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Weigh, Swab, Swirl, Dredge, Soil, etc.)
MW-1B (280-160577.1)			4/4/22	16:50 Mountain		Water
MW-2B (280-160577-2)			4/5/22	12:20 Mountain		Water
MW-4B (280-160577-3)			4/4/22	13:20 Mountain		Water
MW-6 (280-160577-4)			4/4/22	15:05 Mountain		Water
MW-7 (280-160577-5)			4/5/22	12:55 Mountain		Water
MW-7 (280-160577.7)			4/5/22	10:25 Mountain		Water
MW-7B (280-160577.8)			4/5/22	10:25 Mountain		Water
Special Instructions/Note:		2. 4/7/22				

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

Possible Hazard Identification		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	
Unconfirmed	Return To Client	Disposal By Lab	Archive For Months
Deliverable Requested: I II III IV Other (specify)	Primary Deliverable Rank: 2	Special Instructions/QC Requirements:	
Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: <i>[Signature]</i>	Date/Time: 4/7/22 1500	Company: EADEN	Received by:
Relinquished by:	Date/Time:	Company:	Received by:
Relinquished by:	Date/Time:	Company:	Received by:
Custody Seals Intact: ☐ Yes ☒ No	Custody Seal No.	Cooler Temperature(s) °C and Other Remarks:	

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-160577-3

Login Number: 160577

List Number: 1

Creator: Roehsner, Karen P

List Source: Eurofins Denver

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

ANALYTICAL REPORT

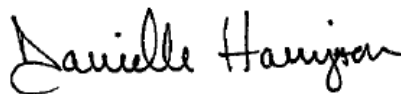
Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-162040-1

Client Project/Site: Xcel Energy GW CCR Monitoring -
Comanche

For:
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Attn: Molly Reeves



Authorized for release by:
5/31/2022 6:01:47 PM

Danielle Harrington, Project Manager II
(303)736-0176

Danielle.Harrington@et.eurofinsus.com

LINKS

Review your project
results through



Have a Question?



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www.eurofinsus.com/Env

The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Qualifiers

Metals

Qualifier	Qualifier Description
^+	Continuing Calibration Verification (CCV) is outside acceptance limits, high biased.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
^~	Continuing Calibration Verification (CCV) is outside acceptance limits, low biased.
^1+	Initial Calibration Verification (ICV) is outside acceptance limits, high biased.
B	Compound was found in the blank and sample.
F3	Duplicate RPD exceeds the control limit
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Job ID: 280-162040-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-162040-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 05/06/2022; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt were 0.6°C, 1.0°C, 1.7°C, 2.2°C and 2.9°C.

Receipt Exceptions

Client requested Dissolved Metals analysis that is to be filtered for the following samples. Only one unpreserved container provided for Dissolved Metal and other analyses requiring an unpreserved volume. Laboratory split volume, filtered and preserved for analysis for samples MW-5 (280-162040-7), W-11 (280-162040-16) and W-16 (280-162040-19)

DISSOLVED METALS- Method 6010C/6020A

Sample MW-5 (280-162040-7) required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Boron was detected in method blank MB 280-574858/1-E at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. Because the concentration in the method blank is not present at a level greater than the reporting limit, corrective action is deemed unnecessary.

Boron was detected in method blank MB 280-575155/1-C at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. Because the concentration in the method blank is not present at a level greater than the reporting limit, corrective action is deemed unnecessary.

Calcium was detected in method blank MB 280-574858/1-D at a level exceeding the reporting limit. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. As the associated sample amounts are ten times greater than the method blank concentration, corrective action is deemed unnecessary.

The accuracy and precision of the Calcium MS/MSD performed on a laboratory generated sample could not be reliably evaluated, as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The accuracy and precision of the Barium and Calcium MS/MSD performed on a laboratory generated sample could not be reliably evaluated, as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Job ID: 280-162040-1 (Continued)

Laboratory: Eurofins Denver (Continued)

The accuracy and precision of the Barium MS/MSD performed on a laboratory generated sample could not be reliably evaluated, as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The low level continuing calibration verification (CCVL) associated with 280-576087 failed above the upper control limit for Li. The affected samples contained the affected analyte at a level 10x greater than that in the CCVL; therefore the data has been reported.

The low level continuing calibration verification (CCVL) associated with batch 280-576087 recovered above the upper control limit for Lithium. The samples associated with this CCV contained the affected analyte at a level less than the reporting limit (RL); therefore, the data have been reported.

Method 6010C: Serial dilution for Lithium should not be calculated due to parent sample less than reporting limit:(280-161900-A-1-B SD ^5)

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

TOTAL RECOVERABLE METALS- Method 6010C/6020A

Several samples required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Calcium was detected in method blank MB 280-574284/1-A at a level exceeding the reporting limit. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. As the associated sample amounts are ten times greater than the method blank concentration, corrective action is deemed unnecessary.

Calcium was detected in method blank MB 280-575927/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. Because the concentration in the method blank is not present at a level greater than the reporting limit, corrective action is deemed unnecessary.

The accuracy and precision of the Boron MS/MSD performed on a laboratory generated sample could not be reliably evaluated, as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

Laboratory generated MS/MSD analysis data have been provided. The MS/MSD for Lithium method 6010C exhibited spike compound recoveries outside the QC limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The low level continuing calibration verification (CCVL) associated with batch 280-574777 recovered above the upper control limit for Lithium. The samples associated with this CCVL were >10x the level of the CCVL for the affected analytes; therefore, corrective action was deemed unnecessary.

Method 6010C: Serial dilution for Lithium should not be calculated due to parent sample less than reporting limit:(280-161900-A-1-B SD ^5)

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

DISSOLVED MERCURY

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

TOTAL MERCURY

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

GENERAL CHEMISTRY- VARIOUS

Several samples required dilution prior to analysis for Various methods. The reporting limits have been adjusted accordingly.

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Job ID: 280-162040-1 (Continued)

Laboratory: Eurofins Denver (Continued)

Alkalinity and Bicarbonate Alkalinity as CaCO₃ was detected in method blank MB 280-574458/5 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. Because the concentration in the method blank is not present at a level greater than the reporting limit, corrective action is deemed unnecessary.

Sulfate was detected in method blank MB 280-575330/54 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. Because the concentration in the method blank is not present at a level greater than the reporting limit, corrective action is deemed unnecessary.

The Total Suspended Solids sample duplicate analysis data associated with batch 280-574304 exhibited RPD data outside the QC limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The pH sample duplicate analysis data associated with sample MW-2B-EB exhibited RPD data outside the QC limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

Laboratory generated MS/MSD analysis data have been provided. The MS/MSD for Chloride, Fluoride, and Sulfate method 9056A exhibited spike compound recoveries outside the QC limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The accuracy and precision of the Chloride and Sulfate MS/MSD performed on a laboratory generated sample could not be reliably evaluated, as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The initial calibration verification (ICV) Fluoride result for batch 280-575330 was above the upper control limit. Sample results were non-detects, therefore, corrective action is deemed unnecessary.

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

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Client Sample ID: MW-1B

Lab Sample ID: 280-162040-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.84		0.10	0.0015	mg/L	1		6010C	Total Recoverable
Calcium	460000	B	10000	90	ug/L	10		6020A	Total Recoverable
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	400		30	10	mg/L	10		9056A	Total/NA
Sulfate	17000		500	100	mg/L	100		9056A	Total/NA
Alkalinity	1500		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	1500		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	29000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	1.6	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-2B

Lab Sample ID: 280-162040-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.77		0.10	0.0015	mg/L	1		6010C	Total Recoverable
Calcium	480000	B	10000	90	ug/L	10		6020A	Total Recoverable
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	19.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	560		30	10	mg/L	10		9056A	Total/NA
Sulfate	29000		1000	210	mg/L	200		9056A	Total/NA
Alkalinity	1700		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	1700		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	47000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	3.2	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-2B-FD

Lab Sample ID: 280-162040-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.80		0.10	0.0015	mg/L	1		6010C	Total Recoverable
Calcium	490000	B	10000	90	ug/L	10		6020A	Total Recoverable
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	18.4	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	460		300	100	mg/L	100		9056A	Total/NA
Fluoride	5.0		5.0	1.7	mg/L	10		9056A	Total/NA
Sulfate	31000		2500	520	mg/L	500		9056A	Total/NA
Alkalinity	1800		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	1800		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	46000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	2.0	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-2B-EB

Lab Sample ID: 280-162040-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	16000	B	10000	90	ug/L	10		6020A	Total Recoverable
pH adj. to 25 deg C	7.7	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	19.2	HF	1.0	1.0	Degrees C	1		9040B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Client Sample ID: MW-3

Lab Sample ID: 280-162040-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.57		0.10	0.0015	mg/L	1		6010C	Total
Calcium	390000	B	10000	90	ug/L	10		6020A	Total
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	18.9	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	420		30	10	mg/L	10		9056A	Total/NA
Fluoride	0.36	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	69000		2500	520	mg/L	500		9056A	Total/NA
Alkalinity	830		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	830		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	52000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	2.4	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-4B

Lab Sample ID: 280-162040-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.48		0.10	0.0015	mg/L	1		6010C	Total
Calcium	600000	B	10000	90	ug/L	10		6020A	Total
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	18.7	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	180		60	20	mg/L	20		9056A	Total/NA
Fluoride	0.39	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	3000		100	21	mg/L	20		9056A	Total/NA
Alkalinity	630		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	630		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	5900		40	19	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	4.4		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-5

Lab Sample ID: 280-162040-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.80		0.10	0.0015	mg/L	1		6010C	Total
Boron	0.74	B	0.10	0.0015	mg/L	1		6010C	Recoverable
Calcium	450000	B	10000	90	ug/L	10		6020A	Dissolved
Calcium	390000	B	50000	450	ug/L	50		6020A	Total
pH adj. to 25 deg C	7.3	HF	0.1	0.1	SU	1		9040B	Recoverable
Temperature	21.0	HF	1.0	1.0	Degrees C	1		9040B	Dissolved
Chloride	1200		600	200	mg/L	200		9056A	Total/NA
Fluoride	0.30	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	17000		1000	210	mg/L	200		9056A	Total/NA
Alkalinity	1400		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	1400		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	28000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	1.2	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Client Sample ID: MW-6

Lab Sample ID: 280-162040-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	2.2		0.10	0.0015	mg/L	1		6010C	Total Recoverable
Calcium	500000	B	10000	90	ug/L	10		6020A	Total Recoverable
pH adj. to 25 deg C	7.4	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	19.3	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	210		6.0	2.0	mg/L	2		9056A	Total/NA
Fluoride	1.0		1.0	0.33	mg/L	2		9056A	Total/NA
Sulfate	3600		500	100	mg/L	100		9056A	Total/NA
Alkalinity	140		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	140		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	6300		40	19	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-7

Lab Sample ID: 280-162040-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.71		0.10	0.0015	mg/L	1		6010C	Total Recoverable
Calcium	440000	B	10000	90	ug/L	10		6020A	Total Recoverable
pH adj. to 25 deg C	7.1	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	19.8	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	320		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	2.6		2.5	0.83	mg/L	5		9056A	Total/NA
Sulfate	8400		1000	210	mg/L	200		9056A	Total/NA
Alkalinity	760		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	760		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	15000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	1.6	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-2A

Lab Sample ID: 280-162040-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.4		0.10	0.0015	mg/L	1		6010C	Total Recoverable
Lithium	5.3	^+	0.020	0.0091	mg/L	1		6010C	Total Recoverable
Boron	1.2	B	0.10	0.0015	mg/L	1		6010C	Dissolved
Lithium	5.0	^+	0.020	0.0091	mg/L	1		6010C	Dissolved
Antimony	0.00041	J	0.0020	0.00040	mg/L	1		6020A	Total Recoverable
Arsenic	0.0015	J	0.0050	0.00033	mg/L	1		6020A	Total Recoverable
Barium	0.015		0.0010	0.00029	mg/L	1		6020A	Total Recoverable
Cadmium	0.0049		0.0010	0.00027	mg/L	1		6020A	Total Recoverable
Calcium	430	B	50	0.45	mg/L	50		6020A	Total Recoverable
Chromium	0.0041		0.0020	0.00050	mg/L	1		6020A	Total Recoverable
Cobalt	0.013		0.0010	0.000092	mg/L	1		6020A	Total Recoverable
Lead	0.0012		0.0010	0.00018	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Client Sample ID: W-2A (Continued)

Lab Sample ID: 280-162040-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Molybdenum	0.0030		0.0020	0.00014	mg/L	1		6020A	Total
									Recoverable
Selenium	2.6		0.0050	0.00037	mg/L	1		6020A	Total
									Recoverable
Thallium	0.0048		0.0010	0.000089	mg/L	1		6020A	Total
									Recoverable
Arsenic	0.00050	J	0.0050	0.00033	mg/L	1		6020A	Dissolved
Barium	0.012		0.0010	0.00029	mg/L	1		6020A	Dissolved
Cadmium	0.0045		0.0010	0.00027	mg/L	1		6020A	Dissolved
Chromium	0.00050	J	0.0020	0.00050	mg/L	1		6020A	Dissolved
Cobalt	0.013		0.0010	0.000092	mg/L	1		6020A	Dissolved
Lead	0.00020	J	0.0010	0.00018	mg/L	1		6020A	Dissolved
Molybdenum	0.0024		0.0020	0.00014	mg/L	1		6020A	Dissolved
Selenium	2.8		0.0050	0.00037	mg/L	1		6020A	Dissolved
Thallium	0.0047		0.0010	0.000089	mg/L	1		6020A	Dissolved
pH adj. to 25 deg C	6.9	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.4	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	960		60	20	mg/L	20		9056A	Total/NA
Sulfate	80000	B	2500	520	mg/L	500		9056A	Total/NA
Alkalinity	680		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	680		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	66000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	38		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-2C

Lab Sample ID: 280-162040-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.4		0.10	0.0015	mg/L	1		6010C	Total
									Recoverable
Lithium	4.6	^+	0.020	0.0091	mg/L	1		6010C	Total
									Recoverable
Arsenic	0.00076	J	0.0050	0.00033	mg/L	1		6020A	Total
									Recoverable
Barium	0.015		0.0010	0.00029	mg/L	1		6020A	Total
									Recoverable
Cadmium	0.0046		0.0010	0.00027	mg/L	1		6020A	Total
									Recoverable
Calcium	400	B	50	0.45	mg/L	50		6020A	Total
									Recoverable
Chromium	0.0021		0.0020	0.00050	mg/L	1		6020A	Total
									Recoverable
Cobalt	0.0040		0.0010	0.000092	mg/L	1		6020A	Total
									Recoverable
Lead	0.00036	J	0.0010	0.00018	mg/L	1		6020A	Total
									Recoverable
Molybdenum	0.0022		0.0020	0.00014	mg/L	1		6020A	Total
									Recoverable
Selenium	2.9		0.0050	0.00037	mg/L	1		6020A	Total
									Recoverable
Thallium	0.0042		0.0010	0.000089	mg/L	1		6020A	Total
									Recoverable
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.3	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	930		60	20	mg/L	20		9056A	Total/NA
Sulfate	60000	B	2500	520	mg/L	500		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Client Sample ID: W-2C (Continued)

Lab Sample ID: 280-162040-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	630		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	630		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	58000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	6.4		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-3B

Lab Sample ID: 280-162040-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.85		0.50	0.0073	mg/L	5		6010C	Total Recoverable
Lithium	3.3	^+	0.020	0.0091	mg/L	1		6010C	Total Recoverable
Antimony	0.00041	J	0.0020	0.00040	mg/L	1		6020A	Total Recoverable
Arsenic	0.00075	J	0.0050	0.00033	mg/L	1		6020A	Total Recoverable
Barium	0.015		0.0010	0.00029	mg/L	1		6020A	Total Recoverable
Cadmium	0.017		0.0010	0.00027	mg/L	1		6020A	Total Recoverable
Calcium	430	B	50	0.45	mg/L	50		6020A	Total Recoverable
Chromium	0.00059	J	0.0020	0.00050	mg/L	1		6020A	Total Recoverable
Cobalt	0.11		0.0010	0.000092	mg/L	1		6020A	Total Recoverable
Lead	0.00069	J	0.0010	0.00018	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0017	J	0.0020	0.00014	mg/L	1		6020A	Total Recoverable
Selenium	0.0066		0.0050	0.00037	mg/L	1		6020A	Total Recoverable
Thallium	0.0031		0.0010	0.000089	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	6.8	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.8	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	820		60	20	mg/L	20		9056A	Total/NA
Fluoride	69		10	3.3	mg/L	20		9056A	Total/NA
Sulfate	49000		2500	520	mg/L	500		9056A	Total/NA
Alkalinity	890		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	890		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	65000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	11		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-3B-FD

Lab Sample ID: 280-162040-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.89		0.50	0.0073	mg/L	5		6010C	Total Recoverable
Lithium	3.4	^+	0.020	0.0091	mg/L	1		6010C	Total Recoverable
Arsenic	0.00068	J	0.0050	0.00033	mg/L	1		6020A	Total Recoverable
Barium	0.014		0.0010	0.00029	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Client Sample ID: W-3B-FD (Continued)

Lab Sample ID: 280-162040-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Beryllium	0.00020	J	0.0010	0.000080	mg/L	1		6020A	Total
									Recoverable
Cadmium	0.017		0.0010	0.00027	mg/L	1		6020A	Total
									Recoverable
Calcium	430	B	50	0.45	mg/L	50		6020A	Total
									Recoverable
Chromium	0.00077	J	0.0020	0.00050	mg/L	1		6020A	Total
									Recoverable
Cobalt	0.11		0.0010	0.000092	mg/L	1		6020A	Total
									Recoverable
Lead	0.00063	J	0.0010	0.00018	mg/L	1		6020A	Total
									Recoverable
Molybdenum	0.0023		0.0020	0.00014	mg/L	1		6020A	Total
									Recoverable
Selenium	0.0050		0.0050	0.00037	mg/L	1		6020A	Total
									Recoverable
Thallium	0.0029		0.0010	0.000089	mg/L	1		6020A	Total
									Recoverable
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.3	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1200		60	20	mg/L	20		9056A	Total/NA
Sulfate	79000	B	2500	520	mg/L	500		9056A	Total/NA
Alkalinity	900		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	900		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	64000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	7.2		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-5B

Lab Sample ID: 280-162040-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.0		0.10	0.0015	mg/L	1		6010C	Total
									Recoverable
Lithium	0.28		0.020	0.0091	mg/L	1		6010C	Total
									Recoverable
Barium	0.017		0.0010	0.00029	mg/L	1		6020A	Total
									Recoverable
Beryllium	0.00013	J	0.0010	0.000080	mg/L	1		6020A	Total
									Recoverable
Cadmium	0.0012		0.0010	0.00027	mg/L	1		6020A	Total
									Recoverable
Calcium	540	B	50	0.45	mg/L	50		6020A	Total
									Recoverable
Cobalt	0.0027		0.0010	0.000092	mg/L	1		6020A	Total
									Recoverable
Lead	0.00018	J	0.0010	0.00018	mg/L	1		6020A	Total
									Recoverable
Molybdenum	0.0017	J	0.0020	0.00014	mg/L	1		6020A	Total
									Recoverable
Selenium	0.00057	J	0.0050	0.00037	mg/L	1		6020A	Total
									Recoverable
Thallium	0.00082	J	0.0010	0.000089	mg/L	1		6020A	Total
									Recoverable
pH adj. to 25 deg C	7.3	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.1	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	100		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.38	J	0.50	0.17	mg/L	1		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Client Sample ID: W-5B (Continued)

Lab Sample ID: 280-162040-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	3600		100	21	mg/L	20		9056A	Total/NA
Alkalinity	190		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	190		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	4600		40	19	mg/L	1		SM 2540C	Total/NA

Client Sample ID: W-7

Lab Sample ID: 280-162040-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.84		0.10	0.0015	mg/L	1		6010C	Total
Lithium	5.0		0.020	0.0091	mg/L	1		6010C	Total
Boron	0.81	B	0.10	0.0015	mg/L	1		6010C	Recoverable Dissolved
Lithium	5.1	^+	0.020	0.0091	mg/L	1		6010C	Dissolved
Antimony	0.00045	J	0.0020	0.00040	mg/L	1		6020A	Total
Arsenic	0.00093	J	0.0050	0.00033	mg/L	1		6020A	Recoverable Total
Barium	0.022		0.0010	0.00029	mg/L	1		6020A	Recoverable Total
Beryllium	0.00046	J	0.0010	0.000080	mg/L	1		6020A	Recoverable Total
Cadmium	0.0063		0.0010	0.00027	mg/L	1		6020A	Recoverable Total
Calcium	450	B	50	0.45	mg/L	50		6020A	Total
Chromium	0.0031		0.0020	0.00050	mg/L	1		6020A	Recoverable Total
Cobalt	0.019		0.0010	0.000092	mg/L	1		6020A	Recoverable Total
Lead	0.0012		0.0010	0.00018	mg/L	1		6020A	Recoverable Total
Molybdenum	0.0051		0.0020	0.00014	mg/L	1		6020A	Recoverable Total
Selenium	2.1		0.0050	0.00037	mg/L	1		6020A	Recoverable Total
Thallium	0.0051		0.0010	0.000089	mg/L	1		6020A	Recoverable Total
Antimony	0.00045	J	0.0020	0.00040	mg/L	1		6020A	Dissolved
Arsenic	0.00065	J	0.0050	0.00033	mg/L	1		6020A	Dissolved
Barium	0.014		0.0010	0.00029	mg/L	1		6020A	Dissolved
Beryllium	0.00010	J	0.0010	0.000080	mg/L	1		6020A	Dissolved
Cadmium	0.0060		0.0010	0.00027	mg/L	1		6020A	Dissolved
Chromium	0.0015	J	0.0020	0.00050	mg/L	1		6020A	Dissolved
Cobalt	0.019		0.0010	0.000092	mg/L	1		6020A	Dissolved
Lead	0.00053	J	0.0010	0.00018	mg/L	1		6020A	Dissolved
Molybdenum	0.0048		0.0020	0.00014	mg/L	1		6020A	Dissolved
Selenium	2.2		0.0050	0.00037	mg/L	1		6020A	Dissolved
Thallium	0.0052		0.0010	0.000089	mg/L	1		6020A	Dissolved
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	810		60	20	mg/L	20		9056A	Total/NA
Sulfate	86000	B	2500	520	mg/L	500		9056A	Total/NA
Alkalinity	990		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	990		10	3.1	mg/L	1		SM 2320B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Client Sample ID: W-7 (Continued)

Lab Sample ID: 280-162040-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Dissolved Solids (TDS)	64000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	30		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-11

Lab Sample ID: 280-162040-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.56		0.10	0.0015	mg/L	1		6010C	Total Recoverable
Lithium	3.7		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Boron	0.62	B	0.10	0.0015	mg/L	1		6010C	Dissolved
Lithium	3.9		0.020	0.0091	mg/L	1		6010C	Dissolved
Arsenic	0.00044	J	0.0050	0.00033	mg/L	1		6020A	Total Recoverable
Barium	0.015		0.0010	0.00029	mg/L	1		6020A	Total Recoverable
Beryllium	0.00016	J	0.0010	0.000080	mg/L	1		6020A	Total Recoverable
Cadmium	0.0015		0.0010	0.00027	mg/L	1		6020A	Total Recoverable
Calcium	420	B	50	0.45	mg/L	50		6020A	Total Recoverable
Chromium	0.0012	J	0.0020	0.00050	mg/L	1		6020A	Total Recoverable
Cobalt	0.017		0.0010	0.000092	mg/L	1		6020A	Total Recoverable
Lead	0.00037	J	0.0010	0.00018	mg/L	1		6020A	Total Recoverable
Molybdenum	0.0043		0.0020	0.00014	mg/L	1		6020A	Total Recoverable
Selenium	2.6		0.0050	0.00037	mg/L	1		6020A	Total Recoverable
Thallium	0.0039		0.0010	0.000089	mg/L	1		6020A	Total Recoverable
Barium	0.014		0.0010	0.00029	mg/L	1		6020A	Dissolved
Beryllium	0.00012	J	0.0010	0.000080	mg/L	1		6020A	Dissolved
Cadmium	0.0014		0.0010	0.00027	mg/L	1		6020A	Dissolved
Chromium	0.0011	J	0.0020	0.00050	mg/L	1		6020A	Dissolved
Cobalt	0.018		0.0010	0.000092	mg/L	1		6020A	Dissolved
Molybdenum	0.0040		0.0020	0.00014	mg/L	1		6020A	Dissolved
Selenium	2.8		0.0050	0.00037	mg/L	1		6020A	Dissolved
Thallium	0.0041		0.0010	0.000089	mg/L	1		6020A	Dissolved
pH adj. to 25 deg C	7.3	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	360		30	10	mg/L	10		9056A	Total/NA
Fluoride	0.40	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	15000	B	1000	210	mg/L	200		9056A	Total/NA
Alkalinity	1100		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	1100		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	20000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	6.8		4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Client Sample ID: W-12

Lab Sample ID: 280-162040-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.64		0.10	0.0015	mg/L	1		6010C	Total
Lithium	2.7	^+	0.020	0.0091	mg/L	1		6010C	Recoverable Total
Antimony	0.00068	J	0.0020	0.00040	mg/L	1		6020A	Recoverable Total
Barium	0.014		0.0010	0.00029	mg/L	1		6020A	Recoverable Total
Beryllium	0.00025	J	0.0010	0.000080	mg/L	1		6020A	Recoverable Total
Cadmium	0.0013		0.0010	0.00027	mg/L	1		6020A	Recoverable Total
Calcium	410	B	50	0.45	mg/L	50		6020A	Recoverable Total
Chromium	0.00091	J	0.0020	0.00050	mg/L	1		6020A	Recoverable Total
Cobalt	0.030		0.0010	0.000092	mg/L	1		6020A	Recoverable Total
Molybdenum	0.0046		0.0020	0.00014	mg/L	1		6020A	Recoverable Total
Selenium	0.027		0.0050	0.00037	mg/L	1		6020A	Recoverable Total
Thallium	0.0039		0.0010	0.000089	mg/L	1		6020A	Recoverable Total
pH adj. to 25 deg C	7.1	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.2	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	940		60	20	mg/L	20		9056A	Total/NA
Fluoride	0.86		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	19000	B	1000	210	mg/L	200		9056A	Total/NA
Alkalinity	1400		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	1400		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	25000		1000	470	mg/L	1		SM 2540C	Total/NA

Client Sample ID: W-14

Lab Sample ID: 280-162040-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.61		0.10	0.0015	mg/L	1		6010C	Total
Lithium	3.6	^+	0.020	0.0091	mg/L	1		6010C	Recoverable Total
Boron	0.61	B	0.10	0.0015	mg/L	1		6010C	Recoverable Dissolved
Lithium	3.3		0.020	0.0091	mg/L	1		6010C	Recoverable Dissolved
Antimony	0.00056	J	0.0020	0.00040	mg/L	1		6020A	Total
Arsenic	0.00045	J	0.0050	0.00033	mg/L	1		6020A	Recoverable Total
Barium	0.015		0.0010	0.00029	mg/L	1		6020A	Recoverable Total
Beryllium	0.00031	J	0.0010	0.000080	mg/L	1		6020A	Recoverable Total
Cadmium	0.00097	J	0.0010	0.00027	mg/L	1		6020A	Recoverable Total
Calcium	430	B	50	0.45	mg/L	50		6020A	Recoverable Total
Chromium	0.0017	J	0.0020	0.00050	mg/L	1		6020A	Recoverable Total

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Client Sample ID: W-14 (Continued)

Lab Sample ID: 280-162040-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cobalt	0.011		0.0010	0.000092	mg/L	1		6020A	Total
									Recoverable
Molybdenum	0.016		0.0020	0.00014	mg/L	1		6020A	Total
									Recoverable
Selenium	1.2		0.0050	0.00037	mg/L	1		6020A	Total
									Recoverable
Thallium	0.0021		0.0010	0.000089	mg/L	1		6020A	Total
									Recoverable
Antimony	0.00048	J	0.0020	0.00040	mg/L	1		6020A	Dissolved
Arsenic	0.00036	J	0.0050	0.00033	mg/L	1		6020A	Dissolved
Barium	0.017		0.0010	0.00029	mg/L	1		6020A	Dissolved
Beryllium	0.000082	J	0.0010	0.000080	mg/L	1		6020A	Dissolved
Cadmium	0.0012		0.0010	0.00027	mg/L	1		6020A	Dissolved
Chromium	0.0014	J	0.0020	0.00050	mg/L	1		6020A	Dissolved
Cobalt	0.011		0.0010	0.000092	mg/L	1		6020A	Dissolved
Molybdenum	0.017		0.0020	0.00014	mg/L	1		6020A	Dissolved
Selenium	1.3		0.0050	0.00037	mg/L	1		6020A	Dissolved
Thallium	0.0021		0.0010	0.000089	mg/L	1		6020A	Dissolved
pH adj. to 25 deg C	7.4	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.7	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	660		60	20	mg/L	20		9056A	Total/NA
Fluoride	0.32	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	18000	B	1000	210	mg/L	200		9056A	Total/NA
Alkalinity	1000		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	1000		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	26000		1000	470	mg/L	1		SM 2540C	Total/NA

Client Sample ID: W-16

Lab Sample ID: 280-162040-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.70		0.10	0.0015	mg/L	1		6010C	Total
									Recoverable
Lithium	2.4	^+	0.020	0.0091	mg/L	1		6010C	Total
									Recoverable
Boron	0.74	B	0.10	0.0015	mg/L	1		6010C	Dissolved
Lithium	2.4		0.020	0.0091	mg/L	1		6010C	Dissolved
Antimony	0.00040	J	0.0020	0.00040	mg/L	1		6020A	Total
									Recoverable
Arsenic	0.00035	J	0.0050	0.00033	mg/L	1		6020A	Total
									Recoverable
Barium	0.013		0.0010	0.00029	mg/L	1		6020A	Total
									Recoverable
Beryllium	0.00014	J	0.0010	0.000080	mg/L	1		6020A	Total
									Recoverable
Cadmium	0.0023		0.0010	0.00027	mg/L	1		6020A	Total
									Recoverable
Calcium	430	B	50	0.45	mg/L	50		6020A	Total
									Recoverable
Cobalt	0.011		0.0010	0.000092	mg/L	1		6020A	Total
									Recoverable
Lead	0.00018	J	0.0010	0.00018	mg/L	1		6020A	Total
									Recoverable
Molybdenum	0.0034		0.0020	0.00014	mg/L	1		6020A	Total
									Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Client Sample ID: W-16 (Continued)

Lab Sample ID: 280-162040-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Selenium	0.10		0.0050	0.00037	mg/L	1		6020A	Total
Thallium	0.0048		0.0010	0.000089	mg/L	1		6020A	Recoverable Total
Barium	0.013		0.0010	0.00029	mg/L	1		6020A	Recoverable Total
Beryllium	0.00016	J	0.0010	0.000080	mg/L	1		6020A	Dissolved
Cadmium	0.0025		0.0010	0.00027	mg/L	1		6020A	Dissolved
Chromium	0.0015	J	0.0020	0.00050	mg/L	1		6020A	Dissolved
Cobalt	0.011		0.0010	0.000092	mg/L	1		6020A	Dissolved
Molybdenum	0.0036		0.0020	0.00014	mg/L	1		6020A	Dissolved
Selenium	0.11		0.0050	0.00037	mg/L	1		6020A	Dissolved
Thallium	0.0049		0.0010	0.000089	mg/L	1		6020A	Dissolved
pH adj. to 25 deg C	7.1	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.2	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	250		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	2.9		2.5	0.83	mg/L	5		9056A	Total/NA
Sulfate	13000	B	500	100	mg/L	100		9056A	Total/NA
Alkalinity	880		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	880		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	18000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	2.4	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-6B

Lab Sample ID: 280-162040-20

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.1		0.10	0.0015	mg/L	1		6010C	Total
Lithium	4.1	^+	0.020	0.0091	mg/L	1		6010C	Recoverable Total
Antimony	0.00053	J	0.0020	0.00040	mg/L	1		6020A	Recoverable Total
Arsenic	0.0013	J	0.0050	0.00033	mg/L	1		6020A	Recoverable Total
Barium	0.015		0.0010	0.00029	mg/L	1		6020A	Recoverable Total
Beryllium	0.00028	J	0.0010	0.000080	mg/L	1		6020A	Recoverable Total
Cadmium	0.0090		0.0010	0.00027	mg/L	1		6020A	Recoverable Total
Calcium	420	B	50	0.45	mg/L	50		6020A	Recoverable Total
Chromium	0.00085	J	0.0020	0.00050	mg/L	1		6020A	Recoverable Total
Cobalt	0.078		0.0010	0.000092	mg/L	1		6020A	Recoverable Total
Lead	0.00034	J	0.0010	0.00018	mg/L	1		6020A	Recoverable Total
Molybdenum	0.0034		0.0020	0.00014	mg/L	1		6020A	Recoverable Total
Selenium	0.0034	J	0.0050	0.00037	mg/L	1		6020A	Recoverable Total
Thallium	0.0023		0.0010	0.000089	mg/L	1		6020A	Recoverable Total
pH adj. to 25 deg C	6.9	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Client Sample ID: W-6B (Continued)

Lab Sample ID: 280-162040-20

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	1300		60	20	mg/L	20		9056A	Total/NA
Sulfate	80000	B	2500	520	mg/L	500		9056A	Total/NA
Alkalinity	880		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	880		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	62000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	4.4		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-6B-EB

Lab Sample ID: 280-162040-21

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.0026	J	0.10	0.0015	mg/L	1		6010C	Total Recoverable
Beryllium	0.00012	J	0.0010	0.000080	mg/L	1		6020A	Total Recoverable
Calcium	0.82	J B	50	0.45	mg/L	50		6020A	Total Recoverable
pH adj. to 25 deg C	8.3	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.2	HF	1.0	1.0	Degrees C	1		9040B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Method Summary

Client: HDR Inc

Job ID: 280-162040-1

Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL DEN
6020A	Metals (ICP/MS)	SW846	TAL DEN
7470A	Mercury (CVAA)	SW846	TAL DEN
9040B	pH	SW846	TAL DEN
9056A	Anions, Ion Chromatography	SW846	TAL DEN
SM 2320B	Alkalinity	SM	TAL DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL DEN
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL DEN
7470A	Preparation, Mercury	SW846	TAL DEN
FILTRATION	Sample Filtration	None	TAL DEN

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.

Laboratory References:

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

Sample Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-162040-1	MW-1B	Water	05/03/22 15:40	05/06/22 16:42
280-162040-2	MW-2B	Water	05/03/22 11:45	05/06/22 16:42
280-162040-3	MW-2B-FD	Water	05/03/22 11:45	05/06/22 16:42
280-162040-4	MW-2B-EB	Water	05/03/22 12:15	05/06/22 16:42
280-162040-5	MW-3	Water	05/02/22 15:00	05/06/22 16:42
280-162040-6	MW-4B	Water	05/04/22 12:10	05/06/22 16:42
280-162040-7	MW-5	Water	05/05/22 16:10	05/06/22 16:42
280-162040-8	MW-6	Water	05/04/22 09:15	05/06/22 16:42
280-162040-9	MW-7	Water	05/03/22 14:10	05/06/22 16:42
280-162040-10	W-2A	Water	05/04/22 11:20	05/06/22 16:42
280-162040-11	W-2C	Water	05/05/22 11:20	05/06/22 16:42
280-162040-12	W-3B	Water	05/05/22 14:55	05/06/22 16:42
280-162040-13	W-3B-FD	Water	05/05/22 14:55	05/06/22 16:42
280-162040-14	W-5B	Water	05/06/22 09:50	05/06/22 16:42
280-162040-15	W-7	Water	05/04/22 16:00	05/06/22 16:42
280-162040-16	W-11	Water	05/04/22 15:45	05/06/22 16:42
280-162040-17	W-12	Water	05/05/22 10:45	05/06/22 16:42
280-162040-18	W-14	Water	05/06/22 10:30	05/06/22 16:42
280-162040-19	W-16	Water	05/05/22 15:00	05/06/22 16:42
280-162040-20	W-6B	Water	05/06/22 13:10	05/06/22 16:42
280-162040-21	W-6B-EB	Water	05/06/22 13:35	05/06/22 16:42

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Method: 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: MW-1B
Date Collected: 05/03/22 15:40
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.84		0.10	0.0015	mg/L		05/11/22 09:30	05/12/22 09:10	1

Client Sample ID: MW-2B
Date Collected: 05/03/22 11:45
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.77		0.10	0.0015	mg/L		05/11/22 09:30	05/12/22 09:18	1

Client Sample ID: MW-2B-FD
Date Collected: 05/03/22 11:45
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.80		0.10	0.0015	mg/L		05/11/22 09:30	05/12/22 09:26	1

Client Sample ID: MW-2B-EB
Date Collected: 05/03/22 12:15
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.0015	mg/L		05/11/22 09:30	05/12/22 09:34	1

Client Sample ID: MW-3
Date Collected: 05/02/22 15:00
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.57		0.10	0.0015	mg/L		05/11/22 02:20	05/12/22 13:24	1

Client Sample ID: MW-4B
Date Collected: 05/04/22 12:10
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.48		0.10	0.0015	mg/L		05/11/22 02:20	05/12/22 13:28	1

Client Sample ID: MW-5
Date Collected: 05/05/22 16:10
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.80		0.10	0.0015	mg/L		05/11/22 02:20	05/12/22 13:32	1

Client Sample ID: MW-6
Date Collected: 05/04/22 09:15
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	2.2		0.10	0.0015	mg/L		05/11/22 02:20	05/12/22 13:54	1

Client Sample ID: MW-7
Date Collected: 05/03/22 14:10
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.71		0.10	0.0015	mg/L		05/11/22 02:20	05/12/22 13:58	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Method: 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: W-2A
Date Collected: 05/04/22 11:20
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.4		0.10	0.0015	mg/L		05/11/22 02:20	05/12/22 14:02	1
Lithium	5.3	^+	0.020	0.0091	mg/L		05/11/22 02:20	05/12/22 14:02	1

Client Sample ID: W-2C
Date Collected: 05/05/22 11:20
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.4		0.10	0.0015	mg/L		05/11/22 02:20	05/12/22 14:06	1
Lithium	4.6	^+	0.020	0.0091	mg/L		05/11/22 02:20	05/12/22 14:06	1

Client Sample ID: W-3B
Date Collected: 05/05/22 14:55
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.85		0.50	0.0073	mg/L		05/11/22 02:20	05/13/22 15:12	5
Lithium	3.3	^+	0.020	0.0091	mg/L		05/11/22 02:20	05/12/22 14:10	1

Client Sample ID: W-3B-FD
Date Collected: 05/05/22 14:55
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.89		0.50	0.0073	mg/L		05/11/22 02:20	05/13/22 15:16	5
Lithium	3.4	^+	0.020	0.0091	mg/L		05/11/22 02:20	05/12/22 14:14	1

Client Sample ID: W-5B
Date Collected: 05/06/22 09:50
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.0		0.10	0.0015	mg/L		05/16/22 09:22	05/16/22 20:10	1
Lithium	0.28		0.020	0.0091	mg/L		05/16/22 09:22	05/24/22 16:07	1

Client Sample ID: W-7
Date Collected: 05/04/22 16:00
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.84		0.10	0.0015	mg/L		05/16/22 09:22	05/16/22 20:14	1
Lithium	5.0		0.020	0.0091	mg/L		05/16/22 09:22	05/24/22 16:11	1

Client Sample ID: W-11
Date Collected: 05/04/22 15:45
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.56		0.10	0.0015	mg/L		05/16/22 09:22	05/16/22 20:19	1
Lithium	3.7		0.020	0.0091	mg/L		05/16/22 09:22	05/24/22 16:15	1

Client Sample ID: W-12
Date Collected: 05/05/22 10:45
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-17
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.64		0.10	0.0015	mg/L		05/16/22 09:22	05/16/22 20:23	1
Lithium	2.7	^+	0.020	0.0091	mg/L		05/16/22 09:22	05/24/22 16:36	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Method: 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: W-14
Date Collected: 05/06/22 10:30
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-18
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.61		0.10	0.0015	mg/L		05/16/22 09:22	05/16/22 20:44	1
Lithium	3.6	^+	0.020	0.0091	mg/L		05/16/22 09:22	05/24/22 16:40	1

Client Sample ID: W-16
Date Collected: 05/05/22 15:00
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-19
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.70		0.10	0.0015	mg/L		05/16/22 09:22	05/16/22 20:48	1
Lithium	2.4	^+	0.020	0.0091	mg/L		05/16/22 09:22	05/24/22 16:44	1

Client Sample ID: W-6B
Date Collected: 05/06/22 13:10
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-20
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.1		0.10	0.0015	mg/L		05/16/22 09:22	05/16/22 20:53	1
Lithium	4.1	^+	0.020	0.0091	mg/L		05/16/22 09:22	05/24/22 16:48	1

Client Sample ID: W-6B-EB
Date Collected: 05/06/22 13:35
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-21
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.0026	J	0.10	0.0015	mg/L		05/16/22 09:22	05/16/22 20:57	1
Lithium	ND	^+	0.020	0.0091	mg/L		05/16/22 09:22	05/24/22 16:52	1

Method: 6010C - Metals (ICP) - Dissolved

Client Sample ID: MW-5
Date Collected: 05/05/22 16:10
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.74	B	0.10	0.0015	mg/L		05/16/22 19:06	05/17/22 13:47	1

Client Sample ID: W-2A
Date Collected: 05/04/22 11:20
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.2	B	0.10	0.0015	mg/L		05/16/22 19:06	05/17/22 13:52	1
Lithium	5.0	^+	0.020	0.0091	mg/L		05/16/22 19:06	05/24/22 17:40	1

Client Sample ID: W-7
Date Collected: 05/04/22 16:00
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.81	B	0.10	0.0015	mg/L		05/16/22 19:06	05/17/22 14:13	1
Lithium	5.1	^+	0.020	0.0091	mg/L		05/16/22 19:06	05/24/22 17:44	1

Client Sample ID: W-11
Date Collected: 05/04/22 15:45
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.62	B	0.10	0.0015	mg/L		05/17/22 09:24	05/18/22 20:36	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Method: 6010C - Metals (ICP) - Dissolved (Continued)

Client Sample ID: W-11
Date Collected: 05/04/22 15:45
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	3.9		0.020	0.0091	mg/L		05/17/22 09:24	05/18/22 20:36	1

Client Sample ID: W-14
Date Collected: 05/06/22 10:30
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-18
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.61	B	0.10	0.0015	mg/L		05/17/22 09:24	05/18/22 20:40	1
Lithium	3.3		0.020	0.0091	mg/L		05/17/22 09:24	05/18/22 20:40	1

Client Sample ID: W-16
Date Collected: 05/05/22 15:00
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-19
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.74	B	0.10	0.0015	mg/L		05/17/22 09:24	05/18/22 20:44	1
Lithium	2.4		0.020	0.0091	mg/L		05/17/22 09:24	05/18/22 20:44	1

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Client Sample ID: MW-1B
Date Collected: 05/03/22 15:40
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	460000	B	10000	90	ug/L		05/11/22 09:22	05/13/22 15:17	10

Client Sample ID: MW-2B
Date Collected: 05/03/22 11:45
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	480000	B	10000	90	ug/L		05/11/22 09:22	05/13/22 15:21	10

Client Sample ID: MW-2B-FD
Date Collected: 05/03/22 11:45
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	490000	B	10000	90	ug/L		05/11/22 09:22	05/13/22 15:24	10

Client Sample ID: MW-2B-EB
Date Collected: 05/03/22 12:15
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	16000	B	10000	90	ug/L		05/11/22 09:22	05/13/22 14:03	10

Client Sample ID: MW-3
Date Collected: 05/02/22 15:00
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	390000	B	10000	90	ug/L		05/11/22 09:22	05/13/22 14:06	10

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Client Sample ID: MW-4B
Date Collected: 05/04/22 12:10
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	600000	B	10000	90	ug/L		05/11/22 09:22	05/13/22 14:10	10

Client Sample ID: MW-5
Date Collected: 05/05/22 16:10
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	450000	B	10000	90	ug/L		05/11/22 09:22	05/13/22 14:14	10

Client Sample ID: MW-6
Date Collected: 05/04/22 09:15
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	500000	B	10000	90	ug/L		05/11/22 09:22	05/13/22 14:18	10

Client Sample ID: MW-7
Date Collected: 05/03/22 14:10
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	440000	B	10000	90	ug/L		05/11/22 09:22	05/13/22 14:22	10

Client Sample ID: W-2A
Date Collected: 05/04/22 11:20
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00041	J	0.0020	0.00040	mg/L		05/24/22 09:11	05/25/22 04:21	1
Arsenic	0.0015	J	0.0050	0.00033	mg/L		05/24/22 09:11	05/25/22 04:21	1
Barium	0.015		0.0010	0.00029	mg/L		05/24/22 09:11	05/25/22 04:21	1
Beryllium	ND		0.0010	0.000080	mg/L		05/24/22 09:11	05/25/22 04:21	1
Cadmium	0.0049		0.0010	0.00027	mg/L		05/24/22 09:11	05/25/22 04:21	1
Calcium	430	B	50	0.45	mg/L		05/24/22 09:11	05/26/22 16:13	50
Chromium	0.0041		0.0020	0.00050	mg/L		05/24/22 09:11	05/25/22 04:21	1
Cobalt	0.013		0.0010	0.000092	mg/L		05/24/22 09:11	05/25/22 04:21	1
Lead	0.0012		0.0010	0.00018	mg/L		05/24/22 09:11	05/25/22 04:21	1
Molybdenum	0.0030		0.0020	0.00014	mg/L		05/24/22 09:11	05/25/22 04:21	1
Selenium	2.6		0.0050	0.00037	mg/L		05/24/22 09:11	05/25/22 04:21	1
Thallium	0.0048		0.0010	0.000089	mg/L		05/24/22 09:11	05/25/22 04:21	1

Client Sample ID: W-2C
Date Collected: 05/05/22 11:20
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/24/22 09:11	05/25/22 04:25	1
Arsenic	0.00076	J	0.0050	0.00033	mg/L		05/24/22 09:11	05/25/22 04:25	1
Barium	0.015		0.0010	0.00029	mg/L		05/24/22 09:11	05/25/22 04:25	1
Beryllium	ND		0.0010	0.000080	mg/L		05/24/22 09:11	05/25/22 04:25	1
Cadmium	0.0046		0.0010	0.00027	mg/L		05/24/22 09:11	05/25/22 04:25	1
Calcium	400	B	50	0.45	mg/L		05/24/22 09:11	05/26/22 16:17	50
Chromium	0.0021		0.0020	0.00050	mg/L		05/24/22 09:11	05/25/22 04:25	1
Cobalt	0.0040		0.0010	0.000092	mg/L		05/24/22 09:11	05/25/22 04:25	1
Lead	0.00036	J	0.0010	0.00018	mg/L		05/24/22 09:11	05/25/22 04:25	1
Molybdenum	0.0022		0.0020	0.00014	mg/L		05/24/22 09:11	05/25/22 04:25	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Method: 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

Client Sample ID: W-2C
Date Collected: 05/05/22 11:20
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	2.9		0.0050	0.00037	mg/L		05/24/22 09:11	05/25/22 04:25	1
Thallium	0.0042		0.0010	0.000089	mg/L		05/24/22 09:11	05/25/22 04:25	1

Client Sample ID: W-3B
Date Collected: 05/05/22 14:55
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00041	J	0.0020	0.00040	mg/L		05/24/22 09:11	05/25/22 04:28	1
Arsenic	0.00075	J	0.0050	0.00033	mg/L		05/24/22 09:11	05/25/22 04:28	1
Barium	0.015		0.0010	0.00029	mg/L		05/24/22 09:11	05/25/22 04:28	1
Beryllium	ND		0.0010	0.000080	mg/L		05/24/22 09:11	05/25/22 04:28	1
Cadmium	0.017		0.0010	0.00027	mg/L		05/24/22 09:11	05/25/22 04:28	1
Calcium	430	B	50	0.45	mg/L		05/24/22 09:11	05/26/22 16:21	50
Chromium	0.00059	J	0.0020	0.00050	mg/L		05/24/22 09:11	05/25/22 04:28	1
Cobalt	0.11		0.0010	0.000092	mg/L		05/24/22 09:11	05/25/22 04:28	1
Lead	0.00069	J	0.0010	0.00018	mg/L		05/24/22 09:11	05/25/22 04:28	1
Molybdenum	0.0017	J	0.0020	0.00014	mg/L		05/24/22 09:11	05/25/22 04:28	1
Selenium	0.0066		0.0050	0.00037	mg/L		05/24/22 09:11	05/25/22 04:28	1
Thallium	0.0031		0.0010	0.000089	mg/L		05/24/22 09:11	05/25/22 04:28	1

Client Sample ID: W-3B-FD
Date Collected: 05/05/22 14:55
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/24/22 09:11	05/25/22 04:32	1
Arsenic	0.00068	J	0.0050	0.00033	mg/L		05/24/22 09:11	05/25/22 04:32	1
Barium	0.014		0.0010	0.00029	mg/L		05/24/22 09:11	05/25/22 04:32	1
Beryllium	0.00020	J	0.0010	0.000080	mg/L		05/24/22 09:11	05/25/22 04:32	1
Cadmium	0.017		0.0010	0.00027	mg/L		05/24/22 09:11	05/25/22 04:32	1
Calcium	430	B	50	0.45	mg/L		05/24/22 09:11	05/26/22 16:25	50
Chromium	0.00077	J	0.0020	0.00050	mg/L		05/24/22 09:11	05/25/22 04:32	1
Cobalt	0.11		0.0010	0.000092	mg/L		05/24/22 09:11	05/25/22 04:32	1
Lead	0.00063	J	0.0010	0.00018	mg/L		05/24/22 09:11	05/25/22 04:32	1
Molybdenum	0.0023		0.0020	0.00014	mg/L		05/24/22 09:11	05/25/22 04:32	1
Selenium	0.0050		0.0050	0.00037	mg/L		05/24/22 09:11	05/25/22 04:32	1
Thallium	0.0029		0.0010	0.000089	mg/L		05/24/22 09:11	05/25/22 04:32	1

Client Sample ID: W-5B
Date Collected: 05/06/22 09:50
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/24/22 09:11	05/25/22 04:36	1
Arsenic	ND		0.0050	0.00033	mg/L		05/24/22 09:11	05/25/22 04:36	1
Barium	0.017		0.0010	0.00029	mg/L		05/24/22 09:11	05/25/22 04:36	1
Beryllium	0.00013	J	0.0010	0.000080	mg/L		05/24/22 09:11	05/25/22 04:36	1
Cadmium	0.0012		0.0010	0.00027	mg/L		05/24/22 09:11	05/25/22 04:36	1
Calcium	540	B	50	0.45	mg/L		05/24/22 09:11	05/26/22 16:29	50
Chromium	ND		0.0020	0.00050	mg/L		05/24/22 09:11	05/25/22 04:36	1
Cobalt	0.0027		0.0010	0.000092	mg/L		05/24/22 09:11	05/25/22 04:36	1
Lead	0.00018	J	0.0010	0.00018	mg/L		05/24/22 09:11	05/25/22 04:36	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Method: 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

Client Sample ID: W-5B
Date Collected: 05/06/22 09:50
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	0.0017	J	0.0020	0.00014	mg/L		05/24/22 09:11	05/25/22 04:36	1
Selenium	0.00057	J	0.0050	0.00037	mg/L		05/24/22 09:11	05/25/22 04:36	1
Thallium	0.00082	J	0.0010	0.000089	mg/L		05/24/22 09:11	05/25/22 04:36	1

Client Sample ID: W-7
Date Collected: 05/04/22 16:00
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00045	J	0.0020	0.00040	mg/L		05/24/22 09:11	05/25/22 04:51	1
Arsenic	0.00093	J	0.0050	0.00033	mg/L		05/24/22 09:11	05/25/22 04:51	1
Barium	0.022		0.0010	0.00029	mg/L		05/24/22 09:11	05/25/22 04:51	1
Beryllium	0.00046	J	0.0010	0.000080	mg/L		05/24/22 09:11	05/25/22 04:51	1
Cadmium	0.0063		0.0010	0.00027	mg/L		05/24/22 09:11	05/25/22 04:51	1
Calcium	450	B	50	0.45	mg/L		05/24/22 09:11	05/26/22 16:33	50
Chromium	0.0031		0.0020	0.00050	mg/L		05/24/22 09:11	05/25/22 04:51	1
Cobalt	0.019		0.0010	0.000092	mg/L		05/24/22 09:11	05/25/22 04:51	1
Lead	0.0012		0.0010	0.00018	mg/L		05/24/22 09:11	05/25/22 04:51	1
Molybdenum	0.0051		0.0020	0.00014	mg/L		05/24/22 09:11	05/25/22 04:51	1
Selenium	2.1		0.0050	0.00037	mg/L		05/24/22 09:11	05/25/22 04:51	1
Thallium	0.0051		0.0010	0.000089	mg/L		05/24/22 09:11	05/25/22 04:51	1

Client Sample ID: W-11
Date Collected: 05/04/22 15:45
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/24/22 09:11	05/25/22 04:55	1
Arsenic	0.00044	J	0.0050	0.00033	mg/L		05/24/22 09:11	05/25/22 04:55	1
Barium	0.015		0.0010	0.00029	mg/L		05/24/22 09:11	05/25/22 04:55	1
Beryllium	0.00016	J	0.0010	0.000080	mg/L		05/24/22 09:11	05/25/22 04:55	1
Cadmium	0.0015		0.0010	0.00027	mg/L		05/24/22 09:11	05/25/22 04:55	1
Calcium	420	B	50	0.45	mg/L		05/24/22 09:11	05/26/22 16:49	50
Chromium	0.0012	J	0.0020	0.00050	mg/L		05/24/22 09:11	05/25/22 04:55	1
Cobalt	0.017		0.0010	0.000092	mg/L		05/24/22 09:11	05/25/22 04:55	1
Lead	0.00037	J	0.0010	0.00018	mg/L		05/24/22 09:11	05/25/22 04:55	1
Molybdenum	0.0043		0.0020	0.00014	mg/L		05/24/22 09:11	05/25/22 04:55	1
Selenium	2.6		0.0050	0.00037	mg/L		05/24/22 09:11	05/25/22 04:55	1
Thallium	0.0039		0.0010	0.000089	mg/L		05/24/22 09:11	05/25/22 04:55	1

Client Sample ID: W-12
Date Collected: 05/05/22 10:45
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-17
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00068	J	0.0020	0.00040	mg/L		05/24/22 09:11	05/25/22 04:59	1
Arsenic	ND		0.0050	0.00033	mg/L		05/24/22 09:11	05/25/22 04:59	1
Barium	0.014		0.0010	0.00029	mg/L		05/24/22 09:11	05/25/22 04:59	1
Beryllium	0.00025	J	0.0010	0.000080	mg/L		05/24/22 09:11	05/25/22 04:59	1
Cadmium	0.0013		0.0010	0.00027	mg/L		05/24/22 09:11	05/25/22 04:59	1
Calcium	410	B	50	0.45	mg/L		05/24/22 09:11	05/26/22 16:53	50
Chromium	0.00091	J	0.0020	0.00050	mg/L		05/24/22 09:11	05/25/22 04:59	1
Cobalt	0.030		0.0010	0.000092	mg/L		05/24/22 09:11	05/25/22 04:59	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Method: 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

Client Sample ID: W-12
Date Collected: 05/05/22 10:45
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-17
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0010	0.00018	mg/L		05/24/22 09:11	05/25/22 04:59	1
Molybdenum	0.0046		0.0020	0.00014	mg/L		05/24/22 09:11	05/25/22 04:59	1
Selenium	0.027		0.0050	0.00037	mg/L		05/24/22 09:11	05/25/22 04:59	1
Thallium	0.0039		0.0010	0.000089	mg/L		05/24/22 09:11	05/25/22 04:59	1

Client Sample ID: W-14
Date Collected: 05/06/22 10:30
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-18
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00056	J	0.0020	0.00040	mg/L		05/24/22 09:11	05/25/22 05:03	1
Arsenic	0.00045	J	0.0050	0.00033	mg/L		05/24/22 09:11	05/25/22 05:03	1
Barium	0.015		0.0010	0.00029	mg/L		05/24/22 09:11	05/25/22 05:03	1
Beryllium	0.00031	J	0.0010	0.000080	mg/L		05/24/22 09:11	05/25/22 05:03	1
Cadmium	0.00097	J	0.0010	0.00027	mg/L		05/24/22 09:11	05/25/22 05:03	1
Calcium	430	B	50	0.45	mg/L		05/24/22 09:11	05/26/22 16:57	50
Chromium	0.0017	J	0.0020	0.00050	mg/L		05/24/22 09:11	05/25/22 05:03	1
Cobalt	0.011		0.0010	0.000092	mg/L		05/24/22 09:11	05/25/22 05:03	1
Lead	ND		0.0010	0.00018	mg/L		05/24/22 09:11	05/25/22 05:03	1
Molybdenum	0.016		0.0020	0.00014	mg/L		05/24/22 09:11	05/25/22 05:03	1
Selenium	1.2		0.0050	0.00037	mg/L		05/24/22 09:11	05/25/22 05:03	1
Thallium	0.0021		0.0010	0.000089	mg/L		05/24/22 09:11	05/25/22 05:03	1

Client Sample ID: W-16
Date Collected: 05/05/22 15:00
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-19
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00040	J	0.0020	0.00040	mg/L		05/24/22 09:11	05/25/22 05:06	1
Arsenic	0.00035	J	0.0050	0.00033	mg/L		05/24/22 09:11	05/25/22 05:06	1
Barium	0.013		0.0010	0.00029	mg/L		05/24/22 09:11	05/25/22 05:06	1
Beryllium	0.00014	J	0.0010	0.000080	mg/L		05/24/22 09:11	05/25/22 05:06	1
Cadmium	0.0023		0.0010	0.00027	mg/L		05/24/22 09:11	05/25/22 05:06	1
Calcium	430	B	50	0.45	mg/L		05/24/22 09:11	05/26/22 17:01	50
Chromium	ND		0.0020	0.00050	mg/L		05/24/22 09:11	05/25/22 05:06	1
Cobalt	0.011		0.0010	0.000092	mg/L		05/24/22 09:11	05/25/22 05:06	1
Lead	0.00018	J	0.0010	0.00018	mg/L		05/24/22 09:11	05/25/22 05:06	1
Molybdenum	0.0034		0.0020	0.00014	mg/L		05/24/22 09:11	05/25/22 05:06	1
Selenium	0.10		0.0050	0.00037	mg/L		05/24/22 09:11	05/25/22 05:06	1
Thallium	0.0048		0.0010	0.000089	mg/L		05/24/22 09:11	05/25/22 05:06	1

Client Sample ID: W-6B
Date Collected: 05/06/22 13:10
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-20
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00053	J	0.0020	0.00040	mg/L		05/24/22 09:11	05/25/22 05:10	1
Arsenic	0.0013	J	0.0050	0.00033	mg/L		05/24/22 09:11	05/25/22 05:10	1
Barium	0.015		0.0010	0.00029	mg/L		05/24/22 09:11	05/25/22 05:10	1
Beryllium	0.00028	J	0.0010	0.000080	mg/L		05/24/22 09:11	05/25/22 05:10	1
Cadmium	0.0090		0.0010	0.00027	mg/L		05/24/22 09:11	05/25/22 05:10	1
Calcium	420	B	50	0.45	mg/L		05/24/22 09:11	05/26/22 17:05	50
Chromium	0.00085	J	0.0020	0.00050	mg/L		05/24/22 09:11	05/25/22 05:10	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Method: 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

Client Sample ID: W-6B
Date Collected: 05/06/22 13:10
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-20
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	0.078		0.0010	0.000092	mg/L		05/24/22 09:11	05/25/22 05:10	1
Lead	0.00034	J	0.0010	0.00018	mg/L		05/24/22 09:11	05/25/22 05:10	1
Molybdenum	0.0034		0.0020	0.00014	mg/L		05/24/22 09:11	05/25/22 05:10	1
Selenium	0.0034	J	0.0050	0.00037	mg/L		05/24/22 09:11	05/25/22 05:10	1
Thallium	0.0023		0.0010	0.000089	mg/L		05/24/22 09:11	05/25/22 05:10	1

Client Sample ID: W-6B-EB
Date Collected: 05/06/22 13:35
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-21
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/24/22 09:11	05/25/22 05:14	1
Arsenic	ND		0.0050	0.00033	mg/L		05/24/22 09:11	05/25/22 05:14	1
Barium	ND		0.0010	0.00029	mg/L		05/24/22 09:11	05/25/22 05:14	1
Beryllium	0.00012	J	0.0010	0.000080	mg/L		05/24/22 09:11	05/25/22 05:14	1
Cadmium	ND		0.0010	0.00027	mg/L		05/24/22 09:11	05/25/22 05:14	1
Calcium	0.82	J B	50	0.45	mg/L		05/24/22 09:11	05/26/22 17:09	50
Chromium	ND		0.0020	0.00050	mg/L		05/24/22 09:11	05/25/22 05:14	1
Cobalt	ND		0.0010	0.000092	mg/L		05/24/22 09:11	05/25/22 05:14	1
Lead	ND		0.0010	0.00018	mg/L		05/24/22 09:11	05/25/22 05:14	1
Molybdenum	ND		0.0020	0.00014	mg/L		05/24/22 09:11	05/25/22 05:14	1
Selenium	ND		0.0050	0.00037	mg/L		05/24/22 09:11	05/25/22 05:14	1
Thallium	ND		0.0010	0.000089	mg/L		05/24/22 09:11	05/25/22 05:14	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Client Sample ID: MW-5
Date Collected: 05/05/22 16:10
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	390000	B	50000	450	ug/L		05/17/22 10:04	05/18/22 09:55	50

Client Sample ID: W-2A
Date Collected: 05/04/22 11:20
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/26/22 08:55	05/27/22 02:37	1
Arsenic	0.00050	J	0.0050	0.00033	mg/L		05/26/22 08:55	05/27/22 02:37	1
Barium	0.012		0.0010	0.00029	mg/L		05/26/22 08:55	05/27/22 02:37	1
Beryllium	ND		0.0010	0.000080	mg/L		05/26/22 08:55	05/27/22 02:37	1
Cadmium	0.0045		0.0010	0.00027	mg/L		05/26/22 08:55	05/27/22 02:37	1
Chromium	0.00050	J	0.0020	0.00050	mg/L		05/26/22 08:55	05/27/22 02:37	1
Cobalt	0.013		0.0010	0.000092	mg/L		05/26/22 08:55	05/27/22 02:37	1
Lead	0.00020	J	0.0010	0.00018	mg/L		05/26/22 08:55	05/27/22 02:37	1
Molybdenum	0.0024		0.0020	0.00014	mg/L		05/26/22 08:55	05/27/22 02:37	1
Selenium	2.8		0.0050	0.00037	mg/L		05/26/22 08:55	05/27/22 02:37	1
Thallium	0.0047		0.0010	0.000089	mg/L		05/26/22 08:55	05/27/22 02:37	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Method: 6020A - Metals (ICP/MS) - Dissolved

Client Sample ID: W-7
Date Collected: 05/04/22 16:00
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00045	J	0.0020	0.00040	mg/L		05/26/22 08:55	05/27/22 02:44	1
Arsenic	0.00065	J	0.0050	0.00033	mg/L		05/26/22 08:55	05/27/22 02:44	1
Barium	0.014		0.0010	0.00029	mg/L		05/26/22 08:55	05/27/22 02:44	1
Beryllium	0.00010	J	0.0010	0.000080	mg/L		05/26/22 08:55	05/27/22 02:44	1
Cadmium	0.0060		0.0010	0.00027	mg/L		05/26/22 08:55	05/27/22 02:44	1
Chromium	0.0015	J	0.0020	0.00050	mg/L		05/26/22 08:55	05/27/22 02:44	1
Cobalt	0.019		0.0010	0.000092	mg/L		05/26/22 08:55	05/27/22 02:44	1
Lead	0.00053	J	0.0010	0.00018	mg/L		05/26/22 08:55	05/27/22 02:44	1
Molybdenum	0.0048		0.0020	0.00014	mg/L		05/26/22 08:55	05/27/22 02:44	1
Selenium	2.2		0.0050	0.00037	mg/L		05/26/22 08:55	05/27/22 02:44	1
Thallium	0.0052		0.0010	0.000089	mg/L		05/26/22 08:55	05/27/22 02:44	1

Client Sample ID: W-11
Date Collected: 05/04/22 15:45
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/26/22 08:55	05/27/22 02:52	1
Arsenic	ND		0.0050	0.00033	mg/L		05/26/22 08:55	05/27/22 02:52	1
Barium	0.014		0.0010	0.00029	mg/L		05/26/22 08:55	05/27/22 02:52	1
Beryllium	0.00012	J	0.0010	0.000080	mg/L		05/26/22 08:55	05/27/22 02:52	1
Cadmium	0.0014		0.0010	0.00027	mg/L		05/26/22 08:55	05/27/22 02:52	1
Chromium	0.0011	J	0.0020	0.00050	mg/L		05/26/22 08:55	05/27/22 02:52	1
Cobalt	0.018		0.0010	0.000092	mg/L		05/26/22 08:55	05/27/22 02:52	1
Lead	ND		0.0010	0.00018	mg/L		05/26/22 08:55	05/27/22 02:52	1
Molybdenum	0.0040		0.0020	0.00014	mg/L		05/26/22 08:55	05/27/22 02:52	1
Selenium	2.8		0.0050	0.00037	mg/L		05/26/22 08:55	05/27/22 02:52	1
Thallium	0.0041		0.0010	0.000089	mg/L		05/26/22 08:55	05/27/22 02:52	1

Client Sample ID: W-14
Date Collected: 05/06/22 10:30
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-18
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00048	J	0.0020	0.00040	mg/L		05/26/22 08:55	05/27/22 02:59	1
Arsenic	0.00036	J	0.0050	0.00033	mg/L		05/26/22 08:55	05/27/22 02:59	1
Barium	0.017		0.0010	0.00029	mg/L		05/26/22 08:55	05/27/22 02:59	1
Beryllium	0.000082	J	0.0010	0.000080	mg/L		05/26/22 08:55	05/27/22 02:59	1
Cadmium	0.0012		0.0010	0.00027	mg/L		05/26/22 08:55	05/27/22 02:59	1
Chromium	0.0014	J	0.0020	0.00050	mg/L		05/26/22 08:55	05/27/22 02:59	1
Cobalt	0.011		0.0010	0.000092	mg/L		05/26/22 08:55	05/27/22 02:59	1
Lead	ND		0.0010	0.00018	mg/L		05/26/22 08:55	05/27/22 02:59	1
Molybdenum	0.017		0.0020	0.00014	mg/L		05/26/22 08:55	05/27/22 02:59	1
Selenium	1.3		0.0050	0.00037	mg/L		05/26/22 08:55	05/27/22 02:59	1
Thallium	0.0021		0.0010	0.000089	mg/L		05/26/22 08:55	05/27/22 02:59	1

Client Sample ID: W-16
Date Collected: 05/05/22 15:00
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-19
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/26/22 08:55	05/27/22 03:18	1
Arsenic	ND		0.0050	0.00033	mg/L		05/26/22 08:55	05/27/22 03:18	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Method: 6020A - Metals (ICP/MS) - Dissolved (Continued)

Client Sample ID: W-16
Date Collected: 05/05/22 15:00
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-19
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.013		0.0010	0.00029	mg/L		05/26/22 08:55	05/27/22 03:18	1
Beryllium	0.00016	J	0.0010	0.000080	mg/L		05/26/22 08:55	05/27/22 11:52	1
Cadmium	0.0025		0.0010	0.00027	mg/L		05/26/22 08:55	05/27/22 03:18	1
Chromium	0.0015	J	0.0020	0.00050	mg/L		05/26/22 08:55	05/27/22 03:18	1
Cobalt	0.011		0.0010	0.000092	mg/L		05/26/22 08:55	05/27/22 03:18	1
Lead	ND		0.0010	0.00018	mg/L		05/26/22 08:55	05/27/22 03:18	1
Molybdenum	0.0036		0.0020	0.00014	mg/L		05/26/22 08:55	05/27/22 03:18	1
Selenium	0.11		0.0050	0.00037	mg/L		05/26/22 08:55	05/27/22 03:18	1
Thallium	0.0049		0.0010	0.000089	mg/L		05/26/22 08:55	05/27/22 03:18	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: W-2A
Date Collected: 05/04/22 11:20
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/12/22 18:54	05/13/22 16:21	1

Client Sample ID: W-2C
Date Collected: 05/05/22 11:20
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/12/22 18:54	05/13/22 16:24	1

Client Sample ID: W-3B
Date Collected: 05/05/22 14:55
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/12/22 18:54	05/13/22 16:26	1

Client Sample ID: W-3B-FD
Date Collected: 05/05/22 14:55
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/12/22 18:54	05/13/22 16:29	1

Client Sample ID: W-5B
Date Collected: 05/06/22 09:50
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/12/22 18:54	05/13/22 16:31	1

Client Sample ID: W-7
Date Collected: 05/04/22 16:00
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/12/22 18:54	05/13/22 16:34	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Method: 7470A - Mercury (CVAA)

Client Sample ID: W-11
Date Collected: 05/04/22 15:45
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/12/22 18:54	05/13/22 16:36	1

Client Sample ID: W-12
Date Collected: 05/05/22 10:45
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-17
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/12/22 18:54	05/13/22 16:39	1

Client Sample ID: W-14
Date Collected: 05/06/22 10:30
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-18
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/12/22 18:54	05/13/22 16:41	1

Client Sample ID: W-16
Date Collected: 05/05/22 15:00
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-19
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/12/22 18:54	05/13/22 16:49	1

Client Sample ID: W-6B
Date Collected: 05/06/22 13:10
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-20
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/12/22 18:54	05/13/22 16:52	1

Client Sample ID: W-6B-EB
Date Collected: 05/06/22 13:35
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-21
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/12/22 18:54	05/13/22 16:54	1

Method: 7470A - Mercury (CVAA) - Dissolved

Client Sample ID: W-2A
Date Collected: 05/04/22 11:20
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.061	ug/L		05/18/22 20:05	05/18/22 23:31	1

Client Sample ID: W-7
Date Collected: 05/04/22 16:00
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.061	ug/L		05/18/22 20:05	05/18/22 23:39	1

Client Sample ID: W-11
Date Collected: 05/04/22 15:45
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.061	ug/L		05/18/22 20:05	05/18/22 23:41	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Method: 7470A - Mercury (CVAA) - Dissolved

Client Sample ID: W-14
Date Collected: 05/06/22 10:30
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-18
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.061	ug/L		05/18/22 20:05	05/18/22 23:44	1

Client Sample ID: W-16
Date Collected: 05/05/22 15:00
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-19
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.061	ug/L		05/18/22 20:05	05/18/22 23:46	1

General Chemistry

Client Sample ID: MW-1B
Date Collected: 05/03/22 15:40
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU			05/09/22 15:26	1
Temperature	20.0	HF	1.0	1.0	Degrees C			05/09/22 15:26	1
Chloride	400		30	10	mg/L			05/19/22 07:00	10
Fluoride	ND	^1+	2.5	0.83	mg/L			05/19/22 04:34	5
Sulfate	17000		500	100	mg/L			05/17/22 22:06	100
Alkalinity	1500		10	3.1	mg/L			05/10/22 01:28	1
Bicarbonate Alkalinity as CaCO3	1500		10	3.1	mg/L			05/10/22 01:28	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/10/22 01:28	1
Total Dissolved Solids (TDS)	29000		1000	470	mg/L			05/10/22 09:44	1
Total Suspended Solids	1.6	J	4.0	1.1	mg/L			05/10/22 15:40	1

Client Sample ID: MW-2B
Date Collected: 05/03/22 11:45
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU			05/09/22 15:37	1
Temperature	19.0	HF	1.0	1.0	Degrees C			05/09/22 15:37	1
Chloride	560		30	10	mg/L			05/19/22 07:16	10
Fluoride	ND	^1+	2.5	0.83	mg/L			05/19/22 04:49	5
Sulfate	29000		1000	210	mg/L			05/18/22 00:13	200
Alkalinity	1700		10	3.1	mg/L			05/10/22 02:21	1
Bicarbonate Alkalinity as CaCO3	1700		10	3.1	mg/L			05/10/22 02:21	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/10/22 02:21	1
Total Dissolved Solids (TDS)	47000		1000	470	mg/L			05/10/22 09:44	1
Total Suspended Solids	3.2	J	4.0	1.1	mg/L			05/10/22 15:40	1

Client Sample ID: MW-2B-FD
Date Collected: 05/03/22 11:45
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU			05/09/22 15:40	1
Temperature	18.4	HF	1.0	1.0	Degrees C			05/09/22 15:40	1
Chloride	460		300	100	mg/L			05/17/22 23:09	100
Fluoride	5.0		5.0	1.7	mg/L			05/19/22 07:32	10
Sulfate	31000		2500	520	mg/L			05/20/22 06:24	500
Alkalinity	1800		10	3.1	mg/L			05/10/22 02:38	1
Bicarbonate Alkalinity as CaCO3	1800		10	3.1	mg/L			05/10/22 02:38	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

General Chemistry (Continued)

Client Sample ID: MW-2B-FD
Date Collected: 05/03/22 11:45
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbonate Alkalinity as CaCO ₃	ND		10	3.1	mg/L			05/10/22 02:38	1
Total Dissolved Solids (TDS)	46000		1000	470	mg/L			05/10/22 09:44	1
Total Suspended Solids	2.0	J	4.0	1.1	mg/L			05/10/22 15:40	1

Client Sample ID: MW-2B-EB
Date Collected: 05/03/22 12:15
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.7	HF	0.1	0.1	SU			05/10/22 12:08	1
Temperature	19.2	HF	1.0	1.0	Degrees C			05/10/22 12:08	1
Chloride	ND		3.0	1.0	mg/L			05/17/22 18:23	1
Fluoride	ND		0.50	0.17	mg/L			05/17/22 18:23	1
Sulfate	ND		5.0	1.0	mg/L			05/17/22 18:23	1
Alkalinity	ND		10	3.1	mg/L			05/10/22 01:58	1
Bicarbonate Alkalinity as CaCO ₃	ND		10	3.1	mg/L			05/10/22 01:58	1
Carbonate Alkalinity as CaCO ₃	ND		10	3.1	mg/L			05/10/22 01:58	1
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			05/10/22 09:48	1
Total Suspended Solids	ND		4.0	1.1	mg/L			05/10/22 15:40	1

Client Sample ID: MW-3
Date Collected: 05/02/22 15:00
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU			05/09/22 15:44	1
Temperature	18.9	HF	1.0	1.0	Degrees C			05/09/22 15:44	1
Chloride	420		30	10	mg/L			05/17/22 19:43	10
Fluoride	0.36	J	0.50	0.17	mg/L			05/17/22 19:27	1
Sulfate	69000		2500	520	mg/L			05/19/22 05:19	500
Alkalinity	830		10	3.1	mg/L			05/10/22 02:51	1
Bicarbonate Alkalinity as CaCO ₃	830		10	3.1	mg/L			05/10/22 02:51	1
Carbonate Alkalinity as CaCO ₃	ND		10	3.1	mg/L			05/10/22 02:51	1
Total Dissolved Solids (TDS)	52000		1000	470	mg/L			05/09/22 09:48	1
Total Suspended Solids	2.4	J	4.0	1.1	mg/L			05/09/22 14:03	1

Client Sample ID: MW-4B
Date Collected: 05/04/22 12:10
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU			05/09/22 15:47	1
Temperature	18.7	HF	1.0	1.0	Degrees C			05/09/22 15:47	1
Chloride	180		60	20	mg/L			05/17/22 21:51	20
Fluoride	0.39	J	0.50	0.17	mg/L			05/17/22 21:35	1
Sulfate	3000		100	21	mg/L			05/17/22 21:51	20
Alkalinity	630		10	3.1	mg/L			05/10/22 03:01	1
Bicarbonate Alkalinity as CaCO ₃	630		10	3.1	mg/L			05/10/22 03:01	1
Carbonate Alkalinity as CaCO ₃	ND		10	3.1	mg/L			05/10/22 03:01	1
Total Dissolved Solids (TDS)	5900		40	19	mg/L			05/10/22 09:48	1
Total Suspended Solids	4.4		4.0	1.1	mg/L			05/10/22 15:40	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

General Chemistry

Client Sample ID: MW-5
Date Collected: 05/05/22 16:10
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.3	HF	0.1	0.1	SU			05/09/22 20:58	1
Temperature	21.0	HF	1.0	1.0	Degrees C			05/09/22 20:58	1
Chloride	1200		600	200	mg/L			05/18/22 00:44	200
Fluoride	0.30	J	0.50	0.17	mg/L			05/19/22 14:17	1
Sulfate	17000		1000	210	mg/L			05/18/22 00:44	200
Alkalinity	1400		10	3.1	mg/L			05/10/22 03:17	1
Bicarbonate Alkalinity as CaCO3	1400		10	3.1	mg/L			05/10/22 03:17	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/10/22 03:17	1
Total Dissolved Solids (TDS)	28000		1000	470	mg/L			05/10/22 09:48	1
Total Suspended Solids	1.2	J	4.0	1.1	mg/L			05/10/22 15:40	1

Client Sample ID: MW-6
Date Collected: 05/04/22 09:15
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.4	HF	0.1	0.1	SU			05/09/22 15:51	1
Temperature	19.3	HF	1.0	1.0	Degrees C			05/09/22 15:51	1
Chloride	210		6.0	2.0	mg/L			05/19/22 08:04	2
Fluoride	1.0		1.0	0.33	mg/L			05/19/22 08:04	2
Sulfate	3600		500	100	mg/L			05/17/22 23:41	100
Alkalinity	140		10	3.1	mg/L			05/10/22 03:23	1
Bicarbonate Alkalinity as CaCO3	140		10	3.1	mg/L			05/10/22 03:23	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/10/22 03:23	1
Total Dissolved Solids (TDS)	6300		40	19	mg/L			05/10/22 09:48	1
Total Suspended Solids	ND		4.0	1.1	mg/L			05/10/22 15:40	1

Client Sample ID: MW-7
Date Collected: 05/03/22 14:10
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.1	HF	0.1	0.1	SU			05/09/22 15:55	1
Temperature	19.8	HF	1.0	1.0	Degrees C			05/09/22 15:55	1
Chloride	320		15	5.1	mg/L			05/19/22 08:20	5
Fluoride	2.6		2.5	0.83	mg/L			05/19/22 08:20	5
Sulfate	8400		1000	210	mg/L			05/18/22 01:16	200
Alkalinity	760		10	3.1	mg/L			05/10/22 03:34	1
Bicarbonate Alkalinity as CaCO3	760		10	3.1	mg/L			05/10/22 03:34	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/10/22 03:34	1
Total Dissolved Solids (TDS)	15000		1000	470	mg/L			05/10/22 09:48	1
Total Suspended Solids	1.6	J	4.0	1.1	mg/L			05/10/22 15:40	1

Client Sample ID: W-2A
Date Collected: 05/04/22 11:20
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	6.9	HF	0.1	0.1	SU			05/09/22 19:33	1
Temperature	21.4	HF	1.0	1.0	Degrees C			05/09/22 19:33	1
Chloride	960		60	20	mg/L			05/18/22 05:36	20
Fluoride	ND		0.50	0.17	mg/L			05/18/22 05:19	1
Sulfate	80000	B	2500	520	mg/L			05/19/22 08:04	500

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

General Chemistry (Continued)

Client Sample ID: W-2A
Date Collected: 05/04/22 11:20
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	680		10	3.1	mg/L			05/10/22 03:45	1
Bicarbonate Alkalinity as CaCO3	680		10	3.1	mg/L			05/10/22 03:45	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/10/22 03:45	1
Total Dissolved Solids (TDS)	66000		1000	470	mg/L			05/10/22 09:48	1
Total Suspended Solids	38		4.0	1.1	mg/L			05/10/22 15:40	1

Client Sample ID: W-2C
Date Collected: 05/05/22 11:20
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-11
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU			05/09/22 19:37	1
Temperature	21.3	HF	1.0	1.0	Degrees C			05/09/22 19:37	1
Chloride	930		60	20	mg/L			05/18/22 06:08	20
Fluoride	ND		0.50	0.17	mg/L			05/18/22 05:52	1
Sulfate	60000	B	2500	520	mg/L			05/19/22 08:19	500
Alkalinity	630		10	3.1	mg/L			05/10/22 04:08	1
Bicarbonate Alkalinity as CaCO3	630		10	3.1	mg/L			05/10/22 04:08	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/10/22 04:08	1
Total Dissolved Solids (TDS)	58000		1000	470	mg/L			05/10/22 09:48	1
Total Suspended Solids	6.4		4.0	1.1	mg/L			05/10/22 15:40	1

Client Sample ID: W-3B
Date Collected: 05/05/22 14:55
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	6.8	HF	0.1	0.1	SU			05/09/22 19:41	1
Temperature	20.8	HF	1.0	1.0	Degrees C			05/09/22 19:41	1
Chloride	820		60	20	mg/L			05/17/22 18:40	20
Fluoride	69		10	3.3	mg/L			05/17/22 18:40	20
Sulfate	49000		2500	520	mg/L			05/20/22 03:39	500
Alkalinity	890		10	3.1	mg/L			05/10/22 04:20	1
Bicarbonate Alkalinity as CaCO3	890		10	3.1	mg/L			05/10/22 04:20	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/10/22 04:20	1
Total Dissolved Solids (TDS)	65000		1000	470	mg/L			05/10/22 09:48	1
Total Suspended Solids	11		4.0	1.1	mg/L			05/10/22 15:40	1

Client Sample ID: W-3B-FD
Date Collected: 05/05/22 14:55
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-13
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU			05/09/22 19:45	1
Temperature	20.3	HF	1.0	1.0	Degrees C			05/09/22 19:45	1
Chloride	1200		60	20	mg/L			05/17/22 22:23	20
Fluoride	ND		0.50	0.17	mg/L			05/17/22 22:07	1
Sulfate	79000	B	2500	520	mg/L			05/19/22 08:49	500
Alkalinity	900		10	3.1	mg/L			05/10/22 04:32	1
Bicarbonate Alkalinity as CaCO3	900		10	3.1	mg/L			05/10/22 04:32	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/10/22 04:32	1
Total Dissolved Solids (TDS)	64000		1000	470	mg/L			05/10/22 09:48	1
Total Suspended Solids	7.2		4.0	1.1	mg/L			05/10/22 15:40	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

General Chemistry

Client Sample ID: W-5B
Date Collected: 05/06/22 09:50
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-14
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.3	HF	0.1	0.1	SU			05/09/22 19:26	1
Temperature	21.1	HF	1.0	1.0	Degrees C			05/09/22 19:26	1
Chloride	100		3.0	1.0	mg/L			05/18/22 02:39	1
Fluoride	0.38	J	0.50	0.17	mg/L			05/18/22 02:39	1
Sulfate	3600		100	21	mg/L			05/18/22 02:55	20
Alkalinity	190		10	3.1	mg/L			05/10/22 04:39	1
Bicarbonate Alkalinity as CaCO3	190		10	3.1	mg/L			05/10/22 04:39	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/10/22 04:39	1
Total Dissolved Solids (TDS)	4600		40	19	mg/L			05/10/22 09:48	1
Total Suspended Solids	ND		4.0	1.1	mg/L			05/10/22 15:40	1

Client Sample ID: W-7
Date Collected: 05/04/22 16:00
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU			05/09/22 19:29	1
Temperature	20.6	HF	1.0	1.0	Degrees C			05/09/22 19:29	1
Chloride	810		60	20	mg/L			05/18/22 01:19	20
Fluoride	ND		0.50	0.17	mg/L			05/18/22 01:03	1
Sulfate	86000	B	2500	520	mg/L			05/19/22 09:04	500
Alkalinity	990		10	3.1	mg/L			05/10/22 04:52	1
Bicarbonate Alkalinity as CaCO3	990		10	3.1	mg/L			05/10/22 04:52	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/10/22 04:52	1
Total Dissolved Solids (TDS)	64000		1000	470	mg/L			05/10/22 09:48	1
Total Suspended Solids	30		4.0	1.1	mg/L			05/10/22 15:40	1

Client Sample ID: W-11
Date Collected: 05/04/22 15:45
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-16
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.3	HF	0.1	0.1	SU			05/09/22 21:10	1
Temperature	21.0	HF	1.0	1.0	Degrees C			05/09/22 21:10	1
Chloride	360		30	10	mg/L			05/17/22 20:15	10
Fluoride	0.40	J	0.50	0.17	mg/L			05/17/22 19:59	1
Sulfate	15000	B	1000	210	mg/L			05/19/22 09:49	200
Alkalinity	1100		10	3.1	mg/L			05/10/22 05:06	1
Bicarbonate Alkalinity as CaCO3	1100		10	3.1	mg/L			05/10/22 05:06	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/10/22 05:06	1
Total Dissolved Solids (TDS)	20000		1000	470	mg/L			05/10/22 09:48	1
Total Suspended Solids	6.8		4.0	1.1	mg/L			05/10/22 15:40	1

Client Sample ID: W-12
Date Collected: 05/05/22 10:45
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-17
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.1	HF	0.1	0.1	SU			05/09/22 20:02	1
Temperature	21.2	HF	1.0	1.0	Degrees C			05/09/22 20:02	1
Chloride	940		60	20	mg/L			05/18/22 01:51	20
Fluoride	0.86		0.50	0.17	mg/L			05/18/22 01:35	1
Sulfate	19000	B	1000	210	mg/L			05/19/22 10:04	200

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

General Chemistry (Continued)

Client Sample ID: W-12
Date Collected: 05/05/22 10:45
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-17
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	1400		10	3.1	mg/L			05/10/22 05:21	1
Bicarbonate Alkalinity as CaCO3	1400		10	3.1	mg/L			05/10/22 05:21	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/10/22 05:21	1
Total Dissolved Solids (TDS)	25000		1000	470	mg/L			05/10/22 09:48	1
Total Suspended Solids	ND		4.0	1.1	mg/L			05/10/22 15:40	1

Client Sample ID: W-14
Date Collected: 05/06/22 10:30
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-18
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.4	HF	0.1	0.1	SU			05/09/22 20:06	1
Temperature	21.7	HF	1.0	1.0	Degrees C			05/09/22 20:06	1
Chloride	660		60	20	mg/L			05/18/22 02:23	20
Fluoride	0.32	J	0.50	0.17	mg/L			05/18/22 02:07	1
Sulfate	18000	B	1000	210	mg/L			05/19/22 10:19	200
Alkalinity	1000		10	3.1	mg/L			05/10/22 05:35	1
Bicarbonate Alkalinity as CaCO3	1000		10	3.1	mg/L			05/10/22 05:35	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/10/22 05:35	1
Total Dissolved Solids (TDS)	26000		1000	470	mg/L			05/10/22 09:48	1
Total Suspended Solids	ND		4.0	1.1	mg/L			05/10/22 15:40	1

Client Sample ID: W-16
Date Collected: 05/05/22 15:00
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-19
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.1	HF	0.1	0.1	SU			05/09/22 21:14	1
Temperature	21.2	HF	1.0	1.0	Degrees C			05/09/22 21:14	1
Chloride	250		15	5.1	mg/L			05/17/22 20:15	5
Fluoride	2.9		2.5	0.83	mg/L			05/19/22 08:36	5
Sulfate	13000	B	500	100	mg/L			05/19/22 10:34	100
Alkalinity	880		10	3.1	mg/L			05/10/22 05:47	1
Bicarbonate Alkalinity as CaCO3	880		10	3.1	mg/L			05/10/22 05:47	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/10/22 05:47	1
Total Dissolved Solids (TDS)	18000		1000	470	mg/L			05/10/22 09:48	1
Total Suspended Solids	2.4	J	4.0	1.1	mg/L			05/10/22 15:40	1

Client Sample ID: W-6B
Date Collected: 05/06/22 13:10
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-20
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	6.9	HF	0.1	0.1	SU			05/09/22 19:54	1
Temperature	20.6	HF	1.0	1.0	Degrees C			05/09/22 19:54	1
Chloride	1300		60	20	mg/L			05/18/22 03:59	20
Fluoride	ND		0.50	0.17	mg/L			05/18/22 03:11	1
Sulfate	80000	B	2500	520	mg/L			05/19/22 10:49	500
Alkalinity	880		10	3.1	mg/L			05/10/22 05:59	1
Bicarbonate Alkalinity as CaCO3	880		10	3.1	mg/L			05/10/22 05:59	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/10/22 05:59	1
Total Dissolved Solids (TDS)	62000		1000	470	mg/L			05/10/22 09:48	1
Total Suspended Solids	4.4		4.0	1.1	mg/L			05/10/22 15:40	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

General Chemistry

Client Sample ID: W-6B-EB
Date Collected: 05/06/22 13:35
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-21
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	8.3	HF	0.1	0.1	SU			05/10/22 14:19	1
Temperature	20.2	HF	1.0	1.0	Degrees C			05/10/22 14:19	1
Chloride	ND		3.0	1.0	mg/L			05/17/22 16:47	1
Fluoride	ND		0.50	0.17	mg/L			05/17/22 16:47	1
Sulfate	ND		5.0	1.0	mg/L			05/17/22 16:47	1
Alkalinity	ND		10	3.1	mg/L			05/10/22 14:09	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/10/22 14:09	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/10/22 14:09	1
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			05/10/22 09:48	1
Total Suspended Solids	ND		4.0	1.1	mg/L			05/10/22 15:40	1

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-574445/1-A
Matrix: Water
Analysis Batch: 574702

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 574445

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.0015	mg/L		05/11/22 09:30	05/12/22 01:29	1

Lab Sample ID: LCS 280-574445/2-A
Matrix: Water
Analysis Batch: 574702

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 574445

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	1.00	1.06		mg/L		106	86 - 110

Lab Sample ID: MB 280-574518/1-A
Matrix: Water
Analysis Batch: 574777

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 574518

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.0015	mg/L		05/11/22 02:20	05/12/22 12:56	1
Lithium	ND		0.020	0.0091	mg/L		05/11/22 02:20	05/12/22 12:56	1

Lab Sample ID: LCS 280-574518/2-A
Matrix: Water
Analysis Batch: 574777

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 574518

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	1.00	1.04		mg/L		104	86 - 110
Lithium	1.00	1.01		mg/L		101	90 - 112

Lab Sample ID: MB 280-574871/1-A
Matrix: Water
Analysis Batch: 575163

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 574871

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.0015	mg/L		05/16/22 09:22	05/16/22 19:44	1

Lab Sample ID: MB 280-574871/1-A
Matrix: Water
Analysis Batch: 576087

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 574871

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.020	0.0091	mg/L		05/16/22 09:22	05/24/22 15:39	1

Lab Sample ID: LCS 280-574871/2-A
Matrix: Water
Analysis Batch: 575163

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 574871

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	1.00	0.968		mg/L		97	86 - 110

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCS 280-574871/2-A

Matrix: Water

Analysis Batch: 576087

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 574871

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Lithium	1.00	1.03		mg/L		103	90 - 112

Lab Sample ID: MB 280-574858/1-E

Matrix: Water

Analysis Batch: 575268

Client Sample ID: Method Blank

Prep Type: Dissolved

Prep Batch: 575133

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.00190	J	0.10	0.0015	mg/L		05/16/22 19:06	05/17/22 12:26	1

Lab Sample ID: MB 280-574858/1-E

Matrix: Water

Analysis Batch: 576087

Client Sample ID: Method Blank

Prep Type: Dissolved

Prep Batch: 575133

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND	^+	0.020	0.0091	mg/L		05/16/22 19:06	05/24/22 16:56	1

Lab Sample ID: LCS 280-574858/2-E

Matrix: Water

Analysis Batch: 575268

Client Sample ID: Lab Control Sample

Prep Type: Dissolved

Prep Batch: 575133

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	1.00	0.979		mg/L		98	86 - 110

Lab Sample ID: LCS 280-574858/2-E

Matrix: Water

Analysis Batch: 576087

Client Sample ID: Lab Control Sample

Prep Type: Dissolved

Prep Batch: 575133

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Lithium	1.00	1.03	^+	mg/L		103	90 - 112

Lab Sample ID: MB 280-575155/1-C

Matrix: Water

Analysis Batch: 575492

Client Sample ID: Method Blank

Prep Type: Dissolved

Prep Batch: 575215

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.00197	J	0.10	0.0015	mg/L		05/17/22 09:24	05/18/22 19:38	1
Lithium	ND		0.020	0.0091	mg/L		05/17/22 09:24	05/18/22 19:38	1

Lab Sample ID: LCS 280-575155/2-C

Matrix: Water

Analysis Batch: 575492

Client Sample ID: Lab Control Sample

Prep Type: Dissolved

Prep Batch: 575215

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	1.00	1.05		mg/L		105	86 - 110
Lithium	1.00	1.02		mg/L		102	90 - 112

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCSD 280-575155/3-B

Matrix: Water

Analysis Batch: 575492

Client Sample ID: Lab Control Sample Dup

Prep Type: Dissolved

Prep Batch: 575215

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	1.00	1.03		mg/L		103	86 - 110	1	20
Lithium	1.00	1.01		mg/L		101	90 - 112	1	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 280-574284/1-A

Matrix: Water

Analysis Batch: 574988

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 574284

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	24.9	J	1000	9.0	ug/L		05/11/22 09:22	05/13/22 13:52	1

Lab Sample ID: LCS 280-574284/2-A

Matrix: Water

Analysis Batch: 574988

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 574284

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	800	847	J	ug/L		106	80 - 120

Lab Sample ID: MB 280-575927/1-A

Matrix: Water

Analysis Batch: 576134

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 575927

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/24/22 09:11	05/25/22 03:28	1
Arsenic	ND		0.0050	0.00033	mg/L		05/24/22 09:11	05/25/22 03:28	1
Barium	ND		0.0010	0.00029	mg/L		05/24/22 09:11	05/25/22 03:28	1
Beryllium	ND		0.0010	0.000080	mg/L		05/24/22 09:11	05/25/22 03:28	1
Cadmium	ND		0.0010	0.00027	mg/L		05/24/22 09:11	05/25/22 03:28	1
Chromium	ND		0.0020	0.00050	mg/L		05/24/22 09:11	05/25/22 03:28	1
Cobalt	ND		0.0010	0.000092	mg/L		05/24/22 09:11	05/25/22 03:28	1
Lead	ND		0.0010	0.00018	mg/L		05/24/22 09:11	05/25/22 03:28	1
Molybdenum	ND		0.0020	0.00014	mg/L		05/24/22 09:11	05/25/22 03:28	1
Selenium	ND		0.0050	0.00037	mg/L		05/24/22 09:11	05/25/22 03:28	1
Thallium	ND		0.0010	0.000089	mg/L		05/24/22 09:11	05/25/22 03:28	1

Lab Sample ID: MB 280-575927/1-A

Matrix: Water

Analysis Batch: 576396

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 575927

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	0.0134	J	1.0	0.0090	mg/L		05/24/22 09:11	05/27/22 01:00	1

Lab Sample ID: LCS 280-575927/2-A

Matrix: Water

Analysis Batch: 576134

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 575927

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0421		mg/L		105	85 - 115
Arsenic	0.0400	0.0409		mg/L		102	85 - 117

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

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

Lab Sample ID: LCS 280-575927/2-A
Matrix: Water
Analysis Batch: 576134

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 575927

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Barium	0.0400	0.0403		mg/L		101	85 - 118
Beryllium	0.0400	0.0422		mg/L		105	80 - 125
Cadmium	0.0400	0.0425		mg/L		106	85 - 115
Chromium	0.0400	0.0418		mg/L		104	84 - 121
Cobalt	0.0400	0.0403		mg/L		101	85 - 120
Lead	0.0400	0.0413		mg/L		103	85 - 118
Molybdenum	0.0400	0.0419		mg/L		105	85 - 119
Selenium	0.0400	0.0403		mg/L		101	77 - 122
Thallium	0.0400	0.0410		mg/L		102	85 - 118

Lab Sample ID: LCS 280-575927/2-A
Matrix: Water
Analysis Batch: 576396

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 575927

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	0.800	0.843	J	mg/L		105	80 - 120

Lab Sample ID: MB 280-574858/1-D
Matrix: Water
Analysis Batch: 575369

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 575065

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	34.8	J	1000	9.0	ug/L		05/17/22 10:04	05/18/22 09:23	1

Lab Sample ID: LCS 280-574858/2-D
Matrix: Water
Analysis Batch: 575369

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 575065

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	800	832	J	ug/L		104	80 - 120

Lab Sample ID: LCSD 280-574858/3-C
Matrix: Water
Analysis Batch: 575369

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved
Prep Batch: 575065

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	800	831	J	ug/L		104	80 - 120	0	20

Lab Sample ID: MB 280-576059/1-B
Matrix: Water
Analysis Batch: 576396

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 576121

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/26/22 08:55	05/27/22 02:29	1
Arsenic	ND		0.0050	0.00033	mg/L		05/26/22 08:55	05/27/22 02:29	1
Barium	ND		0.0010	0.00029	mg/L		05/26/22 08:55	05/27/22 02:29	1
Beryllium	ND		0.0010	0.000080	mg/L		05/26/22 08:55	05/27/22 02:29	1
Cadmium	ND		0.0010	0.00027	mg/L		05/26/22 08:55	05/27/22 02:29	1
Chromium	ND		0.0020	0.00050	mg/L		05/26/22 08:55	05/27/22 02:29	1
Cobalt	ND		0.0010	0.000092	mg/L		05/26/22 08:55	05/27/22 02:29	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

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

Lab Sample ID: MB 280-576059/1-B
Matrix: Water
Analysis Batch: 576396

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 576121

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0010	0.00018	mg/L		05/26/22 08:55	05/27/22 02:29	1
Molybdenum	ND		0.0020	0.00014	mg/L		05/26/22 08:55	05/27/22 02:29	1
Selenium	ND		0.0050	0.00037	mg/L		05/26/22 08:55	05/27/22 02:29	1
Thallium	ND		0.0010	0.000089	mg/L		05/26/22 08:55	05/27/22 02:29	1

Lab Sample ID: LCS 280-576059/2-B
Matrix: Water
Analysis Batch: 576396

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 576121

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0429		mg/L		107	85 - 115
Arsenic	0.0400	0.0394		mg/L		98	85 - 117
Barium	0.0400	0.0419		mg/L		105	85 - 118
Beryllium	0.0400	0.0382		mg/L		95	80 - 125
Cadmium	0.0400	0.0384		mg/L		96	85 - 115
Chromium	0.0400	0.0418		mg/L		105	84 - 121
Cobalt	0.0400	0.0402		mg/L		100	85 - 120
Lead	0.0400	0.0415		mg/L		104	85 - 118
Molybdenum	0.0400	0.0415		mg/L		104	85 - 119
Selenium	0.0400	0.0407		mg/L		102	77 - 122
Thallium	0.0400	0.0410		mg/L		102	85 - 118

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-574789/1-A
Matrix: Water
Analysis Batch: 574944

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 574789

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/12/22 18:54	05/12/22 23:59	1

Lab Sample ID: LCS 280-574789/2-A
Matrix: Water
Analysis Batch: 574944

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 574789

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00490		mg/L		98	84 - 120

Lab Sample ID: LCSD 280-574789/3-A
Matrix: Water
Analysis Batch: 574944

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 574789

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	0.00500	0.00484		mg/L		97	84 - 120	1	15

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

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

Lab Sample ID: MB 280-575155/1-D
Matrix: Water
Analysis Batch: 575473

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 575447

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.061	ug/L		05/18/22 20:05	05/18/22 23:26	1

Lab Sample ID: LCS 280-575155/2-D
Matrix: Water
Analysis Batch: 575473

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 575447

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	5.00	4.96		ug/L		99	84 - 120

Lab Sample ID: 280-162040-10 MS
Matrix: Water
Analysis Batch: 575473

Client Sample ID: W-2A
Prep Type: Dissolved
Prep Batch: 575447

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		5.00	4.37		ug/L		87	75 - 125

Lab Sample ID: 280-162040-10 MSD
Matrix: Water
Analysis Batch: 575473

Client Sample ID: W-2A
Prep Type: Dissolved
Prep Batch: 575447

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Mercury	ND		5.00	4.36		ug/L		87	75 - 125	0	20

Method: 9040B - pH

Lab Sample ID: LCS 280-574377/4
Matrix: Water
Analysis Batch: 574377

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH adj. to 25 deg C	7.00	7.0		SU		100	99 - 101

Lab Sample ID: LCS 280-574377/50
Matrix: Water
Analysis Batch: 574377

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH adj. to 25 deg C	7.00	7.0		SU		100	99 - 101

Lab Sample ID: LCS 280-574377/73
Matrix: Water
Analysis Batch: 574377

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH adj. to 25 deg C	7.00	7.0		SU		100	99 - 101

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Method: 9040B - pH (Continued)

Lab Sample ID: 280-162040-20 DU

Matrix: Water

Analysis Batch: 574377

Client Sample ID: W-6B

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
pH adj. to 25 deg C	6.9	HF	6.9		SU		0.1	5
Temperature	20.6	HF	20.9		Degrees C		1	10

Lab Sample ID: LCS 280-574470/27

Matrix: Water

Analysis Batch: 574470

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH adj. to 25 deg C	7.00	7.0		SU		100	99 - 101

Lab Sample ID: LCS 280-574470/4

Matrix: Water

Analysis Batch: 574470

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH adj. to 25 deg C	7.00	7.0		SU		100	99 - 101

Lab Sample ID: 280-162040-4 DU

Matrix: Water

Analysis Batch: 574470

Client Sample ID: MW-2B-EB

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
pH adj. to 25 deg C	7.7	HF	6.0	F3	SU		26	5
Temperature	19.2	HF	19.0		Degrees C		1	10

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-575123/13

Matrix: Water

Analysis Batch: 575123

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			05/16/22 20:30	1
Fluoride	ND		0.50	0.17	mg/L			05/16/22 20:30	1
Sulfate	ND		5.0	1.0	mg/L			05/16/22 20:30	1

Lab Sample ID: MB 280-575123/56

Matrix: Water

Analysis Batch: 575123

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			05/17/22 23:11	1
Fluoride	ND		0.50	0.17	mg/L			05/17/22 23:11	1
Sulfate	ND		5.0	1.0	mg/L			05/17/22 23:11	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

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

Lab Sample ID: LCS 280-575123/11

Matrix: Water

Analysis Batch: 575123

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	100		mg/L		100	90 - 110
Fluoride	5.00	4.70		mg/L		94	90 - 110
Sulfate	100	101		mg/L		101	90 - 110

Lab Sample ID: LCS 280-575123/54

Matrix: Water

Analysis Batch: 575123

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	102		mg/L		102	90 - 110
Fluoride	5.00	4.62		mg/L		92	90 - 110
Sulfate	100	103		mg/L		103	90 - 110

Lab Sample ID: LCSD 280-575123/12

Matrix: Water

Analysis Batch: 575123

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	101		mg/L		101	90 - 110	1	10
Fluoride	5.00	4.73		mg/L		95	90 - 110	1	10
Sulfate	100	101		mg/L		101	90 - 110	0	10

Lab Sample ID: LCSD 280-575123/55

Matrix: Water

Analysis Batch: 575123

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	102		mg/L		102	90 - 110	1	10
Fluoride	5.00	4.81		mg/L		96	90 - 110	4	10
Sulfate	100	103		mg/L		103	90 - 110	0	10

Lab Sample ID: MRL 280-575123/10

Matrix: Water

Analysis Batch: 575123

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.00	4.37		mg/L		87	50 - 150
Fluoride	0.500	0.392	J	mg/L		78	50 - 150
Sulfate	5.00	4.09	J	mg/L		82	50 - 150

Lab Sample ID: 280-162040-21 MS

Matrix: Water

Analysis Batch: 575123

Client Sample ID: W-6B-EB

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	ND		50.0	53.1		mg/L		106	80 - 120
Fluoride	ND		5.00	4.71		mg/L		94	80 - 120
Sulfate	ND		50.0	53.6		mg/L		107	80 - 120

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

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

Lab Sample ID: 280-162040-21 MSD

Matrix: Water

Analysis Batch: 575123

Client Sample ID: W-6B-EB

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	ND		50.0	54.0		mg/L		108	80 - 120	2	20
Fluoride	ND		5.00	4.82		mg/L		96	80 - 120	2	20
Sulfate	ND		50.0	54.5		mg/L		109	80 - 120	2	20

Lab Sample ID: 280-162040-21 DU

Matrix: Water

Analysis Batch: 575123

Client Sample ID: W-6B-EB

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	ND		ND		mg/L		NC	15
Fluoride	ND		ND		mg/L		NC	15
Sulfate	ND		ND		mg/L		NC	15

Lab Sample ID: MB 280-575183/6

Matrix: Water

Analysis Batch: 575183

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			05/17/22 12:28	1
Fluoride	ND		0.50	0.17	mg/L			05/17/22 12:28	1
Sulfate	ND		5.0	1.0	mg/L			05/17/22 12:28	1

Lab Sample ID: LCS 280-575183/4

Matrix: Water

Analysis Batch: 575183

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	101		mg/L		101	90 - 110
Fluoride	5.00	4.99		mg/L		100	90 - 110
Sulfate	100	98.3		mg/L		98	90 - 110

Lab Sample ID: LCSD 280-575183/5

Matrix: Water

Analysis Batch: 575183

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	101		mg/L		101	90 - 110	0	10
Fluoride	5.00	5.03		mg/L		101	90 - 110	1	10
Sulfate	100	98.7		mg/L		99	90 - 110	0	10

Lab Sample ID: MRL 280-575183/3

Matrix: Water

Analysis Batch: 575183

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.00	4.04		mg/L		81	50 - 150
Fluoride	0.500	0.334	J	mg/L		67	50 - 150
Sulfate	5.00	4.20	J	mg/L		84	50 - 150

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

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

Lab Sample ID: MB 280-575330/54
Matrix: Water
Analysis Batch: 575330

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	1.54	J	5.0	1.0	mg/L			05/19/22 06:34	1

Lab Sample ID: MB 280-575330/6
Matrix: Water
Analysis Batch: 575330

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			05/18/22 18:33	1
Fluoride	ND	^1+ ^-	0.50	0.17	mg/L			05/18/22 18:33	1
Sulfate	ND		5.0	1.0	mg/L			05/18/22 18:33	1

Lab Sample ID: LCS 280-575330/4
Matrix: Water
Analysis Batch: 575330

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	103		mg/L		103	90 - 110
Fluoride	5.00	5.44	^1+ ^-	mg/L		109	90 - 110
Sulfate	100	102		mg/L		102	90 - 110

Lab Sample ID: LCS 280-575330/52
Matrix: Water
Analysis Batch: 575330

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	100	102		mg/L		102	90 - 110

Lab Sample ID: LCSD 280-575330/5
Matrix: Water
Analysis Batch: 575330

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	103		mg/L		103	90 - 110	0	10
Fluoride	5.00	5.40	^1+ ^-	mg/L		108	90 - 110	1	10
Sulfate	100	102		mg/L		102	90 - 110	0	10

Lab Sample ID: LCSD 280-575330/53
Matrix: Water
Analysis Batch: 575330

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	100	102		mg/L		102	90 - 110	0	10

Lab Sample ID: MRL 280-575330/3
Matrix: Water
Analysis Batch: 575330

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.00	5.07		mg/L		101	50 - 150
Fluoride	0.500	0.538	^1+	mg/L		108	50 - 150

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

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

Lab Sample ID: MRL 280-575330/3

Matrix: Water

Analysis Batch: 575330

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	5.00	6.08		mg/L		122	50 - 150

Lab Sample ID: MB 280-575334/95

Matrix: Water

Analysis Batch: 575334

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			05/18/22 23:32	1
Fluoride	ND		0.50	0.17	mg/L			05/18/22 23:32	1
Sulfate	ND		5.0	1.0	mg/L			05/18/22 23:32	1

Lab Sample ID: LCS 280-575334/93

Matrix: Water

Analysis Batch: 575334

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	103		mg/L		103	90 - 110
Fluoride	5.00	4.65		mg/L		93	90 - 110
Sulfate	100	102		mg/L		102	90 - 110

Lab Sample ID: LCSD 280-575334/94

Matrix: Water

Analysis Batch: 575334

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	102		mg/L		102	90 - 110	0	10
Fluoride	5.00	4.81		mg/L		96	90 - 110	3	10
Sulfate	100	102		mg/L		102	90 - 110	0	10

Lab Sample ID: MRL 280-575334/3

Matrix: Water

Analysis Batch: 575334

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.00	4.22		mg/L		84	50 - 150
Fluoride	0.500	0.384	J	mg/L		77	50 - 150
Sulfate	5.00	3.99	J	mg/L		80	50 - 150

Lab Sample ID: MB 280-575484/6

Matrix: Water

Analysis Batch: 575484

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.50	0.17	mg/L			05/19/22 11:16	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

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

Lab Sample ID: LCS 280-575484/4

Matrix: Water

Analysis Batch: 575484

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	5.00	4.97		mg/L		99	90 - 110

Lab Sample ID: LCSD 280-575484/5

Matrix: Water

Analysis Batch: 575484

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Fluoride	5.00	4.96		mg/L		99	90 - 110	0	10

Lab Sample ID: MRL 280-575484/3

Matrix: Water

Analysis Batch: 575484

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	0.500	0.439	J	mg/L		88	50 - 150

Lab Sample ID: MB 280-575549/13

Matrix: Water

Analysis Batch: 575549

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			05/19/22 17:53	1
Sulfate	ND		5.0	1.0	mg/L			05/19/22 17:53	1

Lab Sample ID: MB 280-575549/56

Matrix: Water

Analysis Batch: 575549

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			05/20/22 04:39	1
Sulfate	ND		5.0	1.0	mg/L			05/20/22 04:39	1

Lab Sample ID: LCS 280-575549/11

Matrix: Water

Analysis Batch: 575549

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	101		mg/L		101	90 - 110
Sulfate	100	102		mg/L		102	90 - 110

Lab Sample ID: LCS 280-575549/54

Matrix: Water

Analysis Batch: 575549

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	103		mg/L		103	90 - 110
Sulfate	100	103		mg/L		103	90 - 110

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

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

Lab Sample ID: LCSD 280-575549/12

Matrix: Water

Analysis Batch: 575549

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	101		mg/L		101	90 - 110	0	10
Sulfate	100	102		mg/L		102	90 - 110	0	10

Lab Sample ID: LCSD 280-575549/55

Matrix: Water

Analysis Batch: 575549

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	102		mg/L		102	90 - 110	1	10
Sulfate	100	103		mg/L		103	90 - 110	0	10

Lab Sample ID: MRL 280-575549/10

Matrix: Water

Analysis Batch: 575549

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	5.00	5.03		mg/L		101	50 - 150		
Sulfate	5.00	4.98	J	mg/L		100	50 - 150		

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-574378/110

Matrix: Water

Analysis Batch: 574378

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	ND		10	3.1	mg/L			05/10/22 01:53	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/10/22 01:53	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/10/22 01:53	1

Lab Sample ID: MB 280-574378/84

Matrix: Water

Analysis Batch: 574378

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	ND		10	3.1	mg/L			05/09/22 22:00	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/09/22 22:00	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/09/22 22:00	1

Lab Sample ID: LCS 280-574378/109

Matrix: Water

Analysis Batch: 574378

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Alkalinity	200	209		mg/L		104	89 - 109		

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: LCS 280-574378/83

Matrix: Water

Analysis Batch: 574378

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	200	207		mg/L		104	89 - 109

Lab Sample ID: 280-162040-4 DU

Matrix: Water

Analysis Batch: 574378

Client Sample ID: MW-2B-EB

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity	ND		ND		mg/L		NC	10
Bicarbonate Alkalinity as CaCO3	ND		ND		mg/L		NC	20
Carbonate Alkalinity as CaCO3	ND		ND		mg/L		NC	20

Lab Sample ID: MB 280-574458/5

Matrix: Water

Analysis Batch: 574458

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	3.22	J	10	3.1	mg/L			05/10/22 13:01	1
Bicarbonate Alkalinity as CaCO3	3.22	J	10	3.1	mg/L			05/10/22 13:01	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/10/22 13:01	1

Lab Sample ID: LCS 280-574458/4

Matrix: Water

Analysis Batch: 574458

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	200	203		mg/L		102	89 - 109

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

Lab Sample ID: MB 280-574256/1

Matrix: Water

Analysis Batch: 574256

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 (TDS)	ND		10	4.7	mg/L			05/09/22 09:48	1

Lab Sample ID: LCS 280-574256/2

Matrix: Water

Analysis Batch: 574256

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 (TDS)	503	491		mg/L		98	88 - 114

Lab Sample ID: MB 280-574386/1

Matrix: Water

Analysis Batch: 574386

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 (TDS)	ND		10	4.7	mg/L			05/10/22 09:43	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

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

Lab Sample ID: LCS 280-574386/2
Matrix: Water
Analysis Batch: 574386

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 (TDS)	503	493		mg/L		98	88 - 114

Lab Sample ID: LCSD 280-574386/3
Matrix: Water
Analysis Batch: 574386

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids (TDS)	503	483		mg/L		96	88 - 114	2	20

Lab Sample ID: MB 280-574389/1
Matrix: Water
Analysis Batch: 574389

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 (TDS)	ND		10	4.7	mg/L			05/10/22 09:48	1

Lab Sample ID: LCS 280-574389/2
Matrix: Water
Analysis Batch: 574389

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 (TDS)	504	494		mg/L		98	88 - 114

Lab Sample ID: LCSD 280-574389/3
Matrix: Water
Analysis Batch: 574389

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids (TDS)	504	501		mg/L		99	88 - 114	1	20

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 280-574304/3
Matrix: Water
Analysis Batch: 574304

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			05/09/22 14:03	1

Lab Sample ID: LCS 280-574304/1
Matrix: Water
Analysis Batch: 574304

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	80.4		mg/L		80	79 - 114

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

Lab Sample ID: LCSD 280-574304/2

Matrix: Water

Analysis Batch: 574304

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	100	85.6		mg/L		86	79 - 114	6	20

Lab Sample ID: MB 280-574474/2

Matrix: Water

Analysis Batch: 574474

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			05/10/22 15:40	1

Lab Sample ID: LCS 280-574474/1

Matrix: Water

Analysis Batch: 574474

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	100	80.0		mg/L		80	79 - 114		

Lab Sample ID: 280-162040-1 DU

Matrix: Water

Analysis Batch: 574474

Client Sample ID: MW-1B

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	1.6	J	1.60	J	mg/L		0	10

Lab Sample ID: 280-162040-21 DU

Matrix: Water

Analysis Batch: 574474

Client Sample ID: W-6B-EB

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	ND		ND		mg/L		NC	10

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Metals

Prep Batch: 574284

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-1	MW-1B	Total Recoverable	Water	3005A	
280-162040-2	MW-2B	Total Recoverable	Water	3005A	
280-162040-3	MW-2B-FD	Total Recoverable	Water	3005A	
280-162040-4	MW-2B-EB	Total Recoverable	Water	3005A	
280-162040-5	MW-3	Total Recoverable	Water	3005A	
280-162040-6	MW-4B	Total Recoverable	Water	3005A	
280-162040-7	MW-5	Total Recoverable	Water	3005A	
280-162040-8	MW-6	Total Recoverable	Water	3005A	
280-162040-9	MW-7	Total Recoverable	Water	3005A	
MB 280-574284/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-574284/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 574445

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-1	MW-1B	Total Recoverable	Water	3005A	
280-162040-2	MW-2B	Total Recoverable	Water	3005A	
280-162040-3	MW-2B-FD	Total Recoverable	Water	3005A	
280-162040-4	MW-2B-EB	Total Recoverable	Water	3005A	
MB 280-574445/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-574445/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 574518

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-5	MW-3	Total Recoverable	Water	3005A	
280-162040-6	MW-4B	Total Recoverable	Water	3005A	
280-162040-7	MW-5	Total Recoverable	Water	3005A	
280-162040-8	MW-6	Total Recoverable	Water	3005A	
280-162040-9	MW-7	Total Recoverable	Water	3005A	
280-162040-10	W-2A	Total Recoverable	Water	3005A	
280-162040-11	W-2C	Total Recoverable	Water	3005A	
280-162040-12	W-3B	Total Recoverable	Water	3005A	
280-162040-13	W-3B-FD	Total Recoverable	Water	3005A	
MB 280-574518/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-574518/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 574702

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-1	MW-1B	Total Recoverable	Water	6010C	574445
280-162040-2	MW-2B	Total Recoverable	Water	6010C	574445
280-162040-3	MW-2B-FD	Total Recoverable	Water	6010C	574445
280-162040-4	MW-2B-EB	Total Recoverable	Water	6010C	574445
MB 280-574445/1-A	Method Blank	Total Recoverable	Water	6010C	574445
LCS 280-574445/2-A	Lab Control Sample	Total Recoverable	Water	6010C	574445

Analysis Batch: 574777

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-5	MW-3	Total Recoverable	Water	6010C	574518
280-162040-6	MW-4B	Total Recoverable	Water	6010C	574518
280-162040-7	MW-5	Total Recoverable	Water	6010C	574518
280-162040-8	MW-6	Total Recoverable	Water	6010C	574518
280-162040-9	MW-7	Total Recoverable	Water	6010C	574518

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Metals (Continued)

Analysis Batch: 574777 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-10	W-2A	Total Recoverable	Water	6010C	574518
280-162040-11	W-2C	Total Recoverable	Water	6010C	574518
280-162040-12	W-3B	Total Recoverable	Water	6010C	574518
280-162040-13	W-3B-FD	Total Recoverable	Water	6010C	574518
MB 280-574518/1-A	Method Blank	Total Recoverable	Water	6010C	574518
LCS 280-574518/2-A	Lab Control Sample	Total Recoverable	Water	6010C	574518

Prep Batch: 574789

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-10	W-2A	Total/NA	Water	7470A	
280-162040-11	W-2C	Total/NA	Water	7470A	
280-162040-12	W-3B	Total/NA	Water	7470A	
280-162040-13	W-3B-FD	Total/NA	Water	7470A	
280-162040-14	W-5B	Total/NA	Water	7470A	
280-162040-15	W-7	Total/NA	Water	7470A	
280-162040-16	W-11	Total/NA	Water	7470A	
280-162040-17	W-12	Total/NA	Water	7470A	
280-162040-18	W-14	Total/NA	Water	7470A	
280-162040-19	W-16	Total/NA	Water	7470A	
280-162040-20	W-6B	Total/NA	Water	7470A	
280-162040-21	W-6B-EB	Total/NA	Water	7470A	
MB 280-574789/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-574789/2-A	Lab Control Sample	Total/NA	Water	7470A	
LCSD 280-574789/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	

Filtration Batch: 574858

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-574858/1-D	Method Blank	Dissolved	Water	FILTRATION	
MB 280-574858/1-E	Method Blank	Dissolved	Water	FILTRATION	
LCS 280-574858/2-D	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 280-574858/2-E	Lab Control Sample	Dissolved	Water	FILTRATION	
LCSD 280-574858/3-C	Lab Control Sample Dup	Dissolved	Water	FILTRATION	

Prep Batch: 574871

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-14	W-5B	Total Recoverable	Water	3005A	
280-162040-15	W-7	Total Recoverable	Water	3005A	
280-162040-16	W-11	Total Recoverable	Water	3005A	
280-162040-17	W-12	Total Recoverable	Water	3005A	
280-162040-18	W-14	Total Recoverable	Water	3005A	
280-162040-19	W-16	Total Recoverable	Water	3005A	
280-162040-20	W-6B	Total Recoverable	Water	3005A	
280-162040-21	W-6B-EB	Total Recoverable	Water	3005A	
MB 280-574871/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-574871/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Filtration Batch: 574939

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-7	MW-5	Dissolved	Water	FILTRATION	
280-162040-10	W-2A	Dissolved	Water	FILTRATION	
280-162040-15	W-7	Dissolved	Water	FILTRATION	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Metals

Analysis Batch: 574944

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-10	W-2A	Total/NA	Water	7470A	574789
280-162040-11	W-2C	Total/NA	Water	7470A	574789
280-162040-12	W-3B	Total/NA	Water	7470A	574789
280-162040-13	W-3B-FD	Total/NA	Water	7470A	574789
280-162040-14	W-5B	Total/NA	Water	7470A	574789
280-162040-15	W-7	Total/NA	Water	7470A	574789
280-162040-16	W-11	Total/NA	Water	7470A	574789
280-162040-17	W-12	Total/NA	Water	7470A	574789
280-162040-18	W-14	Total/NA	Water	7470A	574789
280-162040-19	W-16	Total/NA	Water	7470A	574789
280-162040-20	W-6B	Total/NA	Water	7470A	574789
280-162040-21	W-6B-EB	Total/NA	Water	7470A	574789
MB 280-574789/1-A	Method Blank	Total/NA	Water	7470A	574789
LCS 280-574789/2-A	Lab Control Sample	Total/NA	Water	7470A	574789
LCSD 280-574789/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	574789

Analysis Batch: 574988

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-1	MW-1B	Total Recoverable	Water	6020A	574284
280-162040-2	MW-2B	Total Recoverable	Water	6020A	574284
280-162040-3	MW-2B-FD	Total Recoverable	Water	6020A	574284
280-162040-4	MW-2B-EB	Total Recoverable	Water	6020A	574284
280-162040-5	MW-3	Total Recoverable	Water	6020A	574284
280-162040-6	MW-4B	Total Recoverable	Water	6020A	574284
280-162040-7	MW-5	Total Recoverable	Water	6020A	574284
280-162040-8	MW-6	Total Recoverable	Water	6020A	574284
280-162040-9	MW-7	Total Recoverable	Water	6020A	574284
MB 280-574284/1-A	Method Blank	Total Recoverable	Water	6020A	574284
LCS 280-574284/2-A	Lab Control Sample	Total Recoverable	Water	6020A	574284

Analysis Batch: 574999

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-12	W-3B	Total Recoverable	Water	6010C	574518
280-162040-13	W-3B-FD	Total Recoverable	Water	6010C	574518

Prep Batch: 575065

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-7	MW-5	Dissolved	Water	3005A	574939
MB 280-574858/1-D	Method Blank	Dissolved	Water	3005A	574858
LCS 280-574858/2-D	Lab Control Sample	Dissolved	Water	3005A	574858
LCSD 280-574858/3-C	Lab Control Sample Dup	Dissolved	Water	3005A	574858

Prep Batch: 575133

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-7	MW-5	Dissolved	Water	3005A	574939
280-162040-10	W-2A	Dissolved	Water	3005A	574939
280-162040-15	W-7	Dissolved	Water	3005A	574939
MB 280-574858/1-E	Method Blank	Dissolved	Water	3005A	574858
LCS 280-574858/2-E	Lab Control Sample	Dissolved	Water	3005A	574858

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Metals

Filtration Batch: 575155

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-10	W-2A	Dissolved	Water	FILTRATION	
280-162040-15	W-7	Dissolved	Water	FILTRATION	
280-162040-16	W-11	Dissolved	Water	FILTRATION	
280-162040-18	W-14	Dissolved	Water	FILTRATION	
280-162040-19	W-16	Dissolved	Water	FILTRATION	
MB 280-575155/1-C	Method Blank	Dissolved	Water	FILTRATION	
MB 280-575155/1-D	Method Blank	Dissolved	Water	FILTRATION	
LCS 280-575155/2-C	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 280-575155/2-D	Lab Control Sample	Dissolved	Water	FILTRATION	
LCSD 280-575155/3-B	Lab Control Sample Dup	Dissolved	Water	FILTRATION	
280-162040-10 MS	W-2A	Dissolved	Water	FILTRATION	
280-162040-10 MSD	W-2A	Dissolved	Water	FILTRATION	

Analysis Batch: 575163

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-14	W-5B	Total Recoverable	Water	6010C	574871
280-162040-15	W-7	Total Recoverable	Water	6010C	574871
280-162040-16	W-11	Total Recoverable	Water	6010C	574871
280-162040-17	W-12	Total Recoverable	Water	6010C	574871
280-162040-18	W-14	Total Recoverable	Water	6010C	574871
280-162040-19	W-16	Total Recoverable	Water	6010C	574871
280-162040-20	W-6B	Total Recoverable	Water	6010C	574871
280-162040-21	W-6B-EB	Total Recoverable	Water	6010C	574871
MB 280-574871/1-A	Method Blank	Total Recoverable	Water	6010C	574871
LCS 280-574871/2-A	Lab Control Sample	Total Recoverable	Water	6010C	574871

Prep Batch: 575215

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-16	W-11	Dissolved	Water	3005A	575155
280-162040-18	W-14	Dissolved	Water	3005A	575155
280-162040-19	W-16	Dissolved	Water	3005A	575155
MB 280-575155/1-C	Method Blank	Dissolved	Water	3005A	575155
LCS 280-575155/2-C	Lab Control Sample	Dissolved	Water	3005A	575155
LCSD 280-575155/3-B	Lab Control Sample Dup	Dissolved	Water	3005A	575155

Analysis Batch: 575268

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-7	MW-5	Dissolved	Water	6010C	575133
280-162040-10	W-2A	Dissolved	Water	6010C	575133
280-162040-15	W-7	Dissolved	Water	6010C	575133
MB 280-574858/1-E	Method Blank	Dissolved	Water	6010C	575133
LCS 280-574858/2-E	Lab Control Sample	Dissolved	Water	6010C	575133

Analysis Batch: 575369

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-7	MW-5	Dissolved	Water	6020A	575065
MB 280-574858/1-D	Method Blank	Dissolved	Water	6020A	575065
LCS 280-574858/2-D	Lab Control Sample	Dissolved	Water	6020A	575065
LCSD 280-574858/3-C	Lab Control Sample Dup	Dissolved	Water	6020A	575065

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Metals

Prep Batch: 575447

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-10	W-2A	Dissolved	Water	7470A	575155
280-162040-15	W-7	Dissolved	Water	7470A	575155
280-162040-16	W-11	Dissolved	Water	7470A	575155
280-162040-18	W-14	Dissolved	Water	7470A	575155
280-162040-19	W-16	Dissolved	Water	7470A	575155
MB 280-575155/1-D	Method Blank	Dissolved	Water	7470A	575155
LCS 280-575155/2-D	Lab Control Sample	Dissolved	Water	7470A	575155
280-162040-10 MS	W-2A	Dissolved	Water	7470A	575155
280-162040-10 MSD	W-2A	Dissolved	Water	7470A	575155

Analysis Batch: 575473

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-10	W-2A	Dissolved	Water	7470A	575447
280-162040-15	W-7	Dissolved	Water	7470A	575447
280-162040-16	W-11	Dissolved	Water	7470A	575447
280-162040-18	W-14	Dissolved	Water	7470A	575447
280-162040-19	W-16	Dissolved	Water	7470A	575447
MB 280-575155/1-D	Method Blank	Dissolved	Water	7470A	575447
LCS 280-575155/2-D	Lab Control Sample	Dissolved	Water	7470A	575447
280-162040-10 MS	W-2A	Dissolved	Water	7470A	575447
280-162040-10 MSD	W-2A	Dissolved	Water	7470A	575447

Analysis Batch: 575492

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-16	W-11	Dissolved	Water	6010C	575215
280-162040-18	W-14	Dissolved	Water	6010C	575215
280-162040-19	W-16	Dissolved	Water	6010C	575215
MB 280-575155/1-C	Method Blank	Dissolved	Water	6010C	575215
LCS 280-575155/2-C	Lab Control Sample	Dissolved	Water	6010C	575215
LCSD 280-575155/3-B	Lab Control Sample Dup	Dissolved	Water	6010C	575215

Prep Batch: 575927

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-10	W-2A	Total Recoverable	Water	3005A	
280-162040-11	W-2C	Total Recoverable	Water	3005A	
280-162040-12	W-3B	Total Recoverable	Water	3005A	
280-162040-13	W-3B-FD	Total Recoverable	Water	3005A	
280-162040-14	W-5B	Total Recoverable	Water	3005A	
280-162040-15	W-7	Total Recoverable	Water	3005A	
280-162040-16	W-11	Total Recoverable	Water	3005A	
280-162040-17	W-12	Total Recoverable	Water	3005A	
280-162040-18	W-14	Total Recoverable	Water	3005A	
280-162040-19	W-16	Total Recoverable	Water	3005A	
280-162040-20	W-6B	Total Recoverable	Water	3005A	
280-162040-21	W-6B-EB	Total Recoverable	Water	3005A	
MB 280-575927/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-575927/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Filtration Batch: 576059

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-10	W-2A	Dissolved	Water	FILTRATION	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Metals (Continued)

Filtration Batch: 576059 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-15	W-7	Dissolved	Water	FILTRATION	
280-162040-16	W-11	Dissolved	Water	FILTRATION	
280-162040-18	W-14	Dissolved	Water	FILTRATION	
280-162040-19	W-16	Dissolved	Water	FILTRATION	
MB 280-576059/1-B	Method Blank	Dissolved	Water	FILTRATION	
LCS 280-576059/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	

Analysis Batch: 576087

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-10	W-2A	Dissolved	Water	6010C	575133
280-162040-14	W-5B	Total Recoverable	Water	6010C	574871
280-162040-15	W-7	Dissolved	Water	6010C	575133
280-162040-15	W-7	Total Recoverable	Water	6010C	574871
280-162040-16	W-11	Total Recoverable	Water	6010C	574871
280-162040-17	W-12	Total Recoverable	Water	6010C	574871
280-162040-18	W-14	Total Recoverable	Water	6010C	574871
280-162040-19	W-16	Total Recoverable	Water	6010C	574871
280-162040-20	W-6B	Total Recoverable	Water	6010C	574871
280-162040-21	W-6B-EB	Total Recoverable	Water	6010C	574871
MB 280-574858/1-E	Method Blank	Dissolved	Water	6010C	575133
MB 280-574871/1-A	Method Blank	Total Recoverable	Water	6010C	574871
LCS 280-574858/2-E	Lab Control Sample	Dissolved	Water	6010C	575133
LCS 280-574871/2-A	Lab Control Sample	Total Recoverable	Water	6010C	574871

Prep Batch: 576121

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-10	W-2A	Dissolved	Water	3005A	576059
280-162040-15	W-7	Dissolved	Water	3005A	576059
280-162040-16	W-11	Dissolved	Water	3005A	576059
280-162040-18	W-14	Dissolved	Water	3005A	576059
280-162040-19	W-16	Dissolved	Water	3005A	576059
MB 280-576059/1-B	Method Blank	Dissolved	Water	3005A	576059
LCS 280-576059/2-B	Lab Control Sample	Dissolved	Water	3005A	576059

Analysis Batch: 576134

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-10	W-2A	Total Recoverable	Water	6020A	575927
280-162040-11	W-2C	Total Recoverable	Water	6020A	575927
280-162040-12	W-3B	Total Recoverable	Water	6020A	575927
280-162040-13	W-3B-FD	Total Recoverable	Water	6020A	575927
280-162040-14	W-5B	Total Recoverable	Water	6020A	575927
280-162040-15	W-7	Total Recoverable	Water	6020A	575927
280-162040-16	W-11	Total Recoverable	Water	6020A	575927
280-162040-17	W-12	Total Recoverable	Water	6020A	575927
280-162040-18	W-14	Total Recoverable	Water	6020A	575927
280-162040-19	W-16	Total Recoverable	Water	6020A	575927
280-162040-20	W-6B	Total Recoverable	Water	6020A	575927
280-162040-21	W-6B-EB	Total Recoverable	Water	6020A	575927
MB 280-575927/1-A	Method Blank	Total Recoverable	Water	6020A	575927
LCS 280-575927/2-A	Lab Control Sample	Total Recoverable	Water	6020A	575927

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Metals

Analysis Batch: 576396

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-10	W-2A	Dissolved	Water	6020A	576121
280-162040-15	W-7	Dissolved	Water	6020A	576121
280-162040-16	W-11	Dissolved	Water	6020A	576121
280-162040-18	W-14	Dissolved	Water	6020A	576121
280-162040-19	W-16	Dissolved	Water	6020A	576121
MB 280-575927/1-A	Method Blank	Total Recoverable	Water	6020A	575927
MB 280-576059/1-B	Method Blank	Dissolved	Water	6020A	576121
LCS 280-575927/2-A	Lab Control Sample	Total Recoverable	Water	6020A	575927
LCS 280-576059/2-B	Lab Control Sample	Dissolved	Water	6020A	576121

Analysis Batch: 576445

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-19	W-16	Dissolved	Water	6020A	576121

Analysis Batch: 576449

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-10	W-2A	Total Recoverable	Water	6020A	575927
280-162040-11	W-2C	Total Recoverable	Water	6020A	575927
280-162040-12	W-3B	Total Recoverable	Water	6020A	575927
280-162040-13	W-3B-FD	Total Recoverable	Water	6020A	575927
280-162040-14	W-5B	Total Recoverable	Water	6020A	575927
280-162040-15	W-7	Total Recoverable	Water	6020A	575927
280-162040-16	W-11	Total Recoverable	Water	6020A	575927
280-162040-17	W-12	Total Recoverable	Water	6020A	575927
280-162040-18	W-14	Total Recoverable	Water	6020A	575927
280-162040-19	W-16	Total Recoverable	Water	6020A	575927
280-162040-20	W-6B	Total Recoverable	Water	6020A	575927
280-162040-21	W-6B-EB	Total Recoverable	Water	6020A	575927

General Chemistry

Analysis Batch: 574256

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-5	MW-3	Total/NA	Water	SM 2540C	
MB 280-574256/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-574256/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 574304

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-5	MW-3	Total/NA	Water	SM 2540D	
MB 280-574304/3	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-574304/1	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-574304/2	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 574377

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-1	MW-1B	Total/NA	Water	9040B	
280-162040-2	MW-2B	Total/NA	Water	9040B	
280-162040-3	MW-2B-FD	Total/NA	Water	9040B	
280-162040-5	MW-3	Total/NA	Water	9040B	
280-162040-6	MW-4B	Total/NA	Water	9040B	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

General Chemistry (Continued)

Analysis Batch: 574377 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-7	MW-5	Total/NA	Water	9040B	
280-162040-8	MW-6	Total/NA	Water	9040B	
280-162040-9	MW-7	Total/NA	Water	9040B	
280-162040-10	W-2A	Total/NA	Water	9040B	
280-162040-11	W-2C	Total/NA	Water	9040B	
280-162040-12	W-3B	Total/NA	Water	9040B	
280-162040-13	W-3B-FD	Total/NA	Water	9040B	
280-162040-14	W-5B	Total/NA	Water	9040B	
280-162040-15	W-7	Total/NA	Water	9040B	
280-162040-16	W-11	Total/NA	Water	9040B	
280-162040-17	W-12	Total/NA	Water	9040B	
280-162040-18	W-14	Total/NA	Water	9040B	
280-162040-19	W-16	Total/NA	Water	9040B	
280-162040-20	W-6B	Total/NA	Water	9040B	
LCS 280-574377/4	Lab Control Sample	Total/NA	Water	9040B	
LCS 280-574377/50	Lab Control Sample	Total/NA	Water	9040B	
LCS 280-574377/73	Lab Control Sample	Total/NA	Water	9040B	
280-162040-20 DU	W-6B	Total/NA	Water	9040B	

Analysis Batch: 574378

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-1	MW-1B	Total/NA	Water	SM 2320B	
280-162040-2	MW-2B	Total/NA	Water	SM 2320B	
280-162040-3	MW-2B-FD	Total/NA	Water	SM 2320B	
280-162040-4	MW-2B-EB	Total/NA	Water	SM 2320B	
280-162040-5	MW-3	Total/NA	Water	SM 2320B	
280-162040-6	MW-4B	Total/NA	Water	SM 2320B	
280-162040-7	MW-5	Total/NA	Water	SM 2320B	
280-162040-8	MW-6	Total/NA	Water	SM 2320B	
280-162040-9	MW-7	Total/NA	Water	SM 2320B	
280-162040-10	W-2A	Total/NA	Water	SM 2320B	
280-162040-11	W-2C	Total/NA	Water	SM 2320B	
280-162040-12	W-3B	Total/NA	Water	SM 2320B	
280-162040-13	W-3B-FD	Total/NA	Water	SM 2320B	
280-162040-14	W-5B	Total/NA	Water	SM 2320B	
280-162040-15	W-7	Total/NA	Water	SM 2320B	
280-162040-16	W-11	Total/NA	Water	SM 2320B	
280-162040-17	W-12	Total/NA	Water	SM 2320B	
280-162040-18	W-14	Total/NA	Water	SM 2320B	
280-162040-19	W-16	Total/NA	Water	SM 2320B	
280-162040-20	W-6B	Total/NA	Water	SM 2320B	
MB 280-574378/110	Method Blank	Total/NA	Water	SM 2320B	
MB 280-574378/84	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-574378/109	Lab Control Sample	Total/NA	Water	SM 2320B	
LCS 280-574378/83	Lab Control Sample	Total/NA	Water	SM 2320B	
280-162040-4 DU	MW-2B-EB	Total/NA	Water	SM 2320B	

Analysis Batch: 574386

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-1	MW-1B	Total/NA	Water	SM 2540C	
280-162040-2	MW-2B	Total/NA	Water	SM 2540C	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

General Chemistry (Continued)

Analysis Batch: 574386 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-3	MW-2B-FD	Total/NA	Water	SM 2540C	
MB 280-574386/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-574386/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-574386/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 574389

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-4	MW-2B-EB	Total/NA	Water	SM 2540C	
280-162040-6	MW-4B	Total/NA	Water	SM 2540C	
280-162040-7	MW-5	Total/NA	Water	SM 2540C	
280-162040-8	MW-6	Total/NA	Water	SM 2540C	
280-162040-9	MW-7	Total/NA	Water	SM 2540C	
280-162040-10	W-2A	Total/NA	Water	SM 2540C	
280-162040-11	W-2C	Total/NA	Water	SM 2540C	
280-162040-12	W-3B	Total/NA	Water	SM 2540C	
280-162040-13	W-3B-FD	Total/NA	Water	SM 2540C	
280-162040-14	W-5B	Total/NA	Water	SM 2540C	
280-162040-15	W-7	Total/NA	Water	SM 2540C	
280-162040-16	W-11	Total/NA	Water	SM 2540C	
280-162040-17	W-12	Total/NA	Water	SM 2540C	
280-162040-18	W-14	Total/NA	Water	SM 2540C	
280-162040-19	W-16	Total/NA	Water	SM 2540C	
280-162040-20	W-6B	Total/NA	Water	SM 2540C	
280-162040-21	W-6B-EB	Total/NA	Water	SM 2540C	
MB 280-574389/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-574389/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-574389/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 574458

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-21	W-6B-EB	Total/NA	Water	SM 2320B	
MB 280-574458/5	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-574458/4	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 574470

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-4	MW-2B-EB	Total/NA	Water	9040B	
280-162040-21	W-6B-EB	Total/NA	Water	9040B	
LCS 280-574470/27	Lab Control Sample	Total/NA	Water	9040B	
LCS 280-574470/4	Lab Control Sample	Total/NA	Water	9040B	
280-162040-4 DU	MW-2B-EB	Total/NA	Water	9040B	

Analysis Batch: 574474

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-1	MW-1B	Total/NA	Water	SM 2540D	
280-162040-2	MW-2B	Total/NA	Water	SM 2540D	
280-162040-3	MW-2B-FD	Total/NA	Water	SM 2540D	
280-162040-4	MW-2B-EB	Total/NA	Water	SM 2540D	
280-162040-6	MW-4B	Total/NA	Water	SM 2540D	
280-162040-7	MW-5	Total/NA	Water	SM 2540D	
280-162040-8	MW-6	Total/NA	Water	SM 2540D	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

General Chemistry (Continued)

Analysis Batch: 574474 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-9	MW-7	Total/NA	Water	SM 2540D	
280-162040-10	W-2A	Total/NA	Water	SM 2540D	
280-162040-11	W-2C	Total/NA	Water	SM 2540D	
280-162040-12	W-3B	Total/NA	Water	SM 2540D	
280-162040-13	W-3B-FD	Total/NA	Water	SM 2540D	
280-162040-14	W-5B	Total/NA	Water	SM 2540D	
280-162040-15	W-7	Total/NA	Water	SM 2540D	
280-162040-16	W-11	Total/NA	Water	SM 2540D	
280-162040-17	W-12	Total/NA	Water	SM 2540D	
280-162040-18	W-14	Total/NA	Water	SM 2540D	
280-162040-19	W-16	Total/NA	Water	SM 2540D	
280-162040-20	W-6B	Total/NA	Water	SM 2540D	
280-162040-21	W-6B-EB	Total/NA	Water	SM 2540D	
MB 280-574474/2	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-574474/1	Lab Control Sample	Total/NA	Water	SM 2540D	
280-162040-1 DU	MW-1B	Total/NA	Water	SM 2540D	
280-162040-21 DU	W-6B-EB	Total/NA	Water	SM 2540D	

Analysis Batch: 575123

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-4	MW-2B-EB	Total/NA	Water	9056A	
280-162040-5	MW-3	Total/NA	Water	9056A	
280-162040-5	MW-3	Total/NA	Water	9056A	
280-162040-6	MW-4B	Total/NA	Water	9056A	
280-162040-6	MW-4B	Total/NA	Water	9056A	
280-162040-10	W-2A	Total/NA	Water	9056A	
280-162040-10	W-2A	Total/NA	Water	9056A	
280-162040-11	W-2C	Total/NA	Water	9056A	
280-162040-11	W-2C	Total/NA	Water	9056A	
280-162040-13	W-3B-FD	Total/NA	Water	9056A	
280-162040-13	W-3B-FD	Total/NA	Water	9056A	
280-162040-14	W-5B	Total/NA	Water	9056A	
280-162040-14	W-5B	Total/NA	Water	9056A	
280-162040-15	W-7	Total/NA	Water	9056A	
280-162040-15	W-7	Total/NA	Water	9056A	
280-162040-16	W-11	Total/NA	Water	9056A	
280-162040-16	W-11	Total/NA	Water	9056A	
280-162040-17	W-12	Total/NA	Water	9056A	
280-162040-17	W-12	Total/NA	Water	9056A	
280-162040-18	W-14	Total/NA	Water	9056A	
280-162040-18	W-14	Total/NA	Water	9056A	
280-162040-20	W-6B	Total/NA	Water	9056A	
280-162040-20	W-6B	Total/NA	Water	9056A	
280-162040-21	W-6B-EB	Total/NA	Water	9056A	
MB 280-575123/13	Method Blank	Total/NA	Water	9056A	
MB 280-575123/56	Method Blank	Total/NA	Water	9056A	
LCS 280-575123/11	Lab Control Sample	Total/NA	Water	9056A	
LCS 280-575123/54	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-575123/12	Lab Control Sample Dup	Total/NA	Water	9056A	
LCSD 280-575123/55	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-575123/10	Lab Control Sample	Total/NA	Water	9056A	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

General Chemistry (Continued)

Analysis Batch: 575123 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-21 MS	W-6B-EB	Total/NA	Water	9056A	
280-162040-21 MSD	W-6B-EB	Total/NA	Water	9056A	
280-162040-21 DU	W-6B-EB	Total/NA	Water	9056A	

Analysis Batch: 575183

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-1	MW-1B	Total/NA	Water	9056A	
280-162040-2	MW-2B	Total/NA	Water	9056A	
280-162040-3	MW-2B-FD	Total/NA	Water	9056A	
280-162040-7	MW-5	Total/NA	Water	9056A	
280-162040-8	MW-6	Total/NA	Water	9056A	
280-162040-9	MW-7	Total/NA	Water	9056A	
280-162040-12	W-3B	Total/NA	Water	9056A	
280-162040-19	W-16	Total/NA	Water	9056A	
MB 280-575183/6	Method Blank	Total/NA	Water	9056A	
LCS 280-575183/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-575183/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-575183/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 575330

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-1	MW-1B	Total/NA	Water	9056A	
280-162040-2	MW-2B	Total/NA	Water	9056A	
280-162040-5	MW-3	Total/NA	Water	9056A	
280-162040-10	W-2A	Total/NA	Water	9056A	
280-162040-11	W-2C	Total/NA	Water	9056A	
280-162040-13	W-3B-FD	Total/NA	Water	9056A	
280-162040-15	W-7	Total/NA	Water	9056A	
280-162040-16	W-11	Total/NA	Water	9056A	
280-162040-17	W-12	Total/NA	Water	9056A	
280-162040-18	W-14	Total/NA	Water	9056A	
280-162040-19	W-16	Total/NA	Water	9056A	
280-162040-20	W-6B	Total/NA	Water	9056A	
MB 280-575330/54	Method Blank	Total/NA	Water	9056A	
MB 280-575330/6	Method Blank	Total/NA	Water	9056A	
LCS 280-575330/4	Lab Control Sample	Total/NA	Water	9056A	
LCS 280-575330/52	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-575330/5	Lab Control Sample Dup	Total/NA	Water	9056A	
LCSD 280-575330/53	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-575330/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 575334

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-1	MW-1B	Total/NA	Water	9056A	
280-162040-2	MW-2B	Total/NA	Water	9056A	
280-162040-3	MW-2B-FD	Total/NA	Water	9056A	
280-162040-8	MW-6	Total/NA	Water	9056A	
280-162040-9	MW-7	Total/NA	Water	9056A	
280-162040-19	W-16	Total/NA	Water	9056A	
MB 280-575334/95	Method Blank	Total/NA	Water	9056A	
LCS 280-575334/93	Lab Control Sample	Total/NA	Water	9056A	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

General Chemistry (Continued)

Analysis Batch: 575334 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 280-575334/94	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-575334/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 575484

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-7	MW-5	Total/NA	Water	9056A	
MB 280-575484/6	Method Blank	Total/NA	Water	9056A	
LCS 280-575484/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-575484/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-575484/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 575549

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-3	MW-2B-FD	Total/NA	Water	9056A	
280-162040-12	W-3B	Total/NA	Water	9056A	
MB 280-575549/13	Method Blank	Total/NA	Water	9056A	
MB 280-575549/56	Method Blank	Total/NA	Water	9056A	
LCS 280-575549/11	Lab Control Sample	Total/NA	Water	9056A	
LCS 280-575549/54	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-575549/12	Lab Control Sample Dup	Total/NA	Water	9056A	
LCSD 280-575549/55	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-575549/10	Lab Control Sample	Total/NA	Water	9056A	

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Client Sample ID: MW-1B

Date Collected: 05/03/22 15:40

Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	574445	05/11/22 09:30	KMS	TAL DEN
Total Recoverable	Analysis	6010C		1			574702	05/12/22 09:10	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	574284	05/11/22 09:22	KMS	TAL DEN
Total Recoverable	Analysis	6020A		10			574988	05/13/22 15:17	LMT	TAL DEN
Total/NA	Analysis	9040B		1			574377	05/09/22 15:26	KEG	TAL DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	575330	05/19/22 04:34	CJ	TAL DEN
Total/NA	Analysis	9056A		100	5 mL	5 mL	575183	05/17/22 22:06	RAF	TAL DEN
Total/NA	Analysis	9056A		10	10 mL	10 mL	575334	05/19/22 07:00	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			574378	05/10/22 01:28	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	574386	05/10/22 09:44	CAI	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	574474	05/10/22 15:40	CAI	TAL DEN

Client Sample ID: MW-2B

Date Collected: 05/03/22 11:45

Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	574445	05/11/22 09:30	KMS	TAL DEN
Total Recoverable	Analysis	6010C		1			574702	05/12/22 09:18	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	574284	05/11/22 09:22	KMS	TAL DEN
Total Recoverable	Analysis	6020A		10			574988	05/13/22 15:21	LMT	TAL DEN
Total/NA	Analysis	9040B		1			574377	05/09/22 15:37	KEG	TAL DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	575330	05/19/22 04:49	CJ	TAL DEN
Total/NA	Analysis	9056A		200	5 mL	5 mL	575183	05/18/22 00:13	RAF	TAL DEN
Total/NA	Analysis	9056A		10	10 mL	10 mL	575334	05/19/22 07:16	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			574378	05/10/22 02:21	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	574386	05/10/22 09:44	CAI	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	574474	05/10/22 15:40	CAI	TAL DEN

Client Sample ID: MW-2B-FD

Date Collected: 05/03/22 11:45

Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	574445	05/11/22 09:30	KMS	TAL DEN
Total Recoverable	Analysis	6010C		1			574702	05/12/22 09:26	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	574284	05/11/22 09:22	KMS	TAL DEN
Total Recoverable	Analysis	6020A		10			574988	05/13/22 15:24	LMT	TAL DEN
Total/NA	Analysis	9040B		1			574377	05/09/22 15:40	KEG	TAL DEN
Total/NA	Analysis	9056A		500	10 mL	10 mL	575549	05/20/22 06:24	RAF	TAL DEN
Total/NA	Analysis	9056A		100	5 mL	5 mL	575183	05/17/22 23:09	RAF	TAL DEN
Total/NA	Analysis	9056A		10	10 mL	10 mL	575334	05/19/22 07:32	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			574378	05/10/22 02:38	KEG	TAL DEN

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Client Sample ID: MW-2B-FD

Lab Sample ID: 280-162040-3

Date Collected: 05/03/22 11:45

Matrix: Water

Date Received: 05/06/22 16:42

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	574386	05/10/22 09:44	CAI	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	574474	05/10/22 15:40	CAI	TAL DEN

Client Sample ID: MW-2B-EB

Lab Sample ID: 280-162040-4

Date Collected: 05/03/22 12:15

Matrix: Water

Date Received: 05/06/22 16:42

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	574445	05/11/22 09:30	KMS	TAL DEN
Total Recoverable	Analysis	6010C		1			574702	05/12/22 09:34	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	574284	05/11/22 09:22	KMS	TAL DEN
Total Recoverable	Analysis	6020A		10			574988	05/13/22 14:03	LMT	TAL DEN
Total/NA	Analysis	9040B		1			574470	05/10/22 12:08	KEG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	575123	05/17/22 18:23	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			574378	05/10/22 01:58	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	574389	05/10/22 09:48	CAI	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	574474	05/10/22 15:40	CAI	TAL DEN

Client Sample ID: MW-3

Lab Sample ID: 280-162040-5

Date Collected: 05/02/22 15:00

Matrix: Water

Date Received: 05/06/22 16:42

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	574518	05/11/22 02:20	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			574777	05/12/22 13:24	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	574284	05/11/22 09:22	KMS	TAL DEN
Total Recoverable	Analysis	6020A		10			574988	05/13/22 14:06	LMT	TAL DEN
Total/NA	Analysis	9040B		1			574377	05/09/22 15:44	KEG	TAL DEN
Total/NA	Analysis	9056A		500	10 mL	10 mL	575330	05/19/22 05:19	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	575123	05/17/22 19:27	RAF	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	575123	05/17/22 19:43	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			574378	05/10/22 02:51	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	574256	05/09/22 09:48	CAI	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	574304	05/09/22 14:03	CAI	TAL DEN

Client Sample ID: MW-4B

Lab Sample ID: 280-162040-6

Date Collected: 05/04/22 12:10

Matrix: Water

Date Received: 05/06/22 16:42

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	574518	05/11/22 02:20	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			574777	05/12/22 13:28	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	574284	05/11/22 09:22	KMS	TAL DEN
Total Recoverable	Analysis	6020A		10			574988	05/13/22 14:10	LMT	TAL DEN

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Client Sample ID: MW-4B

Date Collected: 05/04/22 12:10

Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9040B		1			574377	05/09/22 15:47	KEG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	575123	05/17/22 21:35	RAF	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	575123	05/17/22 21:51	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			574378	05/10/22 03:01	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	574389	05/10/22 09:48	CAI	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	574474	05/10/22 15:40	CAI	TAL DEN

Client Sample ID: MW-5

Date Collected: 05/05/22 16:10

Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			200 mL	200 mL	574939	05/13/22 18:46	PFM	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	575133	05/16/22 19:06	KMS	TAL DEN
Dissolved	Analysis	6010C		1			575268	05/17/22 13:47	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	574518	05/11/22 02:20	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			574777	05/12/22 13:32	LMT	TAL DEN
Dissolved	Filtration	FILTRATION			200 mL	200 mL	574939	05/13/22 18:46	PFM	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	575065	05/17/22 10:04	PFM	TAL DEN
Dissolved	Analysis	6020A		50			575369	05/18/22 09:55	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	574284	05/11/22 09:22	KMS	TAL DEN
Total Recoverable	Analysis	6020A		10			574988	05/13/22 14:14	LMT	TAL DEN
Total/NA	Analysis	9040B		1			574377	05/09/22 20:58	KEG	TAL DEN
Total/NA	Analysis	9056A		200	5 mL	5 mL	575183	05/18/22 00:44	RAF	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	575484	05/19/22 14:17	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			574378	05/10/22 03:17	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	574389	05/10/22 09:48	CAI	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	574474	05/10/22 15:40	CAI	TAL DEN

Client Sample ID: MW-6

Date Collected: 05/04/22 09:15

Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	574518	05/11/22 02:20	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			574777	05/12/22 13:54	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	574284	05/11/22 09:22	KMS	TAL DEN
Total Recoverable	Analysis	6020A		10			574988	05/13/22 14:18	LMT	TAL DEN
Total/NA	Analysis	9040B		1			574377	05/09/22 15:51	KEG	TAL DEN
Total/NA	Analysis	9056A		100	5 mL	5 mL	575183	05/17/22 23:41	RAF	TAL DEN
Total/NA	Analysis	9056A		2	10 mL	10 mL	575334	05/19/22 08:04	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			574378	05/10/22 03:23	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	574389	05/10/22 09:48	CAI	TAL DEN

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Client Sample ID: MW-6

Date Collected: 05/04/22 09:15

Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	574474	05/10/22 15:40	CAI	TAL DEN

Client Sample ID: MW-7

Date Collected: 05/03/22 14:10

Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	574518	05/11/22 02:20	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			574777	05/12/22 13:58	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	574284	05/11/22 09:22	KMS	TAL DEN
Total Recoverable	Analysis	6020A		10			574988	05/13/22 14:22	LMT	TAL DEN
Total/NA	Analysis	9040B		1			574377	05/09/22 15:55	KEG	TAL DEN
Total/NA	Analysis	9056A		200	5 mL	5 mL	575183	05/18/22 01:16	RAF	TAL DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	575334	05/19/22 08:20	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			574378	05/10/22 03:34	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	574389	05/10/22 09:48	CAI	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	574474	05/10/22 15:40	CAI	TAL DEN

Client Sample ID: W-2A

Date Collected: 05/04/22 11:20

Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			200 mL	200 mL	574939	05/13/22 18:46	PFM	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	575133	05/16/22 19:06	KMS	TAL DEN
Dissolved	Analysis	6010C		1			576087	05/24/22 17:40	MAB	TAL DEN
Dissolved	Filtration	FILTRATION			200 mL	200 mL	574939	05/13/22 18:46	PFM	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	575133	05/16/22 19:06	KMS	TAL DEN
Dissolved	Analysis	6010C		1			575268	05/17/22 13:52	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	574518	05/11/22 02:20	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			574777	05/12/22 14:02	LMT	TAL DEN
Dissolved	Filtration	FILTRATION			100 mL	100 mL	576059	05/24/22 16:05	DNM	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	576121	05/26/22 08:55	PFM	TAL DEN
Dissolved	Analysis	6020A		1			576396	05/27/22 02:37	LRD	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575927	05/24/22 09:11	PFM	TAL DEN
Total Recoverable	Analysis	6020A		1			576134	05/25/22 04:21	LRD	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575927	05/24/22 09:11	PFM	TAL DEN
Total Recoverable	Analysis	6020A		50			576449	05/26/22 16:13	LRD	TAL DEN
Dissolved	Filtration	FILTRATION			150 mL	150 mL	575155	05/16/22 23:38	CEH	TAL DEN
Dissolved	Prep	7470A			30 mL	50 mL	575447	05/18/22 20:05	CEH	TAL DEN
Dissolved	Analysis	7470A		1			575473	05/18/22 23:31	CEH	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	574789	05/12/22 18:54	CEH	TAL DEN
Total/NA	Analysis	7470A		1			574944	05/13/22 16:21	CEH	TAL DEN
Total/NA	Analysis	9040B		1			574377	05/09/22 19:33	KEG	TAL DEN

Eurofins Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Client Sample ID: W-2A

Date Collected: 05/04/22 11:20

Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		500	10 mL	10 mL	575330	05/19/22 08:04	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	575123	05/18/22 05:19	RAF	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	575123	05/18/22 05:36	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			574378	05/10/22 03:45	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	574389	05/10/22 09:48	CAI	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	574474	05/10/22 15:40	CAI	TAL DEN

Client Sample ID: W-2C

Date Collected: 05/05/22 11:20

Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-11

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	574518	05/11/22 02:20	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			574777	05/12/22 14:06	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575927	05/24/22 09:11	PFM	TAL DEN
Total Recoverable	Analysis	6020A		1			576134	05/25/22 04:25	LRD	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575927	05/24/22 09:11	PFM	TAL DEN
Total Recoverable	Analysis	6020A		50			576449	05/26/22 16:17	LRD	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	574789	05/12/22 18:54	CEH	TAL DEN
Total/NA	Analysis	7470A		1			574944	05/13/22 16:24	CEH	TAL DEN
Total/NA	Analysis	9040B		1			574377	05/09/22 19:37	KEG	TAL DEN
Total/NA	Analysis	9056A		500	10 mL	10 mL	575330	05/19/22 08:19	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	575123	05/18/22 05:52	RAF	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	575123	05/18/22 06:08	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			574378	05/10/22 04:08	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	574389	05/10/22 09:48	CAI	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	574474	05/10/22 15:40	CAI	TAL DEN

Client Sample ID: W-3B

Date Collected: 05/05/22 14:55

Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-12

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	574518	05/11/22 02:20	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			574777	05/12/22 14:10	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	574518	05/11/22 02:20	MAB	TAL DEN
Total Recoverable	Analysis	6010C		5			574999	05/13/22 15:12	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575927	05/24/22 09:11	PFM	TAL DEN
Total Recoverable	Analysis	6020A		1			576134	05/25/22 04:28	LRD	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575927	05/24/22 09:11	PFM	TAL DEN
Total Recoverable	Analysis	6020A		50			576449	05/26/22 16:21	LRD	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	574789	05/12/22 18:54	CEH	TAL DEN
Total/NA	Analysis	7470A		1			574944	05/13/22 16:26	CEH	TAL DEN

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Client Sample ID: W-3B

Date Collected: 05/05/22 14:55

Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-12

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9040B		1			574377	05/09/22 19:41	KEG	TAL DEN
Total/NA	Analysis	9056A		500	10 mL	10 mL	575549	05/20/22 03:39	RAF	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	575183	05/17/22 18:40	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			574378	05/10/22 04:20	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	574389	05/10/22 09:48	CAI	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	574474	05/10/22 15:40	CAI	TAL DEN

Client Sample ID: W-3B-FD

Date Collected: 05/05/22 14:55

Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-13

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	574518	05/11/22 02:20	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			574777	05/12/22 14:14	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	574518	05/11/22 02:20	MAB	TAL DEN
Total Recoverable	Analysis	6010C		5			574999	05/13/22 15:16	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575927	05/24/22 09:11	PFM	TAL DEN
Total Recoverable	Analysis	6020A		1			576134	05/25/22 04:32	LRD	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575927	05/24/22 09:11	PFM	TAL DEN
Total Recoverable	Analysis	6020A		50			576449	05/26/22 16:25	LRD	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	574789	05/12/22 18:54	CEH	TAL DEN
Total/NA	Analysis	7470A		1			574944	05/13/22 16:29	CEH	TAL DEN
Total/NA	Analysis	9040B		1			574377	05/09/22 19:45	KEG	TAL DEN
Total/NA	Analysis	9056A		500	10 mL	10 mL	575330	05/19/22 08:49	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	575123	05/17/22 22:07	RAF	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	575123	05/17/22 22:23	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			574378	05/10/22 04:32	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	574389	05/10/22 09:48	CAI	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	574474	05/10/22 15:40	CAI	TAL DEN

Client Sample ID: W-5B

Date Collected: 05/06/22 09:50

Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-14

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	574871	05/16/22 09:22	PFM	TAL DEN
Total Recoverable	Analysis	6010C		1			576087	05/24/22 16:07	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	574871	05/16/22 09:22	PFM	TAL DEN
Total Recoverable	Analysis	6010C		1			575163	05/16/22 20:10	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575927	05/24/22 09:11	PFM	TAL DEN
Total Recoverable	Analysis	6020A		1			576134	05/25/22 04:36	LRD	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575927	05/24/22 09:11	PFM	TAL DEN
Total Recoverable	Analysis	6020A		50			576449	05/26/22 16:29	LRD	TAL DEN

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Client Sample ID: W-5B

Lab Sample ID: 280-162040-14

Date Collected: 05/06/22 09:50

Matrix: Water

Date Received: 05/06/22 16:42

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7470A			30 mL	50 mL	574789	05/12/22 18:54	CEH	TAL DEN
Total/NA	Analysis	7470A		1			574944	05/13/22 16:31	CEH	TAL DEN
Total/NA	Analysis	9040B		1			574377	05/09/22 19:26	KEG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	575123	05/18/22 02:39	RAF	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	575123	05/18/22 02:55	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			574378	05/10/22 04:39	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	574389	05/10/22 09:48	CAI	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	574474	05/10/22 15:40	CAI	TAL DEN

Client Sample ID: W-7

Lab Sample ID: 280-162040-15

Date Collected: 05/04/22 16:00

Matrix: Water

Date Received: 05/06/22 16:42

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			200 mL	200 mL	574939	05/13/22 18:46	PFM	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	575133	05/16/22 19:06	KMS	TAL DEN
Dissolved	Analysis	6010C		1			576087	05/24/22 17:44	MAB	TAL DEN
Dissolved	Filtration	FILTRATION			200 mL	200 mL	574939	05/13/22 18:46	PFM	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	575133	05/16/22 19:06	KMS	TAL DEN
Dissolved	Analysis	6010C		1			575268	05/17/22 14:13	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	574871	05/16/22 09:22	PFM	TAL DEN
Total Recoverable	Analysis	6010C		1			576087	05/24/22 16:11	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	574871	05/16/22 09:22	PFM	TAL DEN
Total Recoverable	Analysis	6010C		1			575163	05/16/22 20:14	MAB	TAL DEN
Dissolved	Filtration	FILTRATION			100 mL	100 mL	576059	05/24/22 16:05	DNM	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	576121	05/26/22 08:55	PFM	TAL DEN
Dissolved	Analysis	6020A		1			576396	05/27/22 02:44	LRD	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575927	05/24/22 09:11	PFM	TAL DEN
Total Recoverable	Analysis	6020A		1			576134	05/25/22 04:51	LRD	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575927	05/24/22 09:11	PFM	TAL DEN
Total Recoverable	Analysis	6020A		50			576449	05/26/22 16:33	LRD	TAL DEN
Dissolved	Filtration	FILTRATION			150 mL	150 mL	575155	05/16/22 23:38	CEH	TAL DEN
Dissolved	Prep	7470A			30 mL	50 mL	575447	05/18/22 20:05	CEH	TAL DEN
Dissolved	Analysis	7470A		1			575473	05/18/22 23:39	CEH	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	574789	05/12/22 18:54	CEH	TAL DEN
Total/NA	Analysis	7470A		1			574944	05/13/22 16:34	CEH	TAL DEN
Total/NA	Analysis	9040B		1			574377	05/09/22 19:29	KEG	TAL DEN
Total/NA	Analysis	9056A		500	10 mL	10 mL	575330	05/19/22 09:04	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	575123	05/18/22 01:03	RAF	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	575123	05/18/22 01:19	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			574378	05/10/22 04:52	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	574389	05/10/22 09:48	CAI	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	574474	05/10/22 15:40	CAI	TAL DEN

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Client Sample ID: W-11

Date Collected: 05/04/22 15:45

Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-16

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			250 mL	250 mL	575155	05/16/22 23:38	CEH	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	575215	05/17/22 09:24	PFM	TAL DEN
Dissolved	Analysis	6010C		1			575492	05/18/22 20:36	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	574871	05/16/22 09:22	PFM	TAL DEN
Total Recoverable	Analysis	6010C		1			576087	05/24/22 16:15	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	574871	05/16/22 09:22	PFM	TAL DEN
Total Recoverable	Analysis	6010C		1			575163	05/16/22 20:19	MAB	TAL DEN
Dissolved	Filtration	FILTRATION			100 mL	100 mL	576059	05/24/22 16:05	DNM	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	576121	05/26/22 08:55	PFM	TAL DEN
Dissolved	Analysis	6020A		1			576396	05/27/22 02:52	LRD	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575927	05/24/22 09:11	PFM	TAL DEN
Total Recoverable	Analysis	6020A		1			576134	05/25/22 04:55	LRD	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575927	05/24/22 09:11	PFM	TAL DEN
Total Recoverable	Analysis	6020A		50			576449	05/26/22 16:49	LRD	TAL DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	575155	05/16/22 23:38	CEH	TAL DEN
Dissolved	Prep	7470A			30 mL	50 mL	575447	05/18/22 20:05	CEH	TAL DEN
Dissolved	Analysis	7470A		1			575473	05/18/22 23:41	CEH	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	574789	05/12/22 18:54	CEH	TAL DEN
Total/NA	Analysis	7470A		1			574944	05/13/22 16:36	CEH	TAL DEN
Total/NA	Analysis	9040B		1			574377	05/09/22 21:10	KEG	TAL DEN
Total/NA	Analysis	9056A		200	10 mL	10 mL	575330	05/19/22 09:49	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	575123	05/17/22 19:59	RAF	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	575123	05/17/22 20:15	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			574378	05/10/22 05:06	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	574389	05/10/22 09:48	CAI	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	574474	05/10/22 15:40	CAI	TAL DEN

Client Sample ID: W-12

Date Collected: 05/05/22 10:45

Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-17

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	574871	05/16/22 09:22	PFM	TAL DEN
Total Recoverable	Analysis	6010C		1			576087	05/24/22 16:36	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	574871	05/16/22 09:22	PFM	TAL DEN
Total Recoverable	Analysis	6010C		1			575163	05/16/22 20:23	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575927	05/24/22 09:11	PFM	TAL DEN
Total Recoverable	Analysis	6020A		1			576134	05/25/22 04:59	LRD	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575927	05/24/22 09:11	PFM	TAL DEN
Total Recoverable	Analysis	6020A		50			576449	05/26/22 16:53	LRD	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	574789	05/12/22 18:54	CEH	TAL DEN
Total/NA	Analysis	7470A		1			574944	05/13/22 16:39	CEH	TAL DEN
Total/NA	Analysis	9040B		1			574377	05/09/22 20:02	KEG	TAL DEN
Total/NA	Analysis	9056A		200	10 mL	10 mL	575330	05/19/22 10:04	CJ	TAL DEN

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Client Sample ID: W-12

Date Collected: 05/05/22 10:45

Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-17

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1	5 mL	5 mL	575123	05/18/22 01:35	RAF	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	575123	05/18/22 01:51	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			574378	05/10/22 05:21	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	574389	05/10/22 09:48	CAI	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	574474	05/10/22 15:40	CAI	TAL DEN

Client Sample ID: W-14

Date Collected: 05/06/22 10:30

Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-18

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			250 mL	250 mL	575155	05/16/22 23:38	CEH	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	575215	05/17/22 09:24	PFM	TAL DEN
Dissolved	Analysis	6010C		1			575492	05/18/22 20:40	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	574871	05/16/22 09:22	PFM	TAL DEN
Total Recoverable	Analysis	6010C		1			576087	05/24/22 16:40	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	574871	05/16/22 09:22	PFM	TAL DEN
Total Recoverable	Analysis	6010C		1			575163	05/16/22 20:44	MAB	TAL DEN
Dissolved	Filtration	FILTRATION			100 mL	100 mL	576059	05/24/22 16:05	DNM	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	576121	05/26/22 08:55	PFM	TAL DEN
Dissolved	Analysis	6020A		1			576396	05/27/22 02:59	LRD	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575927	05/24/22 09:11	PFM	TAL DEN
Total Recoverable	Analysis	6020A		1			576134	05/25/22 05:03	LRD	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575927	05/24/22 09:11	PFM	TAL DEN
Total Recoverable	Analysis	6020A		50			576449	05/26/22 16:57	LRD	TAL DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	575155	05/16/22 23:38	CEH	TAL DEN
Dissolved	Prep	7470A			30 mL	50 mL	575447	05/18/22 20:05	CEH	TAL DEN
Dissolved	Analysis	7470A		1			575473	05/18/22 23:44	CEH	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	574789	05/12/22 18:54	CEH	TAL DEN
Total/NA	Analysis	7470A		1			574944	05/13/22 16:41	CEH	TAL DEN
Total/NA	Analysis	9040B		1			574377	05/09/22 20:06	KEG	TAL DEN
Total/NA	Analysis	9056A		200	10 mL	10 mL	575330	05/19/22 10:19	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	575123	05/18/22 02:07	RAF	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	575123	05/18/22 02:23	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			574378	05/10/22 05:35	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	574389	05/10/22 09:48	CAI	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	574474	05/10/22 15:40	CAI	TAL DEN

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Client Sample ID: W-16

Date Collected: 05/05/22 15:00

Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-19

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			250 mL	250 mL	575155	05/16/22 23:38	CEH	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	575215	05/17/22 09:24	PFM	TAL DEN
Dissolved	Analysis	6010C		1			575492	05/18/22 20:44	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	574871	05/16/22 09:22	PFM	TAL DEN
Total Recoverable	Analysis	6010C		1			576087	05/24/22 16:44	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	574871	05/16/22 09:22	PFM	TAL DEN
Total Recoverable	Analysis	6010C		1			575163	05/16/22 20:48	MAB	TAL DEN
Dissolved	Filtration	FILTRATION			100 mL	100 mL	576059	05/24/22 16:05	DNM	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	576121	05/26/22 08:55	PFM	TAL DEN
Dissolved	Analysis	6020A		1			576396	05/27/22 03:18	LRD	TAL DEN
Dissolved	Filtration	FILTRATION			100 mL	100 mL	576059	05/24/22 16:05	DNM	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	576121	05/26/22 08:55	PFM	TAL DEN
Dissolved	Analysis	6020A		1			576445	05/27/22 11:52	LRD	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575927	05/24/22 09:11	PFM	TAL DEN
Total Recoverable	Analysis	6020A		1			576134	05/25/22 05:06	LRD	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575927	05/24/22 09:11	PFM	TAL DEN
Total Recoverable	Analysis	6020A		50			576449	05/26/22 17:01	LRD	TAL DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	575155	05/16/22 23:38	CEH	TAL DEN
Dissolved	Prep	7470A			30 mL	50 mL	575447	05/18/22 20:05	CEH	TAL DEN
Dissolved	Analysis	7470A		1			575473	05/18/22 23:46	CEH	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	574789	05/12/22 18:54	CEH	TAL DEN
Total/NA	Analysis	7470A		1			574944	05/13/22 16:49	CEH	TAL DEN
Total/NA	Analysis	9040B		1			574377	05/09/22 21:14	KEG	TAL DEN
Total/NA	Analysis	9056A		100	10 mL	10 mL	575330	05/19/22 10:34	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	575183	05/17/22 20:15	RAF	TAL DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	575334	05/19/22 08:36	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			574378	05/10/22 05:47	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	574389	05/10/22 09:48	CAI	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	574474	05/10/22 15:40	CAI	TAL DEN

Client Sample ID: W-6B

Date Collected: 05/06/22 13:10

Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-20

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	574871	05/16/22 09:22	PFM	TAL DEN
Total Recoverable	Analysis	6010C		1			576087	05/24/22 16:48	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	574871	05/16/22 09:22	PFM	TAL DEN
Total Recoverable	Analysis	6010C		1			575163	05/16/22 20:53	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575927	05/24/22 09:11	PFM	TAL DEN
Total Recoverable	Analysis	6020A		1			576134	05/25/22 05:10	LRD	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575927	05/24/22 09:11	PFM	TAL DEN
Total Recoverable	Analysis	6020A		50			576449	05/26/22 17:05	LRD	TAL DEN

Eurofins Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Client Sample ID: W-6B

Lab Sample ID: 280-162040-20

Date Collected: 05/06/22 13:10

Matrix: Water

Date Received: 05/06/22 16:42

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7470A			30 mL	50 mL	574789	05/12/22 18:54	CEH	TAL DEN
Total/NA	Analysis	7470A		1			574944	05/13/22 16:52	CEH	TAL DEN
Total/NA	Analysis	9040B		1			574377	05/09/22 19:54	KEG	TAL DEN
Total/NA	Analysis	9056A		500	10 mL	10 mL	575330	05/19/22 10:49	CJ	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	575123	05/18/22 03:11	RAF	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	575123	05/18/22 03:59	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			574378	05/10/22 05:59	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	574389	05/10/22 09:48	CAI	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	574474	05/10/22 15:40	CAI	TAL DEN

Client Sample ID: W-6B-EB

Lab Sample ID: 280-162040-21

Date Collected: 05/06/22 13:35

Matrix: Water

Date Received: 05/06/22 16:42

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	574871	05/16/22 09:22	PFM	TAL DEN
Total Recoverable	Analysis	6010C		1			576087	05/24/22 16:52	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	574871	05/16/22 09:22	PFM	TAL DEN
Total Recoverable	Analysis	6010C		1			575163	05/16/22 20:57	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575927	05/24/22 09:11	PFM	TAL DEN
Total Recoverable	Analysis	6020A		1			576134	05/25/22 05:14	LRD	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575927	05/24/22 09:11	PFM	TAL DEN
Total Recoverable	Analysis	6020A		50			576449	05/26/22 17:09	LRD	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	574789	05/12/22 18:54	CEH	TAL DEN
Total/NA	Analysis	7470A		1			574944	05/13/22 16:54	CEH	TAL DEN
Total/NA	Analysis	9040B		1			574470	05/10/22 14:19	KEG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	575123	05/17/22 16:47	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			574458	05/10/22 14:09	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	574389	05/10/22 09:48	CAI	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	574474	05/10/22 15:40	CAI	TAL DEN

Laboratory References:

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

Eurofins Denver

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-1

Laboratory: Eurofins Denver

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

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-23

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
6020A	3005A	Water	Calcium
9040B		Water	Temperature

Ver: 01/16/2019

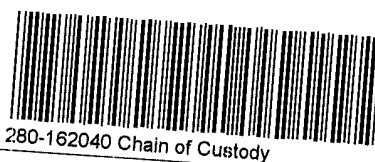
1

Chain of Custody Record

[illegible]



Environment Testing
America



Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>Denver</u>			
City/State:	CITY	STATE	Project:
		<u>CO</u>	
Receipt Information			
Date/Time Received:	DATE	TIME	Received By:
	<u>5/10/22</u>	<u>0945</u>	<u>R</u>
Delivery Type: ☐ UPS ☒ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee			
☐ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?		☒ Yes ☐ No	If yes: Cooler ID: _____
Multiple Coolers?		☐ Yes ☒ No	If yes: Cooler # _____ of _____
Cooler Custody Seals Present?		☐ Yes ☒ No	If yes: Cooler custody seals intact? ☐ Yes ☐ No
Sample Custody Seals Present?		☐ Yes ☒ No	If yes: Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?		☐ Yes ☐ No	If yes: Which VOA samples are in cooler? ↓
Temperature Record			
Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: _____ ☐ NONE			
Thermometer ID:		Correction Factor (°C):	
<u>N</u>		<u>700</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C):		Corrected Temp (°C):	
<u>1.4</u>		<u>1.4</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? ☐ Yes ☐ No			
a) If yes: Is there evidence that the chilling process began? ☐ Yes ☐ No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No			
NOTE If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			

Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler	Lab PM	Carrier Tracking No(s)	COC No:						
Client Contact		Phone:	Harrington, Danielle M		280-613703 1						
Shipping/Receiving			E-Mail:	State of Origin:	Page: Page 1 of 2						
Company			Danielle.Harrington@et.eurofins.com	Colorado	Job #:						
Eurofins Environment Testing North Centr			Accreditations Required (See note).		280-162040-1						
Address:		Due Date Requested:	Preservation Codes:								
3019 Venture Way,		5/19/2022	A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 R - Na2S2O3 F - MeOH S - H2SO4 G - Amchlor H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify) Other								
City:		TAT Requested (days):	Analysis Requested								
Cedar Falls											
State:											
Zip:											
IA, 50613											
Phone:		PO #:									
319-277-2401(Tel) 319-277-2425(Fax)											
Email:		WO #:									
Project Name:		Project #:									
Xcel Energy GW CCR Monitoring - Comanche		28014376									
Site:		SSOW#:									
Xcel Energy CCR - Comanche Station											
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=oil, BT=Butter, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020A/3005A (MOD) 13 Total Metals (w/collision cell)	6020A/Filtration_ME (MOD) 13 Total Metals (w/collision cell)	Total Number of Containers	Special Instructions/Note:
W-2A (280-162040-10)		5/4/22	11:20 Mountain		Water	X	X	X	X	1	
W-2C (280-162040-11)		5/5/22	11:20 Mountain		Water	X	X	X	X	1	
W-3B (280-162040-12)		5/5/22	14:55 Mountain		Water	X	X	X	X	1	
W-3B-FD (280-162040-13)		5/5/22	14:55 Mountain		Water	X	X	X	X	1	
W-5B (280-162040-14)		5/6/22	09:50 Mountain		Water	X	X	X	X	1	
W-7 (280-162040-15)		5/4/22	16:00 Mountain		Water	X	X	X	X	1	
W-11 (280-162040-16)		5/4/22	15:45 Mountain		Water	X	X	X	X	1	
W-12 (280-162040-17)		5/5/22	10:45 Mountain		Water	X	X	X	X	1	
W-14 (280-162040-18)		5/6/22	10:30 Mountain		Water	X	X	X	X	1	
Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins TestAmerica.											
Possible Hazard Identification											
Unconfirmed											
Deliverable Requested I, II, III, IV, Other (specify)											
Primary Deliverable Rank: 2											
Empty Kit Relinquished by											
Time:											
Date:											
Relinquished by: [Signature]											
Date/Time: 5/9/22 1430											
Relinquished by: [Signature]											
Date/Time: 5/9/22 1430											
Relinquished by: [Signature]											
Date/Time: 5/9/22 1430											
Custody Seals Intact: [Signature]											
Custody Seal No. [Signature]											
Cooler Temperature(s) °C and Other Remarks:											
Ver 06/08/2021											

[illegible]

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-162040-1

Login Number: 162040

List Number: 1

Creator: Lee, Jerry

List Source: Eurofins Denver

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

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-162040-1

Login Number: 162040

List Number: 4

Creator: Lee, Jerry

List Source: Eurofins Denver

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

ANALYTICAL REPORT

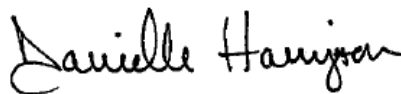
Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-162040-2

Client Project/Site: Xcel Energy GW CCR Monitoring -
Comanche

For:
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Attn: Molly Reeves



Authorized for release by:
6/20/2022 12:17:03 PM

Danielle Harrington, Project Manager II
(303)736-0176

Danielle.Harrington@et.eurofinsus.com

LINKS

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results through



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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-2

Qualifiers

Rad

Qualifier	Qualifier Description
G	The Sample MDC is greater than the requested RL.
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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-2

Job ID: 280-162040-2

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-162040-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 05/06/2022; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt were 0.6°C, 1.0°C, 1.7°C, 2.2°C and 2.9°C

RADIUM-226 (GFPC)- Method 9315

Method 9315_Ra226: Radium-226 Prep Batch 160-565182The following samples were prepared at a reduced aliquot due to Matrix: W-2A (280-162040-10), W-2C (280-162040-11), W-3B (280-162040-12), W-3B-FD (280-162040-13), W-5B (280-162040-14), W-7 (280-162040-15), W-11 (280-162040-16), W-12 (280-162040-17), W-14 (280-162040-18), W-16 (280-162040-19) and W-6B (280-162040-20).

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

RADIUM-228- Method 9320

Method 9320_Ra228: Radium-228 Prep Batch 160-569786The following samples were prepared at a reduced aliquot due to Matrix: W-2A (280-162040-10), W-2C (280-162040-11), W-3B (280-162040-12), W-3B-FD (280-162040-13), W-5B (280-162040-14), W-7 (280-162040-15), W-11 (280-162040-16), W-12 (280-162040-17), W-14 (280-162040-18), W-16 (280-162040-19) and W-6B (280-162040-20).

Method 9320_Ra228: Radium-228 Prep Batch 160-569786Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 160-569786.

Method 9320_Ra228: Radium 228 Batch 160-569786: The following sample(s) did not meet the requested limit (RL) due to the reduced sample volume attributed to the presence of matrix interference. During preparation the analyst visually noted matrix effects. The data have been reported with this narrative. W-2A (280-162040-10), W-2C (280-162040-11), W-3B-FD (280-162040-13), W-7 (280-162040-15), W-11 (280-162040-16), W-12 (280-162040-17) and W-14 (280-162040-18)

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

RADIUM-226/RADIUM-228 (GFPC)

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

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-2

Client Sample ID: W-2A	Lab Sample ID: 280-162040-10
No Detections.	
Client Sample ID: W-2C	Lab Sample ID: 280-162040-11
No Detections.	
Client Sample ID: W-3B	Lab Sample ID: 280-162040-12
No Detections.	
Client Sample ID: W-3B-FD	Lab Sample ID: 280-162040-13
No Detections.	
Client Sample ID: W-5B	Lab Sample ID: 280-162040-14
No Detections.	
Client Sample ID: W-7	Lab Sample ID: 280-162040-15
No Detections.	
Client Sample ID: W-11	Lab Sample ID: 280-162040-16
No Detections.	
Client Sample ID: W-12	Lab Sample ID: 280-162040-17
No Detections.	
Client Sample ID: W-14	Lab Sample ID: 280-162040-18
No Detections.	
Client Sample ID: W-16	Lab Sample ID: 280-162040-19
No Detections.	
Client Sample ID: W-6B	Lab Sample ID: 280-162040-20
No Detections.	
Client Sample ID: W-6B-EB	Lab Sample ID: 280-162040-21
No Detections.	

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Method Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-2

Method	Method Description	Protocol	Laboratory
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

Protocol References:

None = None

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:

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

Sample Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-162040-10	W-2A	Water	05/04/22 11:20	05/06/22 16:42
280-162040-11	W-2C	Water	05/05/22 11:20	05/06/22 16:42
280-162040-12	W-3B	Water	05/05/22 14:55	05/06/22 16:42
280-162040-13	W-3B-FD	Water	05/05/22 14:55	05/06/22 16:42
280-162040-14	W-5B	Water	05/06/22 09:50	05/06/22 16:42
280-162040-15	W-7	Water	05/04/22 16:00	05/06/22 16:42
280-162040-16	W-11	Water	05/04/22 15:45	05/06/22 16:42
280-162040-17	W-12	Water	05/05/22 10:45	05/06/22 16:42
280-162040-18	W-14	Water	05/06/22 10:30	05/06/22 16:42
280-162040-19	W-16	Water	05/05/22 15:00	05/06/22 16:42
280-162040-20	W-6B	Water	05/06/22 13:10	05/06/22 16:42
280-162040-21	W-6B-EB	Water	05/06/22 13:35	05/06/22 16:42

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-2

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: W-2A
Date Collected: 05/04/22 11:20
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-10
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.12		0.647	0.655	1.00	0.856	pCi/L	05/12/22 08:56	06/08/22 16:55	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	74.6		40 - 110					05/12/22 08:56	06/08/22 16:55	1

Client Sample ID: W-2C
Date Collected: 05/05/22 11:20
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-11
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.55		0.614	0.629	1.00	0.623	pCi/L	05/12/22 08:56	06/08/22 16:54	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.3		40 - 110					05/12/22 08:56	06/08/22 16:54	1

Client Sample ID: W-3B
Date Collected: 05/05/22 14:55
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-12
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	4.21		1.00	1.07	1.00	0.800	pCi/L	05/12/22 08:56	06/08/22 16:53	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	81.8		40 - 110					05/12/22 08:56	06/08/22 16:53	1

Client Sample ID: W-3B-FD
Date Collected: 05/05/22 14:55
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-13
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	4.03		1.05	1.11	1.00	0.970	pCi/L	05/12/22 08:56	06/08/22 16:54	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.0		40 - 110					05/12/22 08:56	06/08/22 16:54	1

Client Sample ID: W-5B
Date Collected: 05/06/22 09:50
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-14
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.814		0.357	0.364	1.00	0.385	pCi/L	05/12/22 08:56	06/08/22 16:52	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.3		40 - 110					05/12/22 08:56	06/08/22 16:52	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-2

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: W-7
Date Collected: 05/04/22 16:00
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-15
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	2.12		0.854	0.875	1.00	0.979	pCi/L	05/12/22 08:56	06/08/22 18:40	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	64.6		40 - 110					05/12/22 08:56	06/08/22 18:40	1

Client Sample ID: W-11
Date Collected: 05/04/22 15:45
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-16
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.25		0.649	0.658	1.00	0.736	pCi/L	05/12/22 08:56	06/08/22 18:41	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	76.6		40 - 110					05/12/22 08:56	06/08/22 18:41	1

Client Sample ID: W-12
Date Collected: 05/05/22 10:45
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-17
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.768		0.496	0.501	1.00	0.685	pCi/L	05/12/22 08:56	06/08/22 18:41	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.8		40 - 110					05/12/22 08:56	06/08/22 18:41	1

Client Sample ID: W-14
Date Collected: 05/06/22 10:30
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-18
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.62		0.609	0.627	1.00	0.598	pCi/L	05/12/22 08:56	06/08/22 18:38	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.0		40 - 110					05/12/22 08:56	06/08/22 18:38	1

Client Sample ID: W-16
Date Collected: 05/05/22 15:00
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-19
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.25		0.636	0.646	1.00	0.799	pCi/L	05/12/22 08:56	06/08/22 18:38	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	80.3		40 - 110					05/12/22 08:56	06/08/22 18:38	1

Eurofins Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-2

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: W-6B
Date Collected: 05/06/22 13:10
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-20
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	3.89		1.04	1.10	1.00	0.989	pCi/L	05/12/22 08:56	06/08/22 18:39	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	79.8		40 - 110					05/12/22 08:56	06/08/22 18:39	1

Client Sample ID: W-6B-EB
Date Collected: 05/06/22 13:35
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-21
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.309		0.214	0.216	1.00	0.291	pCi/L	05/12/22 08:56	06/08/22 18:39	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.0		40 - 110					05/12/22 08:56	06/08/22 18:39	1

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: W-2A
Date Collected: 05/04/22 11:20
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-10
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	3.84	G	1.29	1.33	1.00	1.51	pCi/L	06/13/22 14:29	06/17/22 11:52	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	58.0		40 - 110					06/13/22 14:29	06/17/22 11:52	1
Y Carrier	83.7		40 - 110					06/13/22 14:29	06/17/22 11:52	1

Client Sample ID: W-2C
Date Collected: 05/05/22 11:20
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-11
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	3.66	G	1.00	1.06	1.00	1.10	pCi/L	06/13/22 14:29	06/17/22 11:52	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.8		40 - 110					06/13/22 14:29	06/17/22 11:52	1
Y Carrier	83.4		40 - 110					06/13/22 14:29	06/17/22 11:52	1

Client Sample ID: W-3B
Date Collected: 05/05/22 14:55
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-12
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	6.53		1.13	1.28	1.00	0.938	pCi/L	06/13/22 14:29	06/17/22 11:52	1

Eurofins Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-2

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	99.5		40 - 110	06/13/22 14:29	06/17/22 11:52	1
Y Carrier	81.1		40 - 110	06/13/22 14:29	06/17/22 11:52	1

Client Sample ID: W-3B-FD
Date Collected: 05/05/22 14:55
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-13
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	7.91	G	1.42	1.60	1.00	1.30	pCi/L	06/13/22 14:29	06/17/22 11:52	1
Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac				
Ba Carrier	75.5		40 - 110	06/13/22 14:29	06/17/22 11:52	1				
Y Carrier	84.9		40 - 110	06/13/22 14:29	06/17/22 11:52	1				

Client Sample ID: W-5B
Date Collected: 05/06/22 09:50
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-14
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.722		0.451	0.456	1.00	0.666	pCi/L	06/13/22 14:29	06/17/22 11:53	1
Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac				
Ba Carrier	97.0		40 - 110	06/13/22 14:29	06/17/22 11:53	1				
Y Carrier	83.7		40 - 110	06/13/22 14:29	06/17/22 11:53	1				

Client Sample ID: W-7
Date Collected: 05/04/22 16:00
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-15
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.90	G	1.21	1.24	1.00	1.57	pCi/L	06/13/22 14:29	06/17/22 11:53	1
Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac				
Ba Carrier	54.8		40 - 110	06/13/22 14:29	06/17/22 11:53	1				
Y Carrier	85.6		40 - 110	06/13/22 14:29	06/17/22 11:53	1				

Client Sample ID: W-11
Date Collected: 05/04/22 15:45
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-16
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.04	G	0.937	0.956	1.00	1.28	pCi/L	06/13/22 14:29	06/17/22 11:53	1
Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac				
Ba Carrier	76.0		40 - 110	06/13/22 14:29	06/17/22 11:53	1				
Y Carrier	84.5		40 - 110	06/13/22 14:29	06/17/22 11:53	1				

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-2

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: W-12
Date Collected: 05/05/22 10:45
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-17
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.35	G	0.860	0.887	1.00	1.02	pCi/L	06/13/22 14:29	06/17/22 11:53	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	78.5		40 - 110					06/13/22 14:29	06/17/22 11:53	1
Y Carrier	86.4		40 - 110					06/13/22 14:29	06/17/22 11:53	1

Client Sample ID: W-14
Date Collected: 05/06/22 10:30
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-18
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.835	U G	0.776	0.780	1.00	1.23	pCi/L	06/13/22 14:29	06/17/22 11:53	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	70.8		40 - 110					06/13/22 14:29	06/17/22 11:53	1
Y Carrier	88.2		40 - 110					06/13/22 14:29	06/17/22 11:53	1

Client Sample ID: W-16
Date Collected: 05/05/22 15:00
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-19
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.626	U	0.591	0.594	1.00	0.943	pCi/L	06/13/22 14:29	06/17/22 11:54	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.3		40 - 110					06/13/22 14:29	06/17/22 11:54	1
Y Carrier	86.7		40 - 110					06/13/22 14:29	06/17/22 11:54	1

Client Sample ID: W-6B
Date Collected: 05/06/22 13:10
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-20
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	3.43		0.872	0.927	1.00	0.835	pCi/L	06/13/22 14:29	06/17/22 11:54	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.3		40 - 110					06/13/22 14:29	06/17/22 11:54	1
Y Carrier	90.5		40 - 110					06/13/22 14:29	06/17/22 11:54	1

Client Sample ID: W-6B-EB
Date Collected: 05/06/22 13:35
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-21
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.103	U	0.167	0.167	1.00	0.365	pCi/L	06/13/22 14:29	06/17/22 11:54	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-2

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	96.0		40 - 110	06/13/22 14:29	06/17/22 11:54	1
Y Carrier	90.5		40 - 110	06/13/22 14:29	06/17/22 11:54	1

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

Client Sample ID: W-2A
Date Collected: 05/04/22 11:20
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-10
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	4.96		1.44	1.48	5.00	1.51	pCi/L		06/17/22 17:17	1

Client Sample ID: W-2C
Date Collected: 05/05/22 11:20
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-11
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	5.22		1.17	1.23	5.00	1.10	pCi/L		06/17/22 17:17	1

Client Sample ID: W-3B
Date Collected: 05/05/22 14:55
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-12
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	10.7		1.51	1.67	5.00	0.938	pCi/L		06/17/22 17:17	1

Client Sample ID: W-3B-FD
Date Collected: 05/05/22 14:55
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-13
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	11.9		1.77	1.95	5.00	1.30	pCi/L		06/17/22 17:17	1

Client Sample ID: W-5B
Date Collected: 05/06/22 09:50
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-14
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.54		0.575	0.583	5.00	0.666	pCi/L		06/17/22 17:17	1

Eurofins Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-2

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

Client Sample ID: W-7
Date Collected: 05/04/22 16:00
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-15
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	5.02		1.48	1.52	5.00	1.57	pCi/L		06/17/22 17:17	1

Client Sample ID: W-11
Date Collected: 05/04/22 15:45
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-16
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	3.29		1.14	1.16	5.00	1.28	pCi/L		06/17/22 17:17	1

Client Sample ID: W-12
Date Collected: 05/05/22 10:45
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-17
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	3.12		0.993	1.02	5.00	1.02	pCi/L		06/17/22 17:17	1

Client Sample ID: W-14
Date Collected: 05/06/22 10:30
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-18
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.46		0.986	1.00	5.00	1.23	pCi/L		06/17/22 17:17	1

Client Sample ID: W-16
Date Collected: 05/05/22 15:00
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-19
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.87		0.868	0.878	5.00	0.943	pCi/L		06/17/22 17:17	1

Client Sample ID: W-6B
Date Collected: 05/06/22 13:10
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-20
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	7.32		1.36	1.44	5.00	0.989	pCi/L		06/17/22 17:17	1

Eurofins Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-2

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

Client Sample ID: W-6B-EB
Date Collected: 05/06/22 13:35
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-21
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.205	U	0.271	0.273	5.00	0.365	pCi/L		06/17/22 17:17	1

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-2

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-565182/23-A

Matrix: Water

Analysis Batch: 569035

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 565182

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.05945	U	0.204	0.204	1.00	0.384	pCi/L	05/12/22 08:56	06/08/22 19:41	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.3		40 - 110					05/12/22 08:56	06/08/22 19:41	1

Lab Sample ID: LCS 160-565182/1-A

Matrix: Water

Analysis Batch: 569033

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 565182

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226		11.3	11.05		1.42	1.00	0.385	pCi/L	97	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits							
Ba Carrier	91.0		40 - 110							

Lab Sample ID: LCSD 160-565182/2-A

Matrix: Water

Analysis Batch: 569033

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 565182

Analyte		Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-226		11.3	10.39		1.41	1.00	0.311	pCi/L	92	75 - 125	0.23	1
Carrier	LCSD %Yield	LCSD Qualifier	Limits									
Ba Carrier	97.5		40 - 110									

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-569786/1-A

Matrix: Water

Analysis Batch: 570477

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 569786

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1352	U	0.283	0.283	1.00	0.490	pCi/L	06/13/22 14:29	06/17/22 11:51	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.8		40 - 110					06/13/22 14:29	06/17/22 11:51	1
Y Carrier	86.7		40 - 110					06/13/22 14:29	06/17/22 11:51	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-2

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

Lab Sample ID: LCS 160-569786/2-A

Matrix: Water

Analysis Batch: 570477

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 569786

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-228		8.53	8.567		1.17	1.00	0.514	pCi/L	100	75 - 125

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	95.0		40 - 110
Y Carrier	84.9		40 - 110

Lab Sample ID: LCSD 160-569786/3-A

Matrix: Water

Analysis Batch: 570477

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 569786

Analyte		Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-228		8.53	8.446		1.14	1.00	0.444	pCi/L	99	75 - 125	0.05	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	99.0		40 - 110
Y Carrier	84.5		40 - 110

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-2

Rad

Prep Batch: 565182

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-10	W-2A	Total/NA	Water	PrecSep-21	
280-162040-11	W-2C	Total/NA	Water	PrecSep-21	
280-162040-12	W-3B	Total/NA	Water	PrecSep-21	
280-162040-13	W-3B-FD	Total/NA	Water	PrecSep-21	
280-162040-14	W-5B	Total/NA	Water	PrecSep-21	
280-162040-15	W-7	Total/NA	Water	PrecSep-21	
280-162040-16	W-11	Total/NA	Water	PrecSep-21	
280-162040-17	W-12	Total/NA	Water	PrecSep-21	
280-162040-18	W-14	Total/NA	Water	PrecSep-21	
280-162040-19	W-16	Total/NA	Water	PrecSep-21	
280-162040-20	W-6B	Total/NA	Water	PrecSep-21	
280-162040-21	W-6B-EB	Total/NA	Water	PrecSep-21	
MB 160-565182/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-565182/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-565182/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 569786

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-10	W-2A	Total/NA	Water	PrecSep_0	
280-162040-11	W-2C	Total/NA	Water	PrecSep_0	
280-162040-12	W-3B	Total/NA	Water	PrecSep_0	
280-162040-13	W-3B-FD	Total/NA	Water	PrecSep_0	
280-162040-14	W-5B	Total/NA	Water	PrecSep_0	
280-162040-15	W-7	Total/NA	Water	PrecSep_0	
280-162040-16	W-11	Total/NA	Water	PrecSep_0	
280-162040-17	W-12	Total/NA	Water	PrecSep_0	
280-162040-18	W-14	Total/NA	Water	PrecSep_0	
280-162040-19	W-16	Total/NA	Water	PrecSep_0	
280-162040-20	W-6B	Total/NA	Water	PrecSep_0	
280-162040-21	W-6B-EB	Total/NA	Water	PrecSep_0	
MB 160-569786/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-569786/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-569786/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-2

Client Sample ID: W-2A

Date Collected: 05/04/22 11:20

Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			501.06 mL	1.0 g	565182	05/12/22 08:56	MS	TAL SL
Total/NA	Analysis	9315		1			569033	06/08/22 16:55	FLC	TAL SL
Total/NA	Prep	PrecSep_0			491.63 mL	1.0 g	569786	06/13/22 14:29	MS	TAL SL
Total/NA	Analysis	9320		1			570477	06/17/22 11:52	CLP	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			570488	06/17/22 17:17	EMH	TAL SL

Client Sample ID: W-2C

Date Collected: 05/05/22 11:20

Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-11

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			504.41 mL	1.0 g	565182	05/12/22 08:56	MS	TAL SL
Total/NA	Analysis	9315		1			569217	06/08/22 16:54	CLP	TAL SL
Total/NA	Prep	PrecSep_0			506.37 mL	1.0 g	569786	06/13/22 14:29	MS	TAL SL
Total/NA	Analysis	9320		1			570477	06/17/22 11:52	CLP	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			570488	06/17/22 17:17	EMH	TAL SL

Client Sample ID: W-3B

Date Collected: 05/05/22 14:55

Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-12

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			505.71 mL	1.0 g	565182	05/12/22 08:56	MS	TAL SL
Total/NA	Analysis	9315		1			569217	06/08/22 16:53	CLP	TAL SL
Total/NA	Prep	PrecSep_0			506.82 mL	1.0 g	569786	06/13/22 14:29	MS	TAL SL
Total/NA	Analysis	9320		1			570477	06/17/22 11:52	CLP	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			570488	06/17/22 17:17	EMH	TAL SL

Client Sample ID: W-3B-FD

Date Collected: 05/05/22 14:55

Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-13

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			497.11 mL	1.0 g	565182	05/12/22 08:56	MS	TAL SL
Total/NA	Analysis	9315		1	1.0 mL	1.0 mL	569217	06/08/22 16:54	CLP	TAL SL
Total/NA	Prep	PrecSep_0			505.16 mL	1.0 g	569786	06/13/22 14:29	MS	TAL SL
Total/NA	Analysis	9320		1			570477	06/17/22 11:52	CLP	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			570488	06/17/22 17:17	EMH	TAL SL

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-2

Client Sample ID: W-5B

Date Collected: 05/06/22 09:50

Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-14

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			745.31 mL	1.0 g	565182	05/12/22 08:56	MS	TAL SL
Total/NA	Analysis	9315		1			569035	06/08/22 16:52	CLP	TAL SL
Total/NA	Prep	PrecSep_0			742.85 mL	1.0 g	569786	06/13/22 14:29	MS	TAL SL
Total/NA	Analysis	9320		1			570477	06/17/22 11:53	CLP	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			570488	06/17/22 17:17	EMH	TAL SL

Client Sample ID: W-7

Date Collected: 05/04/22 16:00

Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-15

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			506.53 mL	1.0 g	565182	05/12/22 08:56	MS	TAL SL
Total/NA	Analysis	9315		1			569033	06/08/22 18:40	FLC	TAL SL
Total/NA	Prep	PrecSep_0			499.24 mL	1.0 g	569786	06/13/22 14:29	MS	TAL SL
Total/NA	Analysis	9320		1			570477	06/17/22 11:53	CLP	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			570488	06/17/22 17:17	EMH	TAL SL

Client Sample ID: W-11

Date Collected: 05/04/22 15:45

Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-16

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			496.84 mL	1.0 g	565182	05/12/22 08:56	MS	TAL SL
Total/NA	Analysis	9315		1			569033	06/08/22 18:41	FLC	TAL SL
Total/NA	Prep	PrecSep_0			498.55 mL	1.0 g	569786	06/13/22 14:29	MS	TAL SL
Total/NA	Analysis	9320		1			570477	06/17/22 11:53	CLP	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			570488	06/17/22 17:17	EMH	TAL SL

Client Sample ID: W-12

Date Collected: 05/05/22 10:45

Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-17

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			493.59 mL	1.0 g	565182	05/12/22 08:56	MS	TAL SL
Total/NA	Analysis	9315		1	1.0 mL	1.0 mL	569033	06/08/22 18:41	FLC	TAL SL
Total/NA	Prep	PrecSep_0			504.71 mL	1.0 g	569786	06/13/22 14:29	MS	TAL SL
Total/NA	Analysis	9320		1			570477	06/17/22 11:53	CLP	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			570488	06/17/22 17:17	EMH	TAL SL

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-2

Client Sample ID: W-14

Date Collected: 05/06/22 10:30

Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-18

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			495.81 mL	1.0 g	565182	05/12/22 08:56	MS	TAL SL
Total/NA	Analysis	9315		1			569217	06/08/22 18:38	CLP	TAL SL
Total/NA	Prep	PrecSep_0			497.46 mL	1.0 g	569786	06/13/22 14:29	MS	TAL SL
Total/NA	Analysis	9320		1			570477	06/17/22 11:53	CLP	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			570488	06/17/22 17:17	EMH	TAL SL

Client Sample ID: W-16

Date Collected: 05/05/22 15:00

Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-19

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			497.32 mL	1.0 g	565182	05/12/22 08:56	MS	TAL SL
Total/NA	Analysis	9315		1			569217	06/08/22 18:38	CLP	TAL SL
Total/NA	Prep	PrecSep_0			502.46 mL	1.0 g	569786	06/13/22 14:29	MS	TAL SL
Total/NA	Analysis	9320		1			570477	06/17/22 11:54	CLP	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			570488	06/17/22 17:17	EMH	TAL SL

Client Sample ID: W-6B

Date Collected: 05/06/22 13:10

Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-20

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			496.23 mL	1.0 g	565182	05/12/22 08:56	MS	TAL SL
Total/NA	Analysis	9315		1			569217	06/08/22 18:39	CLP	TAL SL
Total/NA	Prep	PrecSep_0			492.23 mL	1.0 g	569786	06/13/22 14:29	MS	TAL SL
Total/NA	Analysis	9320		1			570477	06/17/22 11:54	CLP	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			570488	06/17/22 17:17	EMH	TAL SL

Client Sample ID: W-6B-EB

Date Collected: 05/06/22 13:35

Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-21

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			994.21 mL	1.0 g	565182	05/12/22 08:56	MS	TAL SL
Total/NA	Analysis	9315		1			569035	06/08/22 18:39	CLP	TAL SL
Total/NA	Prep	PrecSep_0			997.91 mL	1.0 g	569786	06/13/22 14:29	MS	TAL SL
Total/NA	Analysis	9320		1			570477	06/17/22 11:54	CLP	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			570488	06/17/22 17:17	EMH	TAL SL

Laboratory References:

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

Eurofins Denver

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

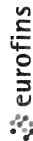
Job ID: 280-162040-2

Laboratory: Eurofins St. Louis

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

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-22
California	Los Angeles County Sanitation Districts	10259	06-30-22
California	State	2886	07-01-22
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-22
HI - RadChem Recognition	State	n/a	06-30-22
Illinois	NELAP	200023	11-30-22
Iowa	State	373	12-01-22
Kansas	NELAP	E-10236	10-31-22
Kentucky (DW)	State	KY90125	12-31-22
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-22
Louisiana	NELAP	04080	06-30-22
Louisiana (DW)	State	LA011	12-31-22
Maryland	State	310	09-30-22
MI - RadChem Recognition	State	9005	06-30-22
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-22
New Jersey	NELAP	MO002	06-30-22
New York	NELAP	11616	04-01-23
North Dakota	State	R-207	06-30-22
NRC	NRC	24-24817-01	12-31-22
Oklahoma	NELAP	9997	08-31-22
Oregon	NELAP	4157	09-01-22
Pennsylvania	NELAP	68-00540	02-28-23
South Carolina	State	85002001	06-30-22
Texas	NELAP	T104704193	07-31-22
US Fish & Wildlife	US Federal Programs	058448	07-31-22
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	08-01-22
Virginia	NELAP	10310	06-14-23
Washington	State	C592	08-30-22
West Virginia DEP	State	381	10-31-22

Chain of Custody Record



Environment Testing
America

Client Information		Sampler: <u>T. Snyder</u>		Lab PM: <u>Harrington, Danielle M</u>	Carrier Tracking No(s):	COC No: <u>280-110862-32017.2</u>											
Client Contact: <u>Molly Reeves</u>		Phone: <u>720 838 6065</u>		E-Mail: <u>Danielle.Harrington@Eurofins.com</u>	State of Origin:	Page: <u>Page 2 of 2</u>											
Company: <u>HDR Inc</u>		PW/SID:		Job #:													
Address: <u>1670 Broadway Suite 3400</u>		Due Date Requested:		Analysis Requested													
City: <u>Denver</u>		TAT Requested (days): <u>ASAP</u>		Total Number of containers													
State, Zip: <u>CO, 80202</u>		Compliance Project: <u>Δ Yes Δ No</u>		Preservation Codes:													
Phone: <u>734-263-7138(Tel)</u>		PQ #: <u>DEN-021</u>		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:													
Email: <u>Molly.Reeves@hdrinc.com</u>		W/O #:		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)													
Project Name: <u>Xcel Energy GW CCR Monitoring - Comanche</u>		Project #: <u>28014376</u>		Special Instructions/Note:													
Site: <u>COLORADO</u>		SSOW#:		pH/Alk + Dissolved Metals → 500 mL bottle													
Groundwater																	
Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/soil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Denver - 6010C/7470A - APP III +IV metals	Denver - 6010C/7470A - APP III +IV metals	Denver - 6010C/7470A - APP III +IV metals	2540D - TSS/2540C TDS	Radium - 226 915 and Radium - 228 Method 9320/	Ra2226Ra2228GFPC - ETA St. Louis	6010C/6020A - APP III Metals - Denver	Analysis Requested	280-162040 Chain of Custody	Barcode	
MW-1B	5/3/22	1540	G	Water	X	X	X	X	X	X	X	X	X	X	X	X	
MW-2B	5/3/22	1145	G	Water	X	X	X	X	X	X	X	X	X	X	X	X	
MW-2B-FD	5/3/22	1145	G	W	X	X	X	X	X	X	X	X	X	X	X	X	
MW-2B-EB	5/3/22	1215	G	W	X	X	X	X	X	X	X	X	X	X	X	X	
MW-3	5/2/22	1500	G	W	X	X	X	X	X	X	X	X	X	X	X	X	
MW-4B	5/3/22	1210	G	W	X	X	X	X	X	X	X	X	X	X	X	X	
MW-5	5/5/22	1610	G	W	X	X	X	X	X	X	X	X	X	X	X	X	
MW-6	5/4/22	0915	G	W	X	X	X	X	X	X	X	X	X	X	X	X	
MW-7	5/3/22	1410	G	W	X	X	X	X	X	X	X	X	X	X	X	X	
W-2A	5/4/22	1120	G	W	X	X	X	X	X	X	X	X	X	X	X	X	
W-2C	5/5/22	1120	G	W	X	X	X	X	X	X	X	X	X	X	X	X	
Possible Hazard Identification		☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological		☐ Deliverable Requested: I, II, III, IV, Other (specify)		☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)									
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:											
Relinquished by: <u>[Signature]</u>		Date/Time: <u>5/6/22 1642 HDR</u>		Company: <u>HDR</u>		Received by: <u>[Signature]</u>		Date/Time: <u>5/6/22 1642</u>		Company: <u>[Signature]</u>							
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:							
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:							
Custody Seals Intact: <u>Δ Yes Δ No</u>		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: <u>0.9, 2.2, 1.6, 2.1, 0.5 C + 0.1 bar</u>													

[illegible]

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-162040-2

Login Number: 162040

List Number: 1

Creator: Lee, Jerry

List Source: Eurofins Denver

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

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-162040-2

Login Number: 162040

List Number: 4

Creator: Lee, Jerry

List Source: Eurofins Denver

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

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-162040-2

Login Number: 162040

List Number: 3

Creator: Worthington, Sierra M

List Source: Eurofins St. Louis

List Creation: 05/10/22 11:48 AM

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

Tracer/Carrier Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-2

Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)					
Lab Sample ID	Client Sample ID	Ba (40-110)					
280-162040-10	W-2A	74.6					
280-162040-11	W-2C	89.3					
280-162040-12	W-3B	81.8					
280-162040-13	W-3B-FD	85.0					
280-162040-14	W-5B	98.3					
280-162040-15	W-7	64.6					
280-162040-16	W-11	76.6					
280-162040-17	W-12	95.8					
280-162040-18	W-14	92.0					
280-162040-19	W-16	80.3					
280-162040-20	W-6B	79.8					
280-162040-21	W-6B-EB	93.0					
LCS 160-565182/1-A	Lab Control Sample	91.0					
LCSD 160-565182/2-A	Lab Control Sample Dup	97.5					
MB 160-565182/23-A	Method Blank	82.3					
Tracer/Carrier Legend							
Ba = Ba Carrier							

Method: 9320 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)					
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)				
280-162040-10	W-2A	58.0	83.7				
280-162040-11	W-2C	82.8	83.4				
280-162040-12	W-3B	99.5	81.1				
280-162040-13	W-3B-FD	75.5	84.9				
280-162040-14	W-5B	97.0	83.7				
280-162040-15	W-7	54.8	85.6				
280-162040-16	W-11	76.0	84.5				
280-162040-17	W-12	78.5	86.4				
280-162040-18	W-14	70.8	88.2				
280-162040-19	W-16	94.3	86.7				
280-162040-20	W-6B	85.3	90.5				
280-162040-21	W-6B-EB	96.0	90.5				
LCS 160-569786/2-A	Lab Control Sample	95.0	84.9				
LCSD 160-569786/3-A	Lab Control Sample Dup	99.0	84.5				
MB 160-569786/1-A	Method Blank	98.8	86.7				
Tracer/Carrier Legend							
Ba = Ba Carrier							
Y = Y Carrier							

ANALYTICAL REPORT

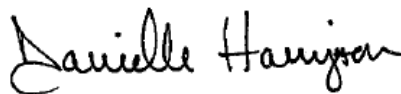
Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-162040-3

Client Project/Site: Xcel Energy GW CCR Monitoring -
Comanche

For:
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Attn: Molly Reeves



Authorized for release by:
7/13/2022 3:09:56 PM

Danielle Harrington, Project Manager II
(303)736-0176
Danielle.Harrington@et.eurofinsus.com

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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-3

Qualifiers

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
^1+	Initial Calibration Verification (ICV) is outside acceptance limits, high biased.
B	Compound was found in the blank and sample.
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-3

Job ID: 280-162040-3

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-162040-3

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 05/06/2022; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt were 0.6°C, 1.0°C, 1.7°C, 2.2°C and 2.9°C.

Receipt Exceptions

Client requested Dissolved Metals analysis that is to be filtered for the following samples. Only one unpreserved container provided for Dissolved Metal and other analyses requiring an unpreserved volume. Laboratory split volume, filtered and preserved for analysis for samples W-16 (280-162040-19)

Per client request, this report only contains the select analyses for sample W-16 (280-162040-19).

DISSOLVED METALS- Method 6020A

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

TOTAL RECOVERABLE METALS- Method 6020A

Sample W-16 (280-162040-19) required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Calcium was detected in method blank MB 280-574284/1-A at a level exceeding the reporting limit. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. As the associated sample amounts are ten times greater than the method blank concentration, corrective action is deemed unnecessary.

Calcium was detected in method blank MB 280-575927/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. Because the concentration in the method blank is not present at a level greater than the reporting limit, corrective action is deemed unnecessary.

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

GENERAL CHEMISTRY- VARIOUS

Sample W-16 (280-162040-19) required dilution prior to analysis for Various methods. The reporting limits have been adjusted accordingly.

Sulfate was detected in method blank MB 280-575330/54 at a level that was above the method detection limit but below the reporting limit.

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-3

Job ID: 280-162040-3 (Continued)

Laboratory: Eurofins Denver (Continued)

The value should be considered an estimate, and has been flagged. Because the concentration in the method blank is not present at a level greater than the reporting limit, corrective action is deemed unnecessary.

Laboratory generated MS/MSD analysis data have been provided. The MS/MSD for Chloride and Sulfate method 9056A exhibited spike compound recoveries outside the QC limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The accuracy and precision of the Chloride and Sulfate MS/MSD performed on a laboratory generated sample could not be reliably evaluated, as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

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

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-3

Client Sample ID: W-16

Lab Sample ID: 280-162040-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	430	B	50	0.45	mg/L	50		6020A	Total
									Recoverable
Cobalt	0.011		0.0010	0.000092	mg/L	1		6020A	Total
									Recoverable
Cobalt	0.011		0.0010	0.000092	mg/L	1		6020A	Dissolved
pH adj. to 25 deg C	7.1	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.2	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	250		15	5.1	mg/L	5		9056A	Total/NA
Sulfate	13000	B	500	100	mg/L	100		9056A	Total/NA
Alkalinity	880		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	880		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Suspended Solids	2.4	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Method Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-3

Method	Method Description	Protocol	Laboratory
6020A	Metals (ICP/MS)	SW846	TAL DEN
9040B	pH	SW846	TAL DEN
9056A	Anions, Ion Chromatography	SW846	TAL DEN
SM 2320B	Alkalinity	SM	TAL DEN
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL DEN
FILTRATION	Sample Filtration	None	TAL DEN

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.

Laboratory References:

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

Sample Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-162040-19	W-16	Water	05/05/22 15:00	05/06/22 16:42

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

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-3

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Client Sample ID: W-16
Date Collected: 05/05/22 15:00
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-19
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	430	B	50	0.45	mg/L		05/24/22 09:11	05/26/22 17:01	50
Cobalt	0.011		0.0010	0.000092	mg/L		05/24/22 09:11	05/25/22 05:06	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Client Sample ID: W-16
Date Collected: 05/05/22 15:00
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-19
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	0.011		0.0010	0.000092	mg/L		05/26/22 08:55	05/27/22 03:18	1

General Chemistry

Client Sample ID: W-16
Date Collected: 05/05/22 15:00
Date Received: 05/06/22 16:42

Lab Sample ID: 280-162040-19
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.1	HF	0.1	0.1	SU			05/09/22 21:14	1
Temperature	21.2	HF	1.0	1.0	Degrees C			05/09/22 21:14	1
Chloride	250		15	5.1	mg/L			05/17/22 20:15	5
Sulfate	13000	B	500	100	mg/L			05/19/22 10:34	100
Alkalinity	880		10	3.1	mg/L			05/10/22 05:47	1
Bicarbonate Alkalinity as CaCO3	880		10	3.1	mg/L			05/10/22 05:47	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/10/22 05:47	1
Total Suspended Solids	2.4	J	4.0	1.1	mg/L			05/10/22 15:40	1

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-3

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 280-575927/1-A

Matrix: Water

Analysis Batch: 576134

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 575927

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	ND		0.0010	0.000092	mg/L		05/24/22 09:11	05/25/22 03:28	1

Lab Sample ID: MB 280-575927/1-A

Matrix: Water

Analysis Batch: 576396

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 575927

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	0.0134	J	1.0	0.0090	mg/L		05/24/22 09:11	05/27/22 01:00	1

Lab Sample ID: LCS 280-575927/2-A

Matrix: Water

Analysis Batch: 576134

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 575927

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0421		mg/L		105	85 - 115
Arsenic	0.0400	0.0409		mg/L		102	85 - 117
Barium	0.0400	0.0403		mg/L		101	85 - 118
Beryllium	0.0400	0.0422		mg/L		105	80 - 125
Cadmium	0.0400	0.0425		mg/L		106	85 - 115
Chromium	0.0400	0.0418		mg/L		104	84 - 121
Cobalt	0.0400	0.0403		mg/L		101	85 - 120
Lead	0.0400	0.0413		mg/L		103	85 - 118
Molybdenum	0.0400	0.0419		mg/L		105	85 - 119
Selenium	0.0400	0.0403		mg/L		101	77 - 122
Thallium	0.0400	0.0410		mg/L		102	85 - 118

Lab Sample ID: LCS 280-575927/2-A

Matrix: Water

Analysis Batch: 576396

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 575927

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	0.800	0.843	J	mg/L		105	80 - 120

Lab Sample ID: MB 280-576059/1-B

Matrix: Water

Analysis Batch: 576396

Client Sample ID: Method Blank

Prep Type: Dissolved

Prep Batch: 576121

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	ND		0.0010	0.000092	mg/L		05/26/22 08:55	05/27/22 02:29	1

Lab Sample ID: LCS 280-576059/2-B

Matrix: Water

Analysis Batch: 576396

Client Sample ID: Lab Control Sample

Prep Type: Dissolved

Prep Batch: 576121

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0429		mg/L		107	85 - 115
Arsenic	0.0400	0.0394		mg/L		98	85 - 117
Barium	0.0400	0.0419		mg/L		105	85 - 118
Beryllium	0.0400	0.0382		mg/L		95	80 - 125
Cadmium	0.0400	0.0384		mg/L		96	85 - 115

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-3

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

Lab Sample ID: LCS 280-576059/2-B
Matrix: Water
Analysis Batch: 576396

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 576121

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chromium	0.0400	0.0418		mg/L		105	84 - 121
Cobalt	0.0400	0.0402		mg/L		100	85 - 120
Lead	0.0400	0.0415		mg/L		104	85 - 118
Molybdenum	0.0400	0.0415		mg/L		104	85 - 119
Selenium	0.0400	0.0407		mg/L		102	77 - 122
Thallium	0.0400	0.0410		mg/L		102	85 - 118

Method: 9040B - pH

Lab Sample ID: LCS 280-574377/73
Matrix: Water
Analysis Batch: 574377

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH adj. to 25 deg C	7.00	7.0		SU		100	99 - 101

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-575183/6
Matrix: Water
Analysis Batch: 575183

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			05/17/22 12:28	1
Sulfate	ND		5.0	1.0	mg/L			05/17/22 12:28	1

Lab Sample ID: LCS 280-575183/4
Matrix: Water
Analysis Batch: 575183

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	101		mg/L		101	90 - 110
Fluoride	5.00	4.99		mg/L		100	90 - 110
Sulfate	100	98.3		mg/L		98	90 - 110

Lab Sample ID: LCSD 280-575183/5
Matrix: Water
Analysis Batch: 575183

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	101		mg/L		101	90 - 110	0	10
Fluoride	5.00	5.03		mg/L		101	90 - 110	1	10
Sulfate	100	98.7		mg/L		99	90 - 110	0	10

Lab Sample ID: MRL 280-575183/3
Matrix: Water
Analysis Batch: 575183

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.00	4.04		mg/L		81	50 - 150

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-3

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

Lab Sample ID: MRL 280-575183/3

Matrix: Water

Analysis Batch: 575183

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	0.500	0.334	J	mg/L		67	50 - 150
Sulfate	5.00	4.20	J	mg/L		84	50 - 150

Lab Sample ID: MB 280-575330/54

Matrix: Water

Analysis Batch: 575330

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	1.54	J	5.0	1.0	mg/L			05/19/22 06:34	1

Lab Sample ID: MB 280-575330/6

Matrix: Water

Analysis Batch: 575330

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			05/18/22 18:33	1
Sulfate	ND		5.0	1.0	mg/L			05/18/22 18:33	1

Lab Sample ID: LCS 280-575330/52

Matrix: Water

Analysis Batch: 575330

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	100	102		mg/L		102	90 - 110

Lab Sample ID: LCSD 280-575330/53

Matrix: Water

Analysis Batch: 575330

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	100	102		mg/L		102	90 - 110	0	10

Lab Sample ID: MRL 280-575330/3

Matrix: Water

Analysis Batch: 575330

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.00	5.07		mg/L		101	50 - 150
Fluoride	0.500	0.538	^1+	mg/L		108	50 - 150
Sulfate	5.00	6.08		mg/L		122	50 - 150

Lab Sample ID: MB 280-575334/95

Matrix: Water

Analysis Batch: 575334

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			05/18/22 23:32	1
Sulfate	ND		5.0	1.0	mg/L			05/18/22 23:32	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-3

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

Lab Sample ID: LCS 280-575334/93

Matrix: Water

Analysis Batch: 575334

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	103		mg/L		103	90 - 110
Fluoride	5.00	4.65		mg/L		93	90 - 110
Sulfate	100	102		mg/L		102	90 - 110

Lab Sample ID: LCSD 280-575334/94

Matrix: Water

Analysis Batch: 575334

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	102		mg/L		102	90 - 110	0	10
Fluoride	5.00	4.81		mg/L		96	90 - 110	3	10
Sulfate	100	102		mg/L		102	90 - 110	0	10

Lab Sample ID: MRL 280-575334/3

Matrix: Water

Analysis Batch: 575334

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.00	4.22		mg/L		84	50 - 150
Fluoride	0.500	0.384	J	mg/L		77	50 - 150
Sulfate	5.00	3.99	J	mg/L		80	50 - 150

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-574378/110

Matrix: Water

Analysis Batch: 574378

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	ND		10	3.1	mg/L			05/10/22 01:53	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/10/22 01:53	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/10/22 01:53	1

Lab Sample ID: LCS 280-574378/109

Matrix: Water

Analysis Batch: 574378

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	200	209		mg/L		104	89 - 109

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 280-574474/2

Matrix: Water

Analysis Batch: 574474

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			05/10/22 15:40	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-3

Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

Lab Sample ID: LCS 280-574474/1

Matrix: Water

Analysis Batch: 574474

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	80.0		mg/L		80	79 - 114

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-3

Metals

Prep Batch: 575927

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-19	W-16	Total Recoverable	Water	3005A	
MB 280-575927/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-575927/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Filtration Batch: 576059

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-19	W-16	Dissolved	Water	FILTRATION	
MB 280-576059/1-B	Method Blank	Dissolved	Water	FILTRATION	
LCS 280-576059/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	

Prep Batch: 576121

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-19	W-16	Dissolved	Water	3005A	576059
MB 280-576059/1-B	Method Blank	Dissolved	Water	3005A	576059
LCS 280-576059/2-B	Lab Control Sample	Dissolved	Water	3005A	576059

Analysis Batch: 576134

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-19	W-16	Total Recoverable	Water	6020A	575927
MB 280-575927/1-A	Method Blank	Total Recoverable	Water	6020A	575927
LCS 280-575927/2-A	Lab Control Sample	Total Recoverable	Water	6020A	575927

Analysis Batch: 576396

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-19	W-16	Dissolved	Water	6020A	576121
MB 280-575927/1-A	Method Blank	Total Recoverable	Water	6020A	575927
MB 280-576059/1-B	Method Blank	Dissolved	Water	6020A	576121
LCS 280-575927/2-A	Lab Control Sample	Total Recoverable	Water	6020A	575927
LCS 280-576059/2-B	Lab Control Sample	Dissolved	Water	6020A	576121

Analysis Batch: 576449

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-19	W-16	Total Recoverable	Water	6020A	575927

General Chemistry

Analysis Batch: 574377

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-19	W-16	Total/NA	Water	9040B	
LCS 280-574377/73	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 574378

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-19	W-16	Total/NA	Water	SM 2320B	
MB 280-574378/110	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-574378/109	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 574474

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-19	W-16	Total/NA	Water	SM 2540D	
MB 280-574474/2	Method Blank	Total/NA	Water	SM 2540D	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-3

General Chemistry (Continued)

Analysis Batch: 574474 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 280-574474/1	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 575183

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-19	W-16	Total/NA	Water	9056A	
MB 280-575183/6	Method Blank	Total/NA	Water	9056A	
LCS 280-575183/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-575183/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-575183/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 575330

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162040-19	W-16	Total/NA	Water	9056A	
MB 280-575330/54	Method Blank	Total/NA	Water	9056A	
MB 280-575330/6	Method Blank	Total/NA	Water	9056A	
LCS 280-575330/52	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-575330/53	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-575330/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 575334

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-575334/95	Method Blank	Total/NA	Water	9056A	
LCS 280-575334/93	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-575334/94	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-575334/3	Lab Control Sample	Total/NA	Water	9056A	

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-3

Client Sample ID: W-16

Lab Sample ID: 280-162040-19

Date Collected: 05/05/22 15:00

Matrix: Water

Date Received: 05/06/22 16:42

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			100 mL	100 mL	576059	05/24/22 16:05	DNM	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	576121	05/26/22 08:55	PFM	TAL DEN
Dissolved	Analysis	6020A		1			576396	05/27/22 03:18	LRD	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575927	05/24/22 09:11	PFM	TAL DEN
Total Recoverable	Analysis	6020A		1			576134	05/25/22 05:06	LRD	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575927	05/24/22 09:11	PFM	TAL DEN
Total Recoverable	Analysis	6020A		50			576449	05/26/22 17:01	LRD	TAL DEN
Total/NA	Analysis	9040B		1			574377	05/09/22 21:14	KEG	TAL DEN
Total/NA	Analysis	9056A		100	10 mL	10 mL	575330	05/19/22 10:34	CJ	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	575183	05/17/22 20:15	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			574378	05/10/22 05:47	KEG	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	574474	05/10/22 15:40	CAI	TAL DEN

Laboratory References:

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

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162040-3

Laboratory: Eurofins Denver

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

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-23

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
6020A	3005A	Water	Calcium
9040B		Water	Temperature

Ver: 01/16/2019

[illegible]

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-162040-3

Login Number: 162040

List Number: 1

Creator: Lee, Jerry

List Source: Eurofins Denver

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

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-162040-3

Login Number: 162040

List Number: 4

Creator: Lee, Jerry

List Source: Eurofins Denver

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

ANALYTICAL REPORT

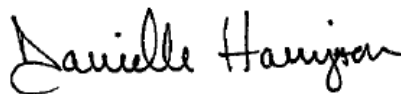
Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-162272-1

Client Project/Site: Xcel Energy GW CCR Monitoring -
Comanche

For:
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Attn: Molly Reeves



Authorized for release by:
5/31/2022 6:19:29 PM

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-1

Qualifiers

Metals

Qualifier	Qualifier Description
^+	Continuing Calibration Verification (CCV) is outside acceptance limits, high biased.
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.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-1

Job ID: 280-162272-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-162272-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 05/12/2022; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 2.4 C.

Receipt Exceptions

The 1 Liter Plastic Nitric Acid preserved sample container is only 1/2 filled for sample W-6 (280-162272-4)

The sample container received only has about 250-300 mL of sample volume for sample W-13 (280-162272-5). Only metals, pH, and IC have been analysed.

DISSOLVED METALS- Method 6010C/6020A

The accuracy and precision of the Barium MS/MSD performed on a laboratory generated sample could not be reliably evaluated, as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

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

TOTAL RECOVERABLE METALS- Method 6010C/6020A

Several samples required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Boron was detected in method blank MB 280-575614/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. Because the concentration in the method blank is not present at a level greater than the reporting limit, corrective action is deemed unnecessary.

Calcium was detected in method blank MB 280-575512/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. Because the concentration in the method blank is not present at a level greater than the reporting limit, corrective action is deemed unnecessary.

Barium and Molybdenum were detected in method blank MB 280-575990/1-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. Because the concentration in the method blank is not present at a level greater than the reporting limit, corrective action is deemed unnecessary.

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-1

Job ID: 280-162272-1 (Continued)

Laboratory: Eurofins Denver (Continued)

The accuracy and precision of the Calcium MS/MSD performed on a sample W-9 could not be reliably evaluated, as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The accuracy and precision of the Calcium MS/MSD performed on a laboratory generated sample could not be reliably evaluated, as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The low level continuing calibration verification (CCVL) associated with batch 280-576291 recovered above the upper control limit for Calcium. The samples associated with this CCV were non-detects or >10x the level of the CCVL for the affected analytes; therefore, the data have been reported.

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

DISSOLVED MERCURY

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

TOTAL MERCURY

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

GENERAL CHEMISTRY- VARIOUS

Several samples required dilution prior to analysis for various analyses. The reporting limits have been adjusted accordingly.

The accuracy and precision of the Sulfate MS/MSD performed on a laboratory generated sample could not be reliably evaluated, as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

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

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-1

Client Sample ID: W-9

Lab Sample ID: 280-162272-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.8	B	0.10	0.0015	mg/L	1		6010C	Total
									Recoverable
Lithium	1.2		0.020	0.0091	mg/L	1		6010C	Total
									Recoverable
Antimony	0.00092	J	0.0020	0.00040	mg/L	1		6020A	Total
									Recoverable
Arsenic	0.00075	J	0.0050	0.00033	mg/L	1		6020A	Total
									Recoverable
Barium	0.016		0.0010	0.00029	mg/L	1		6020A	Total
									Recoverable
Calcium	430	B	50	0.45	mg/L	50		6020A	Total
									Recoverable
Chromium	0.00087	J	0.0020	0.00050	mg/L	1		6020A	Total
									Recoverable
Cobalt	0.0041		0.0010	0.000092	mg/L	1		6020A	Total
									Recoverable
Lead	0.00031	J	0.0010	0.00018	mg/L	1		6020A	Total
									Recoverable
Molybdenum	0.0057		0.0020	0.00014	mg/L	1		6020A	Total
									Recoverable
Selenium	0.0040	J	0.0050	0.00037	mg/L	1		6020A	Total
									Recoverable
Thallium	0.00062	J	0.0010	0.000089	mg/L	1		6020A	Total
									Recoverable
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	19.2	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	340		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	20		2.5	0.83	mg/L	5		9056A	Total/NA
Sulfate	12000		500	100	mg/L	100		9056A	Total/NA
Alkalinity	620		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	620		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	18000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	2.0	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-1

Lab Sample ID: 280-162272-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	3.2	B	0.10	0.0015	mg/L	1		6010C	Total
									Recoverable
Lithium	2.4		0.020	0.0091	mg/L	1		6010C	Total
									Recoverable
Antimony	0.0012	J	0.0020	0.00040	mg/L	1		6020A	Total
									Recoverable
Arsenic	0.0016	J	0.0050	0.00033	mg/L	1		6020A	Total
									Recoverable
Barium	0.014		0.0010	0.00029	mg/L	1		6020A	Total
									Recoverable
Beryllium	0.00033	J	0.0010	0.000080	mg/L	1		6020A	Total
									Recoverable
Calcium	440	B	50	0.45	mg/L	50		6020A	Total
									Recoverable
Chromium	0.0010	J	0.0020	0.00050	mg/L	1		6020A	Total
									Recoverable
Cobalt	0.00039	J	0.0010	0.000092	mg/L	1		6020A	Total
									Recoverable
Lead	0.00030	J	0.0010	0.00018	mg/L	1		6020A	Total
									Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-1

Client Sample ID: W-1 (Continued)

Lab Sample ID: 280-162272-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Molybdenum	0.016		0.0020	0.00014	mg/L	1		6020A	Total
Selenium	0.70		0.0050	0.00037	mg/L	1		6020A	Recoverable
Thallium	0.00021	J	0.0010	0.000089	mg/L	1		6020A	Total
pH adj. to 25 deg C	7.4	HF	0.1	0.1	SU	1		9040B	Recoverable
Temperature	19.9	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	650		30	10	mg/L	10		9056A	Total/NA
Fluoride	44		5.0	1.7	mg/L	10		9056A	Total/NA
Sulfate	27000		5000	1000	mg/L	1000		9056A	Total/NA
Alkalinity	680		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	680		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	38000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	2.4	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-5

Lab Sample ID: 280-162272-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	3.2	B	0.10	0.0015	mg/L	1		6010C	Total
Lithium	2.4		0.020	0.0091	mg/L	1		6010C	Recoverable
Boron	2.8		0.10	0.0015	mg/L	1		6010C	Total
Lithium	2.3		0.020	0.0091	mg/L	1		6010C	Recoverable
Antimony	0.00053	J	0.0020	0.00040	mg/L	1		6020A	Dissolved
Arsenic	0.0012	J	0.0050	0.00033	mg/L	1		6020A	Total
Barium	0.020		0.0010	0.00029	mg/L	1		6020A	Recoverable
Calcium	460	B	50	0.45	mg/L	50		6020A	Total
Chromium	0.00064	J	0.0020	0.00050	mg/L	1		6020A	Recoverable
Cobalt	0.0072		0.0010	0.000092	mg/L	1		6020A	Total
Lead	0.00022	J	0.0010	0.00018	mg/L	1		6020A	Recoverable
Molybdenum	0.021		0.0020	0.00014	mg/L	1		6020A	Total
Selenium	0.0065		0.0050	0.00037	mg/L	1		6020A	Recoverable
Arsenic	0.00097	J	0.0050	0.00033	mg/L	1		6020A	Total
Barium	0.020		0.0010	0.00029	mg/L	1		6020A	Recoverable
Cobalt	0.0093		0.0010	0.000092	mg/L	1		6020A	Dissolved
Molybdenum	0.026		0.0020	0.00014	mg/L	1		6020A	Dissolved
Selenium	0.0099		0.0050	0.00037	mg/L	1		6020A	Dissolved
Thallium	0.000093	J	0.0010	0.000089	mg/L	1		6020A	Dissolved
pH adj. to 25 deg C	7.4	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	19.4	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	880		30	10	mg/L	10		9056A	Total/NA
Fluoride	80		5.0	1.7	mg/L	10		9056A	Total/NA
Sulfate	37000		2500	520	mg/L	500		9056A	Total/NA
Alkalinity	540		10	3.1	mg/L	1		SM 2320B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-1

Client Sample ID: W-5 (Continued)

Lab Sample ID: 280-162272-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Bicarbonate Alkalinity as CaCO3	540		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	57000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	6.0		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-6

Lab Sample ID: 280-162272-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	7.6	B	0.10	0.0015	mg/L	1		6010C	Total Recoverable
Lithium	0.35		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Antimony	0.0022		0.0020	0.00040	mg/L	1		6020A	Total Recoverable
Arsenic	0.0014	J	0.0050	0.00033	mg/L	1		6020A	Total Recoverable
Barium	0.015		0.0010	0.00029	mg/L	1		6020A	Total Recoverable
Beryllium	0.00015	J	0.0010	0.000080	mg/L	1		6020A	Total Recoverable
Calcium	420	B	50	0.45	mg/L	50		6020A	Total Recoverable
Chromium	0.0085		0.0020	0.00050	mg/L	1		6020A	Total Recoverable
Cobalt	0.0021		0.0010	0.000092	mg/L	1		6020A	Total Recoverable
Lead	0.00063	J	0.0010	0.00018	mg/L	1		6020A	Total Recoverable
Molybdenum	0.29		0.0020	0.00014	mg/L	1		6020A	Total Recoverable
Selenium	0.0066		0.0050	0.00037	mg/L	1		6020A	Total Recoverable
Thallium	0.00021	J	0.0010	0.000089	mg/L	1		6020A	Total Recoverable
pH adj. to 25 deg C	7.7	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	19.1	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	180		30	10	mg/L	10		9056A	Total/NA
Fluoride	7.0		5.0	1.7	mg/L	10		9056A	Total/NA
Sulfate	5900		250	52	mg/L	50		9056A	Total/NA
Alkalinity	700		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	700		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	10000		100	47	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	2.0	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-13

Lab Sample ID: 280-162272-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.0		0.10	0.0015	mg/L	1		6010C	Total Recoverable
Lithium	2.6		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Antimony	0.0036		0.0020	0.00040	mg/L	1		6020A	Total Recoverable
Arsenic	0.0034	J	0.0050	0.00033	mg/L	1		6020A	Total Recoverable
Barium	0.079	B	0.0010	0.00029	mg/L	1		6020A	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-1

Client Sample ID: W-13 (Continued)

Lab Sample ID: 280-162272-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Beryllium	0.00018	J	0.0010	0.000080	mg/L	1		6020A	Total
									Recoverable
Cadmium	0.0015		0.0010	0.00027	mg/L	1		6020A	Total
									Recoverable
Calcium	490		50	0.45	mg/L	50		6020A	Total
									Recoverable
Chromium	0.013		0.0020	0.00050	mg/L	1		6020A	Total
									Recoverable
Cobalt	0.010		0.0010	0.000092	mg/L	1		6020A	Total
									Recoverable
Lead	0.0041		0.0010	0.00018	mg/L	1		6020A	Total
									Recoverable
Molybdenum	0.035	B	0.0020	0.00014	mg/L	1		6020A	Total
									Recoverable
Selenium	0.055		0.0050	0.00037	mg/L	1		6020A	Total
									Recoverable
Thallium	0.00065	J	0.0010	0.000089	mg/L	1		6020A	Total
									Recoverable
pH adj. to 25 deg C	7.9	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	19.9	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	230		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	0.71		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	380		25	5.2	mg/L	5		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Method Summary

Client: HDR Inc

Job ID: 280-162272-1

Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL DEN
6020A	Metals (ICP/MS)	SW846	TAL DEN
7470A	Mercury (CVAA)	SW846	TAL DEN
9040B	pH	SW846	TAL DEN
9056A	Anions, Ion Chromatography	SW846	TAL DEN
SM 2320B	Alkalinity	SM	TAL DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL DEN
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL DEN
7470A	Preparation, Mercury	SW846	TAL DEN
FILTRATION	Sample Filtration	None	TAL DEN

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.

Laboratory References:

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

Sample Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-162272-1	W-9	Water	05/06/22 14:10	05/12/22 10:30
280-162272-2	W-1	Water	05/11/22 10:30	05/12/22 10:30
280-162272-3	W-5	Water	05/11/22 11:45	05/12/22 10:30
280-162272-4	W-6	Water	05/11/22 12:45	05/12/22 10:30
280-162272-5	W-13	Water	05/11/22 14:30	05/12/22 10:30

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-1

Method: 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: W-9
Date Collected: 05/06/22 14:10
Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.8	B	0.10	0.0015	mg/L		05/20/22 06:51	05/23/22 12:58	1
Lithium	1.2		0.020	0.0091	mg/L		05/20/22 06:51	05/23/22 12:58	1

Client Sample ID: W-1
Date Collected: 05/11/22 10:30
Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	3.2	B	0.10	0.0015	mg/L		05/20/22 06:51	05/23/22 13:03	1
Lithium	2.4		0.020	0.0091	mg/L		05/20/22 06:51	05/23/22 13:03	1

Client Sample ID: W-5
Date Collected: 05/11/22 11:45
Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	3.2	B	0.10	0.0015	mg/L		05/20/22 06:51	05/23/22 13:07	1
Lithium	2.4		0.020	0.0091	mg/L		05/20/22 06:51	05/23/22 13:07	1

Client Sample ID: W-6
Date Collected: 05/11/22 12:45
Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	7.6	B	0.10	0.0015	mg/L		05/20/22 06:51	05/23/22 13:11	1
Lithium	0.35		0.020	0.0091	mg/L		05/20/22 06:51	05/23/22 13:11	1

Client Sample ID: W-13
Date Collected: 05/11/22 14:30
Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.0		0.10	0.0015	mg/L		05/24/22 15:19	05/25/22 21:30	1
Lithium	2.6		0.020	0.0091	mg/L		05/24/22 15:19	05/25/22 21:30	1

Method: 6010C - Metals (ICP) - Dissolved

Client Sample ID: W-5
Date Collected: 05/11/22 11:45
Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	2.8		0.10	0.0015	mg/L		05/20/22 06:51	05/23/22 12:23	1
Lithium	2.3		0.020	0.0091	mg/L		05/20/22 06:51	05/23/22 12:23	1

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Client Sample ID: W-9
Date Collected: 05/06/22 14:10
Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00092	J	0.0020	0.00040	mg/L		05/19/22 16:06	05/20/22 15:50	1
Arsenic	0.00075	J	0.0050	0.00033	mg/L		05/19/22 16:06	05/20/22 15:50	1
Barium	0.016		0.0010	0.00029	mg/L		05/19/22 16:06	05/20/22 15:50	1
Beryllium	ND		0.0010	0.000080	mg/L		05/19/22 16:06	05/20/22 15:50	1
Cadmium	ND		0.0050	0.0013	mg/L		05/19/22 16:06	05/23/22 01:16	5

Eurofins Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-1

Method: 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

Client Sample ID: W-9
Date Collected: 05/06/22 14:10
Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	430	B	50	0.45	mg/L		05/19/22 16:06	05/23/22 11:54	50
Chromium	0.00087	J	0.0020	0.00050	mg/L		05/19/22 16:06	05/20/22 15:50	1
Cobalt	0.0041		0.0010	0.000092	mg/L		05/19/22 16:06	05/20/22 15:50	1
Lead	0.00031	J	0.0010	0.00018	mg/L		05/19/22 16:06	05/20/22 15:50	1
Molybdenum	0.0057		0.0020	0.00014	mg/L		05/19/22 16:06	05/20/22 15:50	1
Selenium	0.0040	J	0.0050	0.00037	mg/L		05/19/22 16:06	05/20/22 15:50	1
Thallium	0.00062	J	0.0010	0.000089	mg/L		05/19/22 16:06	05/20/22 15:50	1

Client Sample ID: W-1
Date Collected: 05/11/22 10:30
Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0012	J	0.0020	0.00040	mg/L		05/19/22 16:06	05/20/22 16:09	1
Arsenic	0.0016	J	0.0050	0.00033	mg/L		05/19/22 16:06	05/20/22 16:09	1
Barium	0.014		0.0010	0.00029	mg/L		05/19/22 16:06	05/20/22 16:09	1
Beryllium	0.00033	J	0.0010	0.000080	mg/L		05/19/22 16:06	05/20/22 16:09	1
Cadmium	ND		0.0050	0.0013	mg/L		05/19/22 16:06	05/23/22 01:27	5
Calcium	440	B	50	0.45	mg/L		05/19/22 16:06	05/23/22 12:15	50
Chromium	0.0010	J	0.0020	0.00050	mg/L		05/19/22 16:06	05/20/22 16:09	1
Cobalt	0.00039	J	0.0010	0.000092	mg/L		05/19/22 16:06	05/20/22 16:09	1
Lead	0.00030	J	0.0010	0.00018	mg/L		05/19/22 16:06	05/20/22 16:09	1
Molybdenum	0.016		0.0020	0.00014	mg/L		05/19/22 16:06	05/20/22 16:09	1
Selenium	0.70		0.0050	0.00037	mg/L		05/19/22 16:06	05/20/22 16:09	1
Thallium	0.00021	J	0.0010	0.000089	mg/L		05/19/22 16:06	05/20/22 16:09	1

Client Sample ID: W-5
Date Collected: 05/11/22 11:45
Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00053	J	0.0020	0.00040	mg/L		05/19/22 16:06	05/20/22 16:13	1
Arsenic	0.0012	J	0.0050	0.00033	mg/L		05/19/22 16:06	05/20/22 16:13	1
Barium	0.020		0.0010	0.00029	mg/L		05/19/22 16:06	05/20/22 16:13	1
Beryllium	ND		0.0010	0.000080	mg/L		05/19/22 16:06	05/20/22 16:13	1
Cadmium	ND		0.0050	0.0013	mg/L		05/19/22 16:06	05/23/22 01:31	5
Calcium	460	B	50	0.45	mg/L		05/19/22 16:06	05/23/22 12:20	50
Chromium	0.00064	J	0.0020	0.00050	mg/L		05/19/22 16:06	05/20/22 16:13	1
Cobalt	0.0072		0.0010	0.000092	mg/L		05/19/22 16:06	05/20/22 16:13	1
Lead	0.00022	J	0.0010	0.00018	mg/L		05/19/22 16:06	05/20/22 16:13	1
Molybdenum	0.021		0.0020	0.00014	mg/L		05/19/22 16:06	05/20/22 16:13	1
Selenium	0.0065		0.0050	0.00037	mg/L		05/19/22 16:06	05/20/22 16:13	1
Thallium	ND		0.0010	0.000089	mg/L		05/19/22 16:06	05/20/22 16:13	1

Client Sample ID: W-6
Date Collected: 05/11/22 12:45
Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0022		0.0020	0.00040	mg/L		05/19/22 16:06	05/20/22 16:17	1
Arsenic	0.0014	J	0.0050	0.00033	mg/L		05/19/22 16:06	05/20/22 16:17	1
Barium	0.015		0.0010	0.00029	mg/L		05/19/22 16:06	05/20/22 16:17	1
Beryllium	0.00015	J	0.0010	0.000080	mg/L		05/19/22 16:06	05/20/22 16:17	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-1

Method: 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

Client Sample ID: W-6
Date Collected: 05/11/22 12:45
Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.0050	0.0013	mg/L		05/19/22 16:06	05/23/22 01:34	5
Calcium	420	B	50	0.45	mg/L		05/19/22 16:06	05/23/22 12:24	50
Chromium	0.0085		0.0020	0.00050	mg/L		05/19/22 16:06	05/20/22 16:17	1
Cobalt	0.0021		0.0010	0.000092	mg/L		05/19/22 16:06	05/20/22 16:17	1
Lead	0.00063	J	0.0010	0.00018	mg/L		05/19/22 16:06	05/20/22 16:17	1
Molybdenum	0.29		0.0020	0.00014	mg/L		05/19/22 16:06	05/20/22 16:17	1
Selenium	0.0066		0.0050	0.00037	mg/L		05/19/22 16:06	05/20/22 16:17	1
Thallium	0.00021	J	0.0010	0.000089	mg/L		05/19/22 16:06	05/20/22 16:17	1

Client Sample ID: W-13
Date Collected: 05/11/22 14:30
Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0036		0.0020	0.00040	mg/L		05/25/22 08:48	05/26/22 01:26	1
Arsenic	0.0034	J	0.0050	0.00033	mg/L		05/25/22 08:48	05/26/22 01:26	1
Barium	0.079	B	0.0010	0.00029	mg/L		05/25/22 08:48	05/26/22 01:26	1
Beryllium	0.00018	J	0.0010	0.000080	mg/L		05/25/22 08:48	05/26/22 01:26	1
Cadmium	0.0015		0.0010	0.00027	mg/L		05/25/22 08:48	05/26/22 01:26	1
Calcium	490		50	0.45	mg/L		05/25/22 08:48	05/27/22 02:14	50
Chromium	0.013		0.0020	0.00050	mg/L		05/25/22 08:48	05/26/22 01:26	1
Cobalt	0.010		0.0010	0.000092	mg/L		05/25/22 08:48	05/26/22 01:26	1
Lead	0.0041		0.0010	0.00018	mg/L		05/25/22 08:48	05/26/22 01:26	1
Molybdenum	0.035	B	0.0020	0.00014	mg/L		05/25/22 08:48	05/26/22 01:26	1
Selenium	0.055		0.0050	0.00037	mg/L		05/25/22 08:48	05/26/22 01:26	1
Thallium	0.00065	J	0.0010	0.000089	mg/L		05/25/22 08:48	05/26/22 01:26	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Client Sample ID: W-5
Date Collected: 05/11/22 11:45
Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/26/22 08:55	05/27/22 03:22	1
Arsenic	0.00097	J	0.0050	0.00033	mg/L		05/26/22 08:55	05/27/22 03:22	1
Barium	0.020		0.0010	0.00029	mg/L		05/26/22 08:55	05/27/22 03:22	1
Beryllium	ND		0.0010	0.000080	mg/L		05/26/22 08:55	05/27/22 11:56	1
Cadmium	ND		0.0010	0.00027	mg/L		05/26/22 08:55	05/27/22 03:22	1
Chromium	ND		0.0020	0.00050	mg/L		05/26/22 08:55	05/27/22 03:22	1
Cobalt	0.0093		0.0010	0.000092	mg/L		05/26/22 08:55	05/27/22 03:22	1
Lead	ND		0.0010	0.00018	mg/L		05/26/22 08:55	05/27/22 03:22	1
Molybdenum	0.026		0.0020	0.00014	mg/L		05/26/22 08:55	05/27/22 03:22	1
Selenium	0.0099		0.0050	0.00037	mg/L		05/26/22 08:55	05/27/22 03:22	1
Thallium	0.000093	J	0.0010	0.000089	mg/L		05/26/22 08:55	05/27/22 03:22	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: W-9
Date Collected: 05/06/22 14:10
Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/13/22 16:19	05/14/22 01:08	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-1

Method: 7470A - Mercury (CVAA)

Client Sample ID: W-1
Date Collected: 05/11/22 10:30
Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/13/22 16:19	05/14/22 01:11	1

Client Sample ID: W-5
Date Collected: 05/11/22 11:45
Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/13/22 16:19	05/14/22 01:13	1

Client Sample ID: W-6
Date Collected: 05/11/22 12:45
Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/13/22 16:19	05/14/22 01:16	1

Client Sample ID: W-13
Date Collected: 05/11/22 14:30
Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/24/22 17:54	05/25/22 18:18	1

Method: 7470A - Mercury (CVAA) - Dissolved

Client Sample ID: W-5
Date Collected: 05/11/22 11:45
Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.061	ug/L		05/18/22 20:05	05/18/22 23:49	1

General Chemistry

Client Sample ID: W-9
Date Collected: 05/06/22 14:10
Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU			05/16/22 14:05	1
Temperature	19.2	HF	1.0	1.0	Degrees C			05/16/22 14:05	1
Chloride	340		15	5.1	mg/L			05/21/22 18:49	5
Fluoride	20		2.5	0.83	mg/L			05/21/22 18:49	5
Sulfate	12000		500	100	mg/L			05/25/22 03:48	100
Alkalinity	620		10	3.1	mg/L			05/16/22 17:11	1
Bicarbonate Alkalinity as CaCO3	620		10	3.1	mg/L			05/16/22 17:11	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/16/22 17:11	1
Total Dissolved Solids (TDS)	18000		1000	470	mg/L			05/13/22 10:20	1
Total Suspended Solids	2.0	J	4.0	1.1	mg/L			05/13/22 14:52	1

Client Sample ID: W-1
Date Collected: 05/11/22 10:30
Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.4	HF	0.1	0.1	SU			05/19/22 16:39	1
Temperature	19.9	HF	1.0	1.0	Degrees C			05/19/22 16:39	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-1

General Chemistry (Continued)

Client Sample ID: W-1

Date Collected: 05/11/22 10:30

Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	650		30	10	mg/L			05/21/22 22:15	10
Fluoride	44		5.0	1.7	mg/L			05/21/22 22:15	10
Sulfate	27000		5000	1000	mg/L			05/23/22 16:55	1000
Alkalinity	680		10	3.1	mg/L			05/17/22 17:39	1
Bicarbonate Alkalinity as CaCO3	680		10	3.1	mg/L			05/17/22 17:39	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/17/22 17:39	1
Total Dissolved Solids (TDS)	38000		1000	470	mg/L			05/13/22 10:20	1
Total Suspended Solids	2.4	J	4.0	1.1	mg/L			05/13/22 14:52	1

Client Sample ID: W-5

Date Collected: 05/11/22 11:45

Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.4	HF	0.1	0.1	SU			05/19/22 16:43	1
Temperature	19.4	HF	1.0	1.0	Degrees C			05/19/22 16:43	1
Chloride	880		30	10	mg/L			05/21/22 23:02	10
Fluoride	80		5.0	1.7	mg/L			05/21/22 23:02	10
Sulfate	37000		2500	520	mg/L			05/25/22 13:23	500
Alkalinity	540		10	3.1	mg/L			05/17/22 18:01	1
Bicarbonate Alkalinity as CaCO3	540		10	3.1	mg/L			05/17/22 18:01	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/17/22 18:01	1
Total Dissolved Solids (TDS)	57000		1000	470	mg/L			05/13/22 10:20	1
Total Suspended Solids	6.0		4.0	1.1	mg/L			05/13/22 14:52	1

Client Sample ID: W-6

Date Collected: 05/11/22 12:45

Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-4

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.7	HF	0.1	0.1	SU			05/19/22 16:47	1
Temperature	19.1	HF	1.0	1.0	Degrees C			05/19/22 16:47	1
Chloride	180		30	10	mg/L			05/22/22 00:22	10
Fluoride	7.0		5.0	1.7	mg/L			05/22/22 00:22	10
Sulfate	5900		250	52	mg/L			05/23/22 17:10	50
Alkalinity	700		10	3.1	mg/L			05/17/22 18:12	1
Bicarbonate Alkalinity as CaCO3	700		10	3.1	mg/L			05/17/22 18:12	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/17/22 18:12	1
Total Dissolved Solids (TDS)	10000		100	47	mg/L			05/13/22 10:20	1
Total Suspended Solids	2.0	J	4.0	1.1	mg/L			05/13/22 14:52	1

Client Sample ID: W-13

Date Collected: 05/11/22 14:30

Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-5

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.9	HF	0.1	0.1	SU			05/25/22 17:47	1
Temperature	19.9	HF	1.0	1.0	Degrees C			05/25/22 17:47	1
Chloride	230		15	5.1	mg/L			05/22/22 01:09	5
Fluoride	0.71		0.50	0.17	mg/L			05/22/22 00:53	1
Sulfate	380		25	5.2	mg/L			05/22/22 01:09	5

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-575614/1-A

Matrix: Water

Analysis Batch: 575958

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 575614

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.00266	J	0.10	0.0015	mg/L		05/20/22 06:51	05/23/22 11:32	1
Lithium	ND		0.020	0.0091	mg/L		05/20/22 06:51	05/23/22 11:32	1

Lab Sample ID: LCS 280-575614/2-A

Matrix: Water

Analysis Batch: 575958

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 575614

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	1.00	1.02		mg/L		102	86 - 110
Lithium	1.00	0.995		mg/L		100	90 - 112

Lab Sample ID: MB 280-575991/1-A

Matrix: Water

Analysis Batch: 576244

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 575991

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.0015	mg/L		05/24/22 15:19	05/25/22 21:22	1
Lithium	ND		0.020	0.0091	mg/L		05/24/22 15:19	05/25/22 21:22	1

Lab Sample ID: LCS 280-575991/2-A

Matrix: Water

Analysis Batch: 576244

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 575991

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	1.00	1.04		mg/L		104	86 - 110
Lithium	1.00	0.992		mg/L		99	90 - 112

Lab Sample ID: MB 280-575456/1-C

Matrix: Water

Analysis Batch: 575870

Client Sample ID: Method Blank

Prep Type: Dissolved

Prep Batch: 575615

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.0015	mg/L		05/20/22 06:51	05/23/22 11:54	1
Lithium	ND		0.020	0.0091	mg/L		05/20/22 06:51	05/23/22 11:54	1

Lab Sample ID: LCS 280-575456/2-C

Matrix: Water

Analysis Batch: 575870

Client Sample ID: Lab Control Sample

Prep Type: Dissolved

Prep Batch: 575615

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	1.00	1.02		mg/L		102	86 - 110
Lithium	1.00	0.983		mg/L		98	90 - 112

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-1

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 280-575512/1-A
Matrix: Water
Analysis Batch: 575786

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 575512

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/19/22 16:06	05/20/22 15:42	1
Arsenic	ND		0.0050	0.00033	mg/L		05/19/22 16:06	05/20/22 15:42	1
Barium	ND		0.0010	0.00029	mg/L		05/19/22 16:06	05/20/22 15:42	1
Beryllium	ND		0.0010	0.000080	mg/L		05/19/22 16:06	05/20/22 15:42	1
Chromium	ND		0.0020	0.00050	mg/L		05/19/22 16:06	05/20/22 15:42	1
Cobalt	ND		0.0010	0.000092	mg/L		05/19/22 16:06	05/20/22 15:42	1
Lead	ND		0.0010	0.00018	mg/L		05/19/22 16:06	05/20/22 15:42	1
Molybdenum	ND		0.0020	0.00014	mg/L		05/19/22 16:06	05/20/22 15:42	1
Selenium	ND		0.0050	0.00037	mg/L		05/19/22 16:06	05/20/22 15:42	1
Thallium	ND		0.0010	0.000089	mg/L		05/19/22 16:06	05/20/22 15:42	1

Lab Sample ID: MB 280-575512/1-A
Matrix: Water
Analysis Batch: 575888

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 575512

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.0010	0.00027	mg/L		05/19/22 16:06	05/23/22 11:43	1
Calcium	0.0282	J	1.0	0.0090	mg/L		05/19/22 16:06	05/23/22 11:43	1

Lab Sample ID: LCS 280-575512/2-A
Matrix: Water
Analysis Batch: 575786

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 575512

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0435		mg/L		109	85 - 115
Arsenic	0.0400	0.0398		mg/L		100	85 - 117
Barium	0.0400	0.0426		mg/L		107	85 - 118
Beryllium	0.0400	0.0389		mg/L		97	80 - 125
Chromium	0.0400	0.0421		mg/L		105	84 - 121
Cobalt	0.0400	0.0413		mg/L		103	85 - 120
Lead	0.0400	0.0401		mg/L		100	85 - 118
Molybdenum	0.0400	0.0410		mg/L		102	85 - 119
Selenium	0.0400	0.0406		mg/L		101	77 - 122
Thallium	0.0400	0.0397		mg/L		99	85 - 118

Lab Sample ID: LCS 280-575512/2-A
Matrix: Water
Analysis Batch: 575888

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 575512

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	0.0400	0.0391		mg/L		98	85 - 115
Calcium	0.800	0.862	J	mg/L		108	80 - 120

Lab Sample ID: 280-162272-1 MS
Matrix: Water
Analysis Batch: 575786

Client Sample ID: W-9
Prep Type: Total Recoverable
Prep Batch: 575512

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.00092	J	0.0400	0.0454		mg/L		111	85 - 115

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-1

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

Lab Sample ID: 280-162272-1 MS

Matrix: Water

Analysis Batch: 575786

Client Sample ID: W-9

Prep Type: Total Recoverable

Prep Batch: 575512

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	0.00075	J	0.0400	0.0429		mg/L		105	85 - 117
Barium	0.016		0.0400	0.0589		mg/L		106	85 - 118
Beryllium	ND		0.0400	0.0454		mg/L		114	80 - 125
Chromium	0.00087	J	0.0400	0.0420		mg/L		103	84 - 121
Cobalt	0.0041		0.0400	0.0436		mg/L		99	85 - 120
Lead	0.00031	J	0.0400	0.0384		mg/L		95	85 - 118
Molybdenum	0.0057		0.0400	0.0464		mg/L		102	85 - 119
Selenium	0.0040	J	0.0400	0.0459		mg/L		105	77 - 122
Thallium	0.00062	J	0.0400	0.0374		mg/L		92	85 - 118

Lab Sample ID: 280-162272-1 MS

Matrix: Water

Analysis Batch: 575815

Client Sample ID: W-9

Prep Type: Total Recoverable

Prep Batch: 575512

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	ND		0.0400	0.0423		mg/L		106	85 - 115

Lab Sample ID: 280-162272-1 MS

Matrix: Water

Analysis Batch: 575888

Client Sample ID: W-9

Prep Type: Total Recoverable

Prep Batch: 575512

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	430	B	0.800	435	4	mg/L		1021	80 - 120

Lab Sample ID: 280-162272-1 MSD

Matrix: Water

Analysis Batch: 575786

Client Sample ID: W-9

Prep Type: Total Recoverable

Prep Batch: 575512

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	0.00092	J	0.0400	0.0461		mg/L		113	85 - 115	1	20
Arsenic	0.00075	J	0.0400	0.0428		mg/L		105	85 - 117	0	20
Barium	0.016		0.0400	0.0598		mg/L		108	85 - 118	2	20
Beryllium	ND		0.0400	0.0440		mg/L		110	80 - 125	3	20
Chromium	0.00087	J	0.0400	0.0417		mg/L		102	84 - 121	1	20
Cobalt	0.0041		0.0400	0.0430		mg/L		97	85 - 120	2	20
Lead	0.00031	J	0.0400	0.0382		mg/L		95	85 - 118	0	20
Molybdenum	0.0057		0.0400	0.0491		mg/L		109	85 - 119	6	20
Selenium	0.0040	J	0.0400	0.0474		mg/L		108	77 - 122	3	20
Thallium	0.00062	J	0.0400	0.0377		mg/L		93	85 - 118	1	20

Lab Sample ID: 280-162272-1 MSD

Matrix: Water

Analysis Batch: 575815

Client Sample ID: W-9

Prep Type: Total Recoverable

Prep Batch: 575512

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	ND		0.0400	0.0397		mg/L		99	85 - 115	6	20

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-1

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

Lab Sample ID: 280-162272-1 MSD

Matrix: Water

Analysis Batch: 575888

Client Sample ID: W-9

Prep Type: Total Recoverable

Prep Batch: 575512

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	430	B	0.800	441	4	mg/L		1775	80 - 120	1	20

Lab Sample ID: MB 280-575990/1-A

Matrix: Water

Analysis Batch: 576291

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 575990

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/25/22 08:48	05/26/22 01:19	1
Arsenic	ND		0.0050	0.00033	mg/L		05/25/22 08:48	05/26/22 01:19	1
Barium	0.000911	J	0.0010	0.00029	mg/L		05/25/22 08:48	05/26/22 01:19	1
Beryllium	ND		0.0010	0.000080	mg/L		05/25/22 08:48	05/26/22 01:19	1
Cadmium	ND		0.0010	0.00027	mg/L		05/25/22 08:48	05/26/22 01:19	1
Calcium	ND	^+	1.0	0.0090	mg/L		05/25/22 08:48	05/26/22 01:19	1
Chromium	ND		0.0020	0.00050	mg/L		05/25/22 08:48	05/26/22 01:19	1
Cobalt	ND		0.0010	0.000092	mg/L		05/25/22 08:48	05/26/22 01:19	1
Lead	ND		0.0010	0.00018	mg/L		05/25/22 08:48	05/26/22 01:19	1
Molybdenum	0.000351	J	0.0020	0.00014	mg/L		05/25/22 08:48	05/26/22 01:19	1
Selenium	ND		0.0050	0.00037	mg/L		05/25/22 08:48	05/26/22 01:19	1
Thallium	ND		0.0010	0.000089	mg/L		05/25/22 08:48	05/26/22 01:19	1

Lab Sample ID: LCS 280-575990/2-A

Matrix: Water

Analysis Batch: 576291

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 575990

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0427		mg/L		107	85 - 115
Arsenic	0.0400	0.0407		mg/L		102	85 - 117
Barium	0.0400	0.0414		mg/L		104	85 - 118
Beryllium	0.0400	0.0421		mg/L		105	80 - 125
Cadmium	0.0400	0.0411		mg/L		103	85 - 115
Calcium	0.800	0.848	J ^+	mg/L		106	80 - 120
Chromium	0.0400	0.0424		mg/L		106	84 - 121
Cobalt	0.0400	0.0420		mg/L		105	85 - 120
Lead	0.0400	0.0411		mg/L		103	85 - 118
Molybdenum	0.0400	0.0430		mg/L		108	85 - 119
Selenium	0.0400	0.0422		mg/L		105	77 - 122
Thallium	0.0400	0.0406		mg/L		102	85 - 118

Lab Sample ID: MB 280-576059/1-B

Matrix: Water

Analysis Batch: 576396

Client Sample ID: Method Blank

Prep Type: Dissolved

Prep Batch: 576121

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		05/26/22 08:55	05/27/22 02:29	1
Arsenic	ND		0.0050	0.00033	mg/L		05/26/22 08:55	05/27/22 02:29	1
Barium	ND		0.0010	0.00029	mg/L		05/26/22 08:55	05/27/22 02:29	1
Beryllium	ND		0.0010	0.000080	mg/L		05/26/22 08:55	05/27/22 02:29	1
Cadmium	ND		0.0010	0.00027	mg/L		05/26/22 08:55	05/27/22 02:29	1
Chromium	ND		0.0020	0.00050	mg/L		05/26/22 08:55	05/27/22 02:29	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-1

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

Lab Sample ID: MB 280-576059/1-B
Matrix: Water
Analysis Batch: 576396

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 576121

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	ND		0.0010	0.000092	mg/L		05/26/22 08:55	05/27/22 02:29	1
Lead	ND		0.0010	0.00018	mg/L		05/26/22 08:55	05/27/22 02:29	1
Molybdenum	ND		0.0020	0.00014	mg/L		05/26/22 08:55	05/27/22 02:29	1
Selenium	ND		0.0050	0.00037	mg/L		05/26/22 08:55	05/27/22 02:29	1
Thallium	ND		0.0010	0.000089	mg/L		05/26/22 08:55	05/27/22 02:29	1

Lab Sample ID: LCS 280-576059/2-B
Matrix: Water
Analysis Batch: 576396

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 576121

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0429		mg/L		107	85 - 115
Arsenic	0.0400	0.0394		mg/L		98	85 - 117
Barium	0.0400	0.0419		mg/L		105	85 - 118
Beryllium	0.0400	0.0382		mg/L		95	80 - 125
Cadmium	0.0400	0.0384		mg/L		96	85 - 115
Chromium	0.0400	0.0418		mg/L		105	84 - 121
Cobalt	0.0400	0.0402		mg/L		100	85 - 120
Lead	0.0400	0.0415		mg/L		104	85 - 118
Molybdenum	0.0400	0.0415		mg/L		104	85 - 119
Selenium	0.0400	0.0407		mg/L		102	77 - 122
Thallium	0.0400	0.0410		mg/L		102	85 - 118

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-574920/1-A
Matrix: Water
Analysis Batch: 574998

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 574920

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/13/22 16:19	05/13/22 23:57	1

Lab Sample ID: LCS 280-574920/2-A
Matrix: Water
Analysis Batch: 574998

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 574920

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00477		mg/L		95	84 - 120

Lab Sample ID: LCSD 280-574920/3-A
Matrix: Water
Analysis Batch: 574998

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 574920

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	0.00500	0.00492		mg/L		98	84 - 120	3	15

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-1

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

Lab Sample ID: MB 280-576014/1-A
Matrix: Water
Analysis Batch: 576222

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 576014

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		05/24/22 17:54	05/25/22 17:42	1

Lab Sample ID: LCS 280-576014/2-A
Matrix: Water
Analysis Batch: 576222

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 576014

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00502		mg/L		100	84 - 120

Lab Sample ID: MB 280-575155/1-D
Matrix: Water
Analysis Batch: 575473

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 575447

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.061	ug/L		05/18/22 20:05	05/18/22 23:26	1

Lab Sample ID: LCS 280-575155/2-D
Matrix: Water
Analysis Batch: 575473

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 575447

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	5.00	4.96		ug/L		99	84 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-575168/4
Matrix: Water
Analysis Batch: 575168

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH adj. to 25 deg C	7.00	7.0		SU		100	99 - 101

Lab Sample ID: LCS 280-575633/4
Matrix: Water
Analysis Batch: 575633

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH adj. to 25 deg C	7.00	7.0		SU		101	99 - 101

Lab Sample ID: LCS 280-576246/27
Matrix: Water
Analysis Batch: 576246

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH adj. to 25 deg C	7.00	7.0		SU		100	99 - 101

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-575768/6

Matrix: Water

Analysis Batch: 575768

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			05/21/22 12:18	1
Fluoride	ND		0.50	0.17	mg/L			05/21/22 12:18	1
Sulfate	ND		5.0	1.0	mg/L			05/21/22 12:18	1

Lab Sample ID: LCS 280-575768/4

Matrix: Water

Analysis Batch: 575768

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	98.7		mg/L		99	90 - 110
Fluoride	5.00	4.86		mg/L		97	90 - 110
Sulfate	100	99.3		mg/L		99	90 - 110

Lab Sample ID: LCSD 280-575768/5

Matrix: Water

Analysis Batch: 575768

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	98.8		mg/L		99	90 - 110	0	10
Fluoride	5.00	4.90		mg/L		98	90 - 110	1	10
Sulfate	100	99.7		mg/L		100	90 - 110	0	10

Lab Sample ID: MRL 280-575768/3

Matrix: Water

Analysis Batch: 575768

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.00	3.90		mg/L		78	50 - 150
Fluoride	0.500	0.418	J	mg/L		84	50 - 150
Sulfate	5.00	4.33	J	mg/L		87	50 - 150

Lab Sample ID: MB 280-575823/6

Matrix: Water

Analysis Batch: 575823

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		5.0	1.0	mg/L			05/23/22 10:06	1

Lab Sample ID: LCS 280-575823/4

Matrix: Water

Analysis Batch: 575823

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	100	101		mg/L		101	90 - 110

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-1

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

Lab Sample ID: LCSD 280-575823/5

Matrix: Water

Analysis Batch: 575823

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	100	101		mg/L		101	90 - 110	0	10

Lab Sample ID: MRL 280-575823/3

Matrix: Water

Analysis Batch: 575823

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
Sulfate	5.00	4.92	J	mg/L		98	50 - 150		

Lab Sample ID: MB 280-575827/96

Matrix: Water

Analysis Batch: 575827

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			05/25/22 02:13	1
Fluoride	ND		0.50	0.17	mg/L			05/25/22 02:13	1
Sulfate	ND		5.0	1.0	mg/L			05/25/22 02:13	1

Lab Sample ID: LCS 280-575827/94

Matrix: Water

Analysis Batch: 575827

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	100	101		mg/L		101	90 - 110		
Fluoride	5.00	4.49		mg/L		90	90 - 110		
Sulfate	100	102		mg/L		102	90 - 110		

Lab Sample ID: LCSD 280-575827/95

Matrix: Water

Analysis Batch: 575827

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	101		mg/L		101	90 - 110	0	10
Fluoride	5.00	4.74		mg/L		95	90 - 110	5	10
Sulfate	100	102		mg/L		102	90 - 110	0	10

Lab Sample ID: MRL 280-575827/3

Matrix: Water

Analysis Batch: 575827

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	5.00	4.59		mg/L		92	50 - 150		
Fluoride	0.500	0.405	J	mg/L		81	50 - 150		
Sulfate	5.00	4.36	J	mg/L		87	50 - 150		

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-1

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

Lab Sample ID: MB 280-576105/6

Matrix: Water

Analysis Batch: 576105

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		5.0	1.0	mg/L			05/25/22 10:33	1

Lab Sample ID: LCS 280-576105/4

Matrix: Water

Analysis Batch: 576105

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	100	101		mg/L		101	90 - 110

Lab Sample ID: LCSD 280-576105/5

Matrix: Water

Analysis Batch: 576105

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	100	101		mg/L		101	90 - 110	0	10

Lab Sample ID: MRL 280-576105/3

Matrix: Water

Analysis Batch: 576105

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	5.00	4.23	J	mg/L		85	50 - 150

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-575169/32

Matrix: Water

Analysis Batch: 575169

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	ND		10	3.1	mg/L			05/16/22 16:15	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/16/22 16:15	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/16/22 16:15	1

Lab Sample ID: LCS 280-575169/31

Matrix: Water

Analysis Batch: 575169

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	200	202		mg/L		101	89 - 109

Lab Sample ID: MB 280-575335/5

Matrix: Water

Analysis Batch: 575335

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	ND		10	3.1	mg/L			05/17/22 16:04	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/17/22 16:04	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			05/17/22 16:04	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-1

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: LCS 280-575335/4

Matrix: Water

Analysis Batch: 575335

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	200	197		mg/L		98	89 - 109

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

Lab Sample ID: MB 280-574857/1

Matrix: Water

Analysis Batch: 574857

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 (TDS)	ND		10	4.7	mg/L			05/13/22 10:19	1

Lab Sample ID: LCS 280-574857/2

Matrix: Water

Analysis Batch: 574857

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 (TDS)	505	490		mg/L		97	88 - 114

Lab Sample ID: 280-162272-4 DU

Matrix: Water

Analysis Batch: 574857

Client Sample ID: W-6

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids (TDS)	10000		9890		mg/L		0.7	10

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 280-574907/2

Matrix: Water

Analysis Batch: 574907

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			05/13/22 14:51	1

Lab Sample ID: LCS 280-574907/1

Matrix: Water

Analysis Batch: 574907

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	82.4		mg/L		82	79 - 114

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-1

Metals

Prep Batch: 574920

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162272-1	W-9	Total/NA	Water	7470A	
280-162272-2	W-1	Total/NA	Water	7470A	
280-162272-3	W-5	Total/NA	Water	7470A	
280-162272-4	W-6	Total/NA	Water	7470A	
MB 280-574920/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-574920/2-A	Lab Control Sample	Total/NA	Water	7470A	
LCSD 280-574920/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	

Analysis Batch: 574998

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162272-1	W-9	Total/NA	Water	7470A	574920
280-162272-2	W-1	Total/NA	Water	7470A	574920
280-162272-3	W-5	Total/NA	Water	7470A	574920
280-162272-4	W-6	Total/NA	Water	7470A	574920
MB 280-574920/1-A	Method Blank	Total/NA	Water	7470A	574920
LCS 280-574920/2-A	Lab Control Sample	Total/NA	Water	7470A	574920
LCSD 280-574920/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	574920

Filtration Batch: 575155

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-575155/1-D	Method Blank	Dissolved	Water	FILTRATION	
LCS 280-575155/2-D	Lab Control Sample	Dissolved	Water	FILTRATION	

Filtration Batch: 575361

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162272-3	W-5	Dissolved	Water	FILTRATION	

Prep Batch: 575447

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162272-3	W-5	Dissolved	Water	7470A	575361
MB 280-575155/1-D	Method Blank	Dissolved	Water	7470A	575155
LCS 280-575155/2-D	Lab Control Sample	Dissolved	Water	7470A	575155

Filtration Batch: 575456

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162272-3	W-5	Dissolved	Water	FILTRATION	
MB 280-575456/1-C	Method Blank	Dissolved	Water	FILTRATION	
LCS 280-575456/2-C	Lab Control Sample	Dissolved	Water	FILTRATION	

Analysis Batch: 575473

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162272-3	W-5	Dissolved	Water	7470A	575447
MB 280-575155/1-D	Method Blank	Dissolved	Water	7470A	575447
LCS 280-575155/2-D	Lab Control Sample	Dissolved	Water	7470A	575447

Prep Batch: 575512

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162272-1	W-9	Total Recoverable	Water	3005A	
280-162272-2	W-1	Total Recoverable	Water	3005A	
280-162272-3	W-5	Total Recoverable	Water	3005A	
280-162272-4	W-6	Total Recoverable	Water	3005A	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-1

Metals (Continued)

Prep Batch: 575512 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-575512/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-575512/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-162272-1 MS	W-9	Total Recoverable	Water	3005A	
280-162272-1 MSD	W-9	Total Recoverable	Water	3005A	

Prep Batch: 575614

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162272-1	W-9	Total Recoverable	Water	3005A	
280-162272-2	W-1	Total Recoverable	Water	3005A	
280-162272-3	W-5	Total Recoverable	Water	3005A	
280-162272-4	W-6	Total Recoverable	Water	3005A	
MB 280-575614/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-575614/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 575615

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162272-3	W-5	Dissolved	Water	3005A	575456
MB 280-575456/1-C	Method Blank	Dissolved	Water	3005A	575456
LCS 280-575456/2-C	Lab Control Sample	Dissolved	Water	3005A	575456

Analysis Batch: 575786

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162272-1	W-9	Total Recoverable	Water	6020A	575512
280-162272-2	W-1	Total Recoverable	Water	6020A	575512
280-162272-3	W-5	Total Recoverable	Water	6020A	575512
280-162272-4	W-6	Total Recoverable	Water	6020A	575512
MB 280-575512/1-A	Method Blank	Total Recoverable	Water	6020A	575512
LCS 280-575512/2-A	Lab Control Sample	Total Recoverable	Water	6020A	575512
280-162272-1 MS	W-9	Total Recoverable	Water	6020A	575512
280-162272-1 MSD	W-9	Total Recoverable	Water	6020A	575512

Analysis Batch: 575815

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162272-1	W-9	Total Recoverable	Water	6020A	575512
280-162272-2	W-1	Total Recoverable	Water	6020A	575512
280-162272-3	W-5	Total Recoverable	Water	6020A	575512
280-162272-4	W-6	Total Recoverable	Water	6020A	575512
280-162272-1 MS	W-9	Total Recoverable	Water	6020A	575512
280-162272-1 MSD	W-9	Total Recoverable	Water	6020A	575512

Analysis Batch: 575870

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162272-3	W-5	Dissolved	Water	6010C	575615
MB 280-575456/1-C	Method Blank	Dissolved	Water	6010C	575615
LCS 280-575456/2-C	Lab Control Sample	Dissolved	Water	6010C	575615

Analysis Batch: 575888

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162272-1	W-9	Total Recoverable	Water	6020A	575512
280-162272-2	W-1	Total Recoverable	Water	6020A	575512
280-162272-3	W-5	Total Recoverable	Water	6020A	575512

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-1

Metals (Continued)

Analysis Batch: 575888 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162272-4	W-6	Total Recoverable	Water	6020A	575512
MB 280-575512/1-A	Method Blank	Total Recoverable	Water	6020A	575512
LCS 280-575512/2-A	Lab Control Sample	Total Recoverable	Water	6020A	575512
280-162272-1 MS	W-9	Total Recoverable	Water	6020A	575512
280-162272-1 MSD	W-9	Total Recoverable	Water	6020A	575512

Analysis Batch: 575958

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162272-1	W-9	Total Recoverable	Water	6010C	575614
280-162272-2	W-1	Total Recoverable	Water	6010C	575614
280-162272-3	W-5	Total Recoverable	Water	6010C	575614
280-162272-4	W-6	Total Recoverable	Water	6010C	575614
MB 280-575614/1-A	Method Blank	Total Recoverable	Water	6010C	575614
LCS 280-575614/2-A	Lab Control Sample	Total Recoverable	Water	6010C	575614

Prep Batch: 575990

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162272-5	W-13	Total Recoverable	Water	3005A	
MB 280-575990/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-575990/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 575991

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162272-5	W-13	Total Recoverable	Water	3005A	
MB 280-575991/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-575991/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 576014

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162272-5	W-13	Total/NA	Water	7470A	
MB 280-576014/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-576014/2-A	Lab Control Sample	Total/NA	Water	7470A	

Filtration Batch: 576059

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162272-3	W-5	Dissolved	Water	FILTRATION	
MB 280-576059/1-B	Method Blank	Dissolved	Water	FILTRATION	
LCS 280-576059/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	

Prep Batch: 576121

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162272-3	W-5	Dissolved	Water	3005A	576059
MB 280-576059/1-B	Method Blank	Dissolved	Water	3005A	576059
LCS 280-576059/2-B	Lab Control Sample	Dissolved	Water	3005A	576059

Analysis Batch: 576222

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162272-5	W-13	Total/NA	Water	7470A	576014
MB 280-576014/1-A	Method Blank	Total/NA	Water	7470A	576014
LCS 280-576014/2-A	Lab Control Sample	Total/NA	Water	7470A	576014

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-1

Metals

Analysis Batch: 576244

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162272-5	W-13	Total Recoverable	Water	6010C	575991
MB 280-575991/1-A	Method Blank	Total Recoverable	Water	6010C	575991
LCS 280-575991/2-A	Lab Control Sample	Total Recoverable	Water	6010C	575991

Analysis Batch: 576291

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162272-5	W-13	Total Recoverable	Water	6020A	575990
MB 280-575990/1-A	Method Blank	Total Recoverable	Water	6020A	575990
LCS 280-575990/2-A	Lab Control Sample	Total Recoverable	Water	6020A	575990

Analysis Batch: 576396

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162272-3	W-5	Dissolved	Water	6020A	576121
280-162272-5	W-13	Total Recoverable	Water	6020A	575990
MB 280-576059/1-B	Method Blank	Dissolved	Water	6020A	576121
LCS 280-576059/2-B	Lab Control Sample	Dissolved	Water	6020A	576121

Analysis Batch: 576445

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162272-3	W-5	Dissolved	Water	6020A	576121

General Chemistry

Analysis Batch: 574857

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162272-1	W-9	Total/NA	Water	SM 2540C	
280-162272-2	W-1	Total/NA	Water	SM 2540C	
280-162272-3	W-5	Total/NA	Water	SM 2540C	
280-162272-4	W-6	Total/NA	Water	SM 2540C	
MB 280-574857/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-574857/2	Lab Control Sample	Total/NA	Water	SM 2540C	
280-162272-4 DU	W-6	Total/NA	Water	SM 2540C	

Analysis Batch: 574907

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162272-1	W-9	Total/NA	Water	SM 2540D	
280-162272-2	W-1	Total/NA	Water	SM 2540D	
280-162272-3	W-5	Total/NA	Water	SM 2540D	
280-162272-4	W-6	Total/NA	Water	SM 2540D	
MB 280-574907/2	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-574907/1	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 575168

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162272-1	W-9	Total/NA	Water	9040B	
LCS 280-575168/4	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 575169

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162272-1	W-9	Total/NA	Water	SM 2320B	
MB 280-575169/32	Method Blank	Total/NA	Water	SM 2320B	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-1

General Chemistry (Continued)

Analysis Batch: 575169 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 280-575169/31	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 575335

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162272-2	W-1	Total/NA	Water	SM 2320B	
280-162272-3	W-5	Total/NA	Water	SM 2320B	
280-162272-4	W-6	Total/NA	Water	SM 2320B	
MB 280-575335/5	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-575335/4	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 575633

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162272-2	W-1	Total/NA	Water	9040B	
280-162272-3	W-5	Total/NA	Water	9040B	
280-162272-4	W-6	Total/NA	Water	9040B	
LCS 280-575633/4	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 575768

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162272-1	W-9	Total/NA	Water	9056A	
280-162272-2	W-1	Total/NA	Water	9056A	
280-162272-3	W-5	Total/NA	Water	9056A	
280-162272-4	W-6	Total/NA	Water	9056A	
280-162272-5	W-13	Total/NA	Water	9056A	
280-162272-5	W-13	Total/NA	Water	9056A	
MB 280-575768/6	Method Blank	Total/NA	Water	9056A	
LCS 280-575768/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-575768/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-575768/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 575823

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162272-2	W-1	Total/NA	Water	9056A	
280-162272-4	W-6	Total/NA	Water	9056A	
MB 280-575823/6	Method Blank	Total/NA	Water	9056A	
LCS 280-575823/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-575823/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-575823/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 575827

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162272-1	W-9	Total/NA	Water	9056A	
MB 280-575827/96	Method Blank	Total/NA	Water	9056A	
LCS 280-575827/94	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-575827/95	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-575827/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 576105

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162272-3	W-5	Total/NA	Water	9056A	
MB 280-576105/6	Method Blank	Total/NA	Water	9056A	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-1

General Chemistry (Continued)

Analysis Batch: 576105 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 280-576105/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-576105/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-576105/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 576246

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162272-5	W-13	Total/NA	Water	9040B	
LCS 280-576246/27	Lab Control Sample	Total/NA	Water	9040B	

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-1

Client Sample ID: W-9

Lab Sample ID: 280-162272-1

Date Collected: 05/06/22 14:10

Matrix: Water

Date Received: 05/12/22 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	575614	05/20/22 06:51	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			575958	05/23/22 12:58	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575512	05/19/22 16:06	CEH	TAL DEN
Total Recoverable	Analysis	6020A		1			575786	05/20/22 15:50	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575512	05/19/22 16:06	CEH	TAL DEN
Total Recoverable	Analysis	6020A		5			575815	05/23/22 01:16	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575512	05/19/22 16:06	CEH	TAL DEN
Total Recoverable	Analysis	6020A		50			575888	05/23/22 11:54	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	574920	05/13/22 16:19	CEH	TAL DEN
Total/NA	Analysis	7470A		1			574998	05/14/22 01:08	CEH	TAL DEN
Total/NA	Analysis	9040B		1			575168	05/16/22 14:05	KEG	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	575768	05/21/22 18:49	RAF	TAL DEN
Total/NA	Analysis	9056A		100	10 mL	10 mL	575827	05/25/22 03:48	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			575169	05/16/22 17:11	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	574857	05/13/22 10:20	CAI	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	574907	05/13/22 14:52	CAI	TAL DEN

Client Sample ID: W-1

Lab Sample ID: 280-162272-2

Date Collected: 05/11/22 10:30

Matrix: Water

Date Received: 05/12/22 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	575614	05/20/22 06:51	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			575958	05/23/22 13:03	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575512	05/19/22 16:06	CEH	TAL DEN
Total Recoverable	Analysis	6020A		1			575786	05/20/22 16:09	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575512	05/19/22 16:06	CEH	TAL DEN
Total Recoverable	Analysis	6020A		5			575815	05/23/22 01:27	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575512	05/19/22 16:06	CEH	TAL DEN
Total Recoverable	Analysis	6020A		50			575888	05/23/22 12:15	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	574920	05/13/22 16:19	CEH	TAL DEN
Total/NA	Analysis	7470A		1			574998	05/14/22 01:11	CEH	TAL DEN
Total/NA	Analysis	9040B		1			575633	05/19/22 16:39	KEG	TAL DEN
Total/NA	Analysis	9056A		1000	10 mL	10 mL	575823	05/23/22 16:55	RAF	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	575768	05/21/22 22:15	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			575335	05/17/22 17:39	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	574857	05/13/22 10:20	CAI	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	574907	05/13/22 14:52	CAI	TAL DEN

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-1

Client Sample ID: W-5

Date Collected: 05/11/22 11:45

Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			200 mL	200 mL	575456	05/18/22 17:30	PFM	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	575615	05/20/22 06:51	MAB	TAL DEN
Dissolved	Analysis	6010C		1			575870	05/23/22 12:23	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575614	05/20/22 06:51	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			575958	05/23/22 13:07	MAB	TAL DEN
Dissolved	Filtration	FILTRATION			100 mL	100 mL	576059	05/24/22 16:05	DNM	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	576121	05/26/22 08:55	PFM	TAL DEN
Dissolved	Analysis	6020A		1			576396	05/27/22 03:22	LRD	TAL DEN
Dissolved	Filtration	FILTRATION			100 mL	100 mL	576059	05/24/22 16:05	DNM	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	576121	05/26/22 08:55	PFM	TAL DEN
Dissolved	Analysis	6020A		1			576445	05/27/22 11:56	LRD	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575512	05/19/22 16:06	CEH	TAL DEN
Total Recoverable	Analysis	6020A		1			575786	05/20/22 16:13	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575512	05/19/22 16:06	CEH	TAL DEN
Total Recoverable	Analysis	6020A		5			575815	05/23/22 01:31	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575512	05/19/22 16:06	CEH	TAL DEN
Total Recoverable	Analysis	6020A		50			575888	05/23/22 12:20	LMT	TAL DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	575361	05/17/22 18:30	KMS	TAL DEN
Dissolved	Prep	7470A			30 mL	50 mL	575447	05/18/22 20:05	CEH	TAL DEN
Dissolved	Analysis	7470A		1			575473	05/18/22 23:49	CEH	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	574920	05/13/22 16:19	CEH	TAL DEN
Total/NA	Analysis	7470A		1			574998	05/14/22 01:13	CEH	TAL DEN
Total/NA	Analysis	9040B		1			575633	05/19/22 16:43	KEG	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	575768	05/21/22 23:02	RAF	TAL DEN
Total/NA	Analysis	9056A		500	10 mL	10 mL	576105	05/25/22 13:23	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			575335	05/17/22 18:01	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	574857	05/13/22 10:20	CAI	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	574907	05/13/22 14:52	CAI	TAL DEN

Client Sample ID: W-6

Date Collected: 05/11/22 12:45

Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	575614	05/20/22 06:51	MAB	TAL DEN
Total Recoverable	Analysis	6010C		1			575958	05/23/22 13:11	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575512	05/19/22 16:06	CEH	TAL DEN
Total Recoverable	Analysis	6020A		1			575786	05/20/22 16:17	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575512	05/19/22 16:06	CEH	TAL DEN
Total Recoverable	Analysis	6020A		5			575815	05/23/22 01:34	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575512	05/19/22 16:06	CEH	TAL DEN
Total Recoverable	Analysis	6020A		50			575888	05/23/22 12:24	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	574920	05/13/22 16:19	CEH	TAL DEN
Total/NA	Analysis	7470A		1			574998	05/14/22 01:16	CEH	TAL DEN

Eurofins Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-1

Client Sample ID: W-6

Lab Sample ID: 280-162272-4

Date Collected: 05/11/22 12:45

Matrix: Water

Date Received: 05/12/22 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9040B		1			575633	05/19/22 16:47	KEG	TAL DEN
Total/NA	Analysis	9056A		50	10 mL	10 mL	575823	05/23/22 17:10	RAF	TAL DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	575768	05/22/22 00:22	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			575335	05/17/22 18:12	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	574857	05/13/22 10:20	CAI	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	574907	05/13/22 14:52	CAI	TAL DEN

Client Sample ID: W-13

Lab Sample ID: 280-162272-5

Date Collected: 05/11/22 14:30

Matrix: Water

Date Received: 05/12/22 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	575991	05/24/22 15:19	PFM	TAL DEN
Total Recoverable	Analysis	6010C		1			576244	05/25/22 21:30	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575990	05/25/22 08:48	KMS	TAL DEN
Total Recoverable	Analysis	6020A		1			576291	05/26/22 01:26	LRD	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	575990	05/25/22 08:48	KMS	TAL DEN
Total Recoverable	Analysis	6020A		50			576396	05/27/22 02:14	LRD	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	576014	05/24/22 17:54	CEH	TAL DEN
Total/NA	Analysis	7470A		1			576222	05/25/22 18:18	CEH	TAL DEN
Total/NA	Analysis	9040B		1			576246	05/25/22 17:47	KEG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	575768	05/22/22 00:53	RAF	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	575768	05/22/22 01:09	RAF	TAL DEN

Laboratory References:

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

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-1

Laboratory: Eurofins Denver

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

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-23

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
6020A	3005A	Water	Calcium
9040B		Water	Temperature

Chain of Custody Record

Client Information Client Contact: Molly Reeves Company: HDR Inc Address: 1670 Broadway Suite 3400 City: Denver State, Zip: CO, 80202 Phone: 734-263-7138(Tel) Email: Molly.Reeves@hdrinc.com Project Name: Xcel Energy GW CCR Monitoring - Comanche Site: COLORADO Groundwater		Sampler: F. Ray Lab PM: Harrington, Danielle M Phone: 720-298-3594 E-Mail: Danielle.Harrington@Eurofins.com PWSID:		Carrier Tracking No(s): 280-110862-32017.2 State of Origin: Job #:		COC No: 280-110862-32017.2 Page: Page 2 of 2 Job #:			
Due Date Requested: TAT Requested (days): ASAP Compliance Project: ☐ Yes ☒ No PO #: DEN-021 WO #:				Analysis Requested 6010C, 6020A, 7470A Total Metals - (Cedar Falls - 6020A - Sulfate) 2320B alkalinity, 9040B pH, 9056A, 280Chloride, Fluoride, Denver - 6010C/7470A - APP III +IV metals 6010C, 6020A, 7470A Total Metals - (Cedar Falls - 6020A - Sulfate) 2540D - TSS/2540C TDS Radium - 226 9135 and Radium - 228 Method 9320/ Ra2226Ra2228GFPc - ETA St. Louis 6010C/6020A - APP III Metals - Denver				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:	
Sample Identification Sample Date Sample Time Sample Type (C=Comp, G=grab) Matrix (W=water, S=solid, O=soil, W=water, S=solid, O=soil) W-9 5/6/22 1410 G Water W-1 5/11/22 1030 G Water W-5 5/11/22 1145 G W W-6 5/11/22 1245 G W W-13 5/11/22 1430 G W				Field Filtered Sample (Yes or No) ☒ Perform MS/MSD (Yes or No) ☒ 6010C, 6020A, 7470A Total Metals - (Cedar Falls - 6020A - Sulfate) 2320B alkalinity, 9040B pH, 9056A, 280Chloride, Fluoride, Denver - 6010C/7470A - APP III +IV metals 6010C, 6020A, 7470A Total Metals - (Cedar Falls - 6020A - Sulfate) 2540D - TSS/2540C TDS Radium - 226 9135 and Radium - 228 Method 9320/ Ra2226Ra2228GFPc - ETA St. Louis 6010C/6020A - APP III Metals - Denver				Total Number of Containers: 6 Special Instructions/Note: 250ml for diss. metals Only ~500ml for Rad 226/228 and two 500ml bottles for TSS/TDS 1 *Ask PM for analysis ~ only ~250 ml	
Possible Hazard Identification ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological Deliverable Requested: I, II, III, IV, Other (specify)								Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months	
Empty Kit Relinquished by: Davis Ray Relinquished by: Davis Ray Relinquished by: Relinquished by:								Date: 5/12/22 1030 Date/Time: 5/12/22 1030 Date/Time: Date/Time:	
Custody Seals Intact: ☒ Yes ☐ No Custody Seal No.:								Cooler Temperature (°C) and Other Remarks: 2.3 12412 to 1 89 5/12/2022 Company: STADEN Company: Company:	

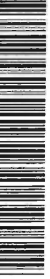
Eurofins Denver

4955 Yarrow Street

Arvada, CO 80002

Phone: 303-736-0100 Fax: 303-431-7171

Chain of Custody Record

Environment Testing
America

Client Information (Sub Contract Lab)		Sampler	Lab PM Harrington, Danielle M	Carrier Tracking No(s)	GOC No 280-614505.1						
Shipping/Receiving		Phone:	E-Mail Danielle.Harrington@eurofins.com	State of Origin Colorado	Page Page 1 of 1						
Company TestAmerica Laboratories, Inc.		Accreditations Required (See note) DoD - A2LA		Job # 280-162272-1	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:						
Address 13715 Rider Trail North,		Due Date Requested: 5/25/2022		Analysis Requested							
City Earth City	TAT Requested (days):										
State, Zip MO 63045											
Phone 314-298-8566(Tel) 314-298-8757(Fax)	PO #										
Email:	WO #										
Project Name Xcel Energy GW CCR Monitoring - Comanche	Project # 28014376										
Site Xcel Energy CCR - Comanche Station	SSOW#										
Sample Identification - Client ID (Lab ID)	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)	Form MS/MSD (Yes or No)	9315_Ra226/PreSep_21 Ra226 (1/3) - SUB	9320_Ra226/PreSep_0 Ra226 (2/3) - SUB	Ra226Ra228_GFP/CI Ra226/Ra228 Calc (3/3) - SUB	Total Number of containers	Special Instructions/Note:
W-9 (280-162272-1)	5/6/22	14:10 Mountain		Water			X	X	X	2	
W-1 (280-162272-2)	5/11/22	10:30 Mountain		Water			X	X	X	2	
W-5 (280-162272-3)	5/11/22	11:45 Mountain		Water			X	X	X	2	
W-6 (280-162272-4)	5/11/22	12:45 Mountain		Water			X	X	X	1	
Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis of the matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins TestAmerica											
Possible Hazard Identification											
Unconfirmed											
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2											
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)											
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months											
Special Instructions/QC Requirements:											
Empty Kit Relinquished by:											
Relinquished by: <i>AKC</i> Date: 05/13/2022 Time: 1605 Company: <i>E795JC</i>											
Relinquished by: FED EX Date/Time: _____ Company: _____											
Relinquished by: _____ Date/Time: _____ Company: _____											
Custody Seals Intact: ☐ Yes ☐ No Custody Seal No.: _____											
Cooler Temperature(s) °C and Other Remarks:											

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-162272-1

Login Number: 162272

List Source: Eurofins Denver

List Number: 1

Creator: Roehsner, Karen P

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

ANALYTICAL REPORT

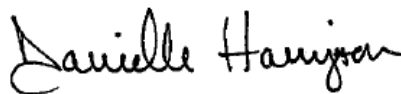
Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-162272-2

Client Project/Site: Xcel Energy GW CCR Monitoring -
Comanche

For:
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Attn: Molly Reeves



Authorized for release by:
6/15/2022 7:47:51 AM

Danielle Harrington, Project Manager II
(303)736-0176

Danielle.Harrington@et.eurofinsus.com

LINKS

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results through



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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-2

Qualifiers

Rad

Qualifier	Qualifier Description
G	The Sample MDC is greater than the requested RL.
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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-2

Job ID: 280-162272-2

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-162272-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 05/12/2022; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 2.4 C.

RADIUM-226 (GFPC)- Method 9315

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

RADIUM-228- Method 9320

Method 9320_Ra228: Radium-228 batch 565991The detection goal was not met for the following sample(s). Sample was prepped at a reduced volume due to the presence of matrix interferences: W-9 (280-162272-1). Analytical results are reported with the detection limit achieved.

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

RADIUM-226/RADIUM-228 (GFPC)

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

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-2

Client Sample ID: W-9

Lab Sample ID: 280-162272-1

☐ No Detections.

Client Sample ID: W-1

Lab Sample ID: 280-162272-2

☐ No Detections.

Client Sample ID: W-5

Lab Sample ID: 280-162272-3

☐ No Detections.

Client Sample ID: W-6

Lab Sample ID: 280-162272-4

☐ No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Method Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-2

Method	Method Description	Protocol	Laboratory
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

Protocol References:

None = None

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:

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

Sample Summary

Client: HDR Inc

Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-162272-1	W-9	Water	05/06/22 14:10	05/12/22 10:30
280-162272-2	W-1	Water	05/11/22 10:30	05/12/22 10:30
280-162272-3	W-5	Water	05/11/22 11:45	05/12/22 10:30
280-162272-4	W-6	Water	05/11/22 12:45	05/12/22 10:30

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-2

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: W-9
Date Collected: 05/06/22 14:10
Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.695		0.470	0.474	1.00	0.650	pCi/L	05/17/22 09:56	06/13/22 16:04	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	60.3		40 - 110					05/17/22 09:56	06/13/22 16:04	1

Client Sample ID: W-1
Date Collected: 05/11/22 10:30
Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.677		0.391	0.396	1.00	0.472	pCi/L	05/17/22 09:56	06/13/22 16:05	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	69.1		40 - 110					05/17/22 09:56	06/13/22 16:05	1

Client Sample ID: W-5
Date Collected: 05/11/22 11:45
Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.214	U	0.336	0.337	1.00	0.579	pCi/L	05/17/22 09:56	06/13/22 16:05	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	74.1		40 - 110					05/17/22 09:56	06/13/22 16:05	1

Client Sample ID: W-6
Date Collected: 05/11/22 12:45
Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.146	U	0.268	0.269	1.00	0.481	pCi/L	05/17/22 09:56	06/13/22 16:05	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.3		40 - 110					05/17/22 09:56	06/13/22 16:05	1

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: W-9
Date Collected: 05/06/22 14:10
Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.97	G	0.793	0.814	1.00	1.01	pCi/L	05/17/22 10:19	06/13/22 12:46	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	60.3		40 - 110					05/17/22 10:19	06/13/22 12:46	1

Eurofins Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-2

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

Client Sample ID: W-9
Date Collected: 05/06/22 14:10
Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-1
Matrix: Water

Carrier	%Yield	Qualifier	Limits
Y Carrier	81.1		40 - 110

Prepared	Analyzed	Dil Fac
05/17/22 10:19	06/13/22 12:46	1

Client Sample ID: W-1
Date Collected: 05/11/22 10:30
Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.58		0.697	0.712	1.00	0.915	pCi/L	05/17/22 10:19	06/13/22 12:46	1
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	69.1		40 - 110							
Y Carrier	79.6		40 - 110							
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	69.1		40 - 110							
Y Carrier	79.6		40 - 110							

Client Sample ID: W-5
Date Collected: 05/11/22 11:45
Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.49		0.639	0.654	1.00	0.838	pCi/L	05/17/22 10:19	06/13/22 12:47	1
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	74.1		40 - 110							
Y Carrier	81.9		40 - 110							
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	74.1		40 - 110							
Y Carrier	81.9		40 - 110							

Client Sample ID: W-6
Date Collected: 05/11/22 12:45
Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.151	U	0.469	0.469	1.00	0.839	pCi/L	05/17/22 10:19	06/13/22 12:47	1
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	94.3		40 - 110							
Y Carrier	77.0		40 - 110							
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	94.3		40 - 110							
Y Carrier	77.0		40 - 110							

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

Client Sample ID: W-9
Date Collected: 05/06/22 14:10
Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.67		0.922	0.942	5.00	1.01	pCi/L		06/14/22 16:10	1

Eurofins Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-2

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

Client Sample ID: W-1
Date Collected: 05/11/22 10:30
Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.26		0.799	0.815	5.00	0.915	pCi/L		06/14/22 16:10	1

Client Sample ID: W-5
Date Collected: 05/11/22 11:45
Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.71		0.722	0.736	5.00	0.838	pCi/L		06/14/22 16:10	1

Client Sample ID: W-6
Date Collected: 05/11/22 12:45
Date Received: 05/12/22 10:30

Lab Sample ID: 280-162272-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.297	U	0.540	0.541	5.00	0.839	pCi/L		06/14/22 16:10	1

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-2

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-565990/26-A

Matrix: Water

Analysis Batch: 569790

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 565990

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.06858	U	0.159	0.159	1.00	0.294	pCi/L	05/17/22 09:56	06/13/22 16:10	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.5		40 - 110					05/17/22 09:56	06/13/22 16:10	1

Lab Sample ID: LCS 160-565990/1-A

Matrix: Water

Analysis Batch: 569778

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 565990

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226		11.3	9.748		1.32	1.00	0.404	pCi/L	86	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits							
Ba Carrier	87.3		40 - 110							

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-565991/26-A

Matrix: Water

Analysis Batch: 569779

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 565991

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1159	U	0.273	0.273	1.00	0.481	pCi/L	05/17/22 10:19	06/13/22 12:58	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.5		40 - 110					05/17/22 10:19	06/13/22 12:58	1
Y Carrier	86.0		40 - 110					05/17/22 10:19	06/13/22 12:58	1

Lab Sample ID: LCS 160-565991/1-A

Matrix: Water

Analysis Batch: 569780

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 565991

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-228		8.54	7.288		1.10	1.00	0.572	pCi/L	85	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits							
Ba Carrier	87.3		40 - 110							
Y Carrier	80.0		40 - 110							

Eurofins Denver

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-2

Rad

Prep Batch: 565990

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162272-1	W-9	Total/NA	Water	PrecSep-21	
280-162272-2	W-1	Total/NA	Water	PrecSep-21	
280-162272-3	W-5	Total/NA	Water	PrecSep-21	
280-162272-4	W-6	Total/NA	Water	PrecSep-21	
MB 160-565990/26-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-565990/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 565991

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-162272-1	W-9	Total/NA	Water	PrecSep_0	
280-162272-2	W-1	Total/NA	Water	PrecSep_0	
280-162272-3	W-5	Total/NA	Water	PrecSep_0	
280-162272-4	W-6	Total/NA	Water	PrecSep_0	
MB 160-565991/26-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-565991/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-2

Client Sample ID: W-9

Lab Sample ID: 280-162272-1

Date Collected: 05/06/22 14:10

Matrix: Water

Date Received: 05/12/22 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			755.46 mL	1.0 g	565990	05/17/22 09:56	MS	TAL SL
Total/NA	Analysis	9315		1			569778	06/13/22 16:04	FLC	TAL SL
Total/NA	Prep	PrecSep_0			755.46 mL	1.0 g	565991	05/17/22 10:19	MS	TAL SL
Total/NA	Analysis	9320		1			569780	06/13/22 12:46	CLP	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			569994	06/14/22 16:10	EMH	TAL SL

Client Sample ID: W-1

Lab Sample ID: 280-162272-2

Date Collected: 05/11/22 10:30

Matrix: Water

Date Received: 05/12/22 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			744.10 mL	1.0 g	565990	05/17/22 09:56	MS	TAL SL
Total/NA	Analysis	9315		1			569778	06/13/22 16:05	FLC	TAL SL
Total/NA	Prep	PrecSep_0			744.10 mL	1.0 g	565991	05/17/22 10:19	MS	TAL SL
Total/NA	Analysis	9320		1			569780	06/13/22 12:46	CLP	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			569994	06/14/22 16:10	EMH	TAL SL

Client Sample ID: W-5

Lab Sample ID: 280-162272-3

Date Collected: 05/11/22 11:45

Matrix: Water

Date Received: 05/12/22 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			754.32 mL	1.0 g	565990	05/17/22 09:56	MS	TAL SL
Total/NA	Analysis	9315		1			569778	06/13/22 16:05	FLC	TAL SL
Total/NA	Prep	PrecSep_0			754.32 mL	1.0 g	565991	05/17/22 10:19	MS	TAL SL
Total/NA	Analysis	9320		1			569780	06/13/22 12:47	CLP	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			569994	06/14/22 16:10	EMH	TAL SL

Client Sample ID: W-6

Lab Sample ID: 280-162272-4

Date Collected: 05/11/22 12:45

Matrix: Water

Date Received: 05/12/22 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			621.29 mL	1.0 g	565990	05/17/22 09:56	MS	TAL SL
Total/NA	Analysis	9315		1	1.0 mL	1.0 mL	569778	06/13/22 16:05	FLC	TAL SL
Total/NA	Prep	PrecSep_0			621.29 mL	1.0 g	565991	05/17/22 10:19	MS	TAL SL
Total/NA	Analysis	9320		1			569780	06/13/22 12:47	CLP	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			569994	06/14/22 16:10	EMH	TAL SL

Laboratory References:

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

Eurofins Denver

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-2

Laboratory: Eurofins St. Louis

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

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-22
California	Los Angeles County Sanitation Districts	10259	06-30-22
California	State	2886	07-01-22
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-22
HI - RadChem Recognition	State	n/a	06-30-22
Illinois	NELAP	200023	11-30-22
Iowa	State	373	12-01-22
Kansas	NELAP	E-10236	10-31-22
Kentucky (DW)	State	KY90125	12-31-22
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-22
Louisiana	NELAP	04080	06-30-22
Louisiana (DW)	State	LA011	12-31-22
Maryland	State	310	09-30-22
MI - RadChem Recognition	State	9005	06-30-22
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-22
New Jersey	NELAP	MO002	06-30-22
New York	NELAP	11616	04-01-23
North Dakota	State	R-207	06-30-22
NRC	NRC	24-24817-01	12-31-22
Oklahoma	NELAP	9997	08-31-22
Oregon	NELAP	4157	09-01-22
Pennsylvania	NELAP	68-00540	02-28-23
South Carolina	State	85002001	06-30-22
Texas	NELAP	T104704193	07-31-22
US Fish & Wildlife	US Federal Programs	058448	07-31-22
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	08-01-22
Virginia	NELAP	10310	06-14-22
Washington	State	C592	08-30-22
West Virginia DEP	State	381	10-31-22

Client Information Client Contact: Molly Reeves Company: HDR Inc Address: 1670 Broadway Suite 3400 City: Denver State, Zip: CO, 80202 Phone: 734-263-7138(Tel) Email: Molly.Reeves@hdrinc.com Project Name: Xcel Energy GW CCR Monitoring - Comanche Site: COLORADO Groundwater		Sampler: E. Ray Phone: 720-298-3594 PWSID:		Lab Pmt: Harrington, Danielle M E-Mail: Danielle.Harrington@Eurofinset.com State of Origin:		Carrier Tracking No(s): 280-110862-32017.2 Page: Page 2 of 2 Job #:	
Due Date Requested: TAT Requested (days): ASAP Compliance Project: ☐ Yes ☒ No PO #: DEN-021 WO #:		Sample Date Sample Time Sample Type (G=grab, B=bulk, S=solid) Matrix (W=water, S=solid, O=other)		Field Filtered Sample (Yes or No) Perform MS/MSD (Yes or No) 6010C, 6020A, 7470A Total Metals - (Cedar Falls -6020A - Sulfate) 6010C, 6020A, 7470A Total Metals - (Cedar Falls -6020A - Sulfate) 6010C, 6020A, 7470A Total Metals - (Cedar Falls -6020A - Sulfate) 2540D - TSS/2540C TDS Radium -226 9135 and Radium -228 Method 9320/ Ra2226Ra2228GFPC - ETA St. Louis 6010C/6020A - APP III Metals - Denver		Analysis Requested Disolved Metals (Lab Filter)	
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:		Special Instructions/Note: 260mL for diss. Metals Only ~500mL for Rad 226/228 and two 500mL bottles for TSS/TDS *Ask PM for analysis - only ~290 mL		Total Number of Containers: 6		Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)	
Possible Hazard Identification ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Polys B ☐ Unknown ☐ Radiological Deliverable Requested: I, II, III, IV, Other (specify)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months		Special Instructions/QC Requirements:		Method of Shipment:	
Empty Kit Relinquished by:		Date: 5/12/22 1030		Company: HDR		Date/Time: 5/12/22 1030	
Relinquished by:		Date/Time:		Company:		Date/Time:	
Relinquished by:		Date/Time:		Company:		Date/Time:	
Relinquished by:		Date/Time:		Company:		Date/Time:	
Custody Seals Intact: ☒ Yes ☐ No		Custody Seal No.:		Cooler Temperature (°C) and Other Remarks: 2.3 5/12/22		Company: EADEN	

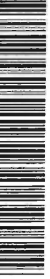
Eurofins Denver

4955 Yarrow Street

Arvada, CO 80002

Phone: 303-736-0100 Fax: 303-431-7171

Chain of Custody Record

Environment Testing
America

Client Information (Sub Contract Lab)		Sampler	Lab PM Harrington, Danielle M	Carrier Tracking No(s)	GOC No 280-614505.1
Client Contact		Phone:	E-Mail Danielle.Harrington@eurofins.com	State of Origin Colorado	Page Page 1 of 1
Shipping/Receiving		Accreditations Required (See note) DoD - A2LA			
Company TestAmerica Laboratories, Inc.		Job # 280-162272-1			
Address 13715 Rider Trail North,		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:			
City Earth City	State, Zip MO 63045	Analysis Requested			
Phone 314-298-8566(Tel) 314-298-8757(Fax)	PO #	Total Number of containers			
Email:	WO #	Special Instructions/Note:			
Project Name Xcel Energy GW CCR Monitoring - Comanche	Project # 28014376	Special Instructions/Note:			
Site Xcel Energy CCR - Comanche Station	SSOW#	Special Instructions/Note:			
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=soil, T=tissue, A=air)
W-9 (280-162272-1)	5/6/22	14:10	Mountain	Water	Water
W-1 (280-162272-2)	5/11/22	10:30	Mountain	Water	Water
W-5 (280-162272-3)	5/11/22	11:45	Mountain	Water	Water
W-6 (280-162272-4)	5/11/22	12:45	Mountain	Water	Water
Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis of the matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins TestAmerica					
Possible Hazard Identification					
Unconfirmed					
Deliverable Requested: I, II, III, IV, Other (specify)		Primary Deliverable Rank: 2			
Empty Kit Relinquished by:		Date:			
Relinquished by: <i>AKC</i>		Date: 05/13/2022			
Relinquished by: <i>FED EX</i>		Date: 05/13/2022			
Relinquished by:		Date: 05/13/2022			
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.:			
Cooler Temperature(s) °C and Other Remarks:					

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-162272-2

Login Number: 162272

List Source: Eurofins Denver

List Number: 1

Creator: Roehsner, Karen P

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

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-162272-2

Login Number: 162272

List Number: 2

Creator: Bohlmann, Jessica M

List Source: Eurofins St. Louis

List Creation: 05/16/22 12:52 PM

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

Tracer/Carrier Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-162272-2

Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	
280-162272-1	W-9	60.3	
280-162272-2	W-1	69.1	
280-162272-3	W-5	74.1	
280-162272-4	W-6	94.3	
LCS 160-565990/1-A	Lab Control Sample	87.3	
MB 160-565990/26-A	Method Blank	96.5	
Tracer/Carrier Legend			
Ba = Ba Carrier			

Method: 9320 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)
280-162272-1	W-9	60.3	81.1
280-162272-2	W-1	69.1	79.6
280-162272-3	W-5	74.1	81.9
280-162272-4	W-6	94.3	77.0
LCS 160-565991/1-A	Lab Control Sample	87.3	80.0
MB 160-565991/26-A	Method Blank	96.5	86.0
Tracer/Carrier Legend			
Ba = Ba Carrier			
Y = Y Carrier			

ANALYTICAL REPORT

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-163349-1

Client Project/Site: Xcel Energy GW CCR Monitoring -
Comanche

Revision: 1

For:

HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Attn: Molly Reeves



Authorized for release by:

7/5/2022 2:33:13 PM

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

Qualifiers

Metals

Qualifier	Qualifier Description
^+	Continuing Calibration Verification (CCV) is outside acceptance limits, high biased.
^6+	Interference Check Standard (ICSA and/or ICSAB) is outside acceptance limits, high biased.
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.
B	Compound was found in the blank and sample.
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
F3	Duplicate RPD exceeds the control limit
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

Job ID: 280-163349-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-163349-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

This report may include reporting limits (RLs) less than Eurofins TestAmerica's standard reporting limit. The reported sample results and associated reporting limits are being used specifically to meet the needs of this project. Note that data are not normally reported to these levels without qualification because they are inherently less reliable and potentially less defensible than required by the latest industry standards.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 6/10/2022 4:55 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 4.0° C and 5.2° C.

DISSOLVED METALS - Method 6010/6020

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

TOTAL METALS - Method 6010/6020

Several samples required a dilution due to matrix interferences or high analyte concentrations for Method 6010/6020. The reporting limits have been adjusted relative to the dilution required.

Low levels of Boron are present in the method blank associated with QC batch 280-578742. Because the concentration in the method blank is not present at a level greater than the reporting limit, corrective action is deemed unnecessary.

Low levels of Calcium and Barium are present in the method blank associated with QC batch 280-578745. Because the concentration in the method blank is not present at a level greater than the reporting limit, corrective action is deemed unnecessary.

Low levels of Barium are present in the method blank associated with QC batch 280-578891. Because the concentration in the method blank is not present at a level greater than the reporting limit, corrective action is deemed unnecessary.

MS/MSD analyses were performed on sample W-2C. The MS/MSD for method 6020 exhibited spike compound recoveries outside the QC limits in QC Batch 280-578745. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

Low levels of Calcium are present in the method blank associated with QC batch 280-578595. Because the concentration in the method blank is not present at a level greater than the reporting limit, corrective action is deemed unnecessary.

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

Job ID: 280-163349-1 (Continued)

Laboratory: Eurofins Denver (Continued)

Laboratory generated MS/MSD analysis data have been provided. The MS/MSD for method 6020B exhibited spike compound recoveries outside the QC limits in QC Batch 280-578747. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The accuracy and precision of the 6020B MS/MSD performed on a laboratory generated sample could not be reliably evaluated, as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The low level continuing calibration verification (CCVL) associated with 280-578573 failed above the upper control limit for Li. The associated samples contained the affected analyte at a level greater than 10x that in the CCVL or did not contain the affected analyte at a level greater than the reporting limit (RL); therefore the data has been reported.

The low level continuing calibration verification (CCVL) associated with 280-578742 failed above the upper control limit for Li. The associated samples contained the affected analyte at a level greater than 10x that in the CCVL or did not contain the affected analyte at a level greater than the reporting limit (RL); therefore the data has been reported.

The low level continuing calibration verification (CCVL) associated with batch 280-578747 recovered (138%&141%) above the upper control limit (130%) for Ba. The samples associated with this CCVL were either <LOD or >10x the level of the CCVL for the affected analytes; therefore, the data have been reported.

The instrument blank for analytical batch 280-578573 contained Li greater than one-half the reporting limit (RL), and were not re-analyzed because the associated samples contained the affected analyte at a level greater than 10x found in the blank.

The interference check standard solution (ICSA) associated with batch 280-578747 had results for one or more elements at a level greater than 2x the RL. The ICSA result (3.09 ppb) was >2x the RL (1 ppb). The vendor acknowledges that these elements are trace impurities in the ICSA standard. These results are not indicative of a matrix interference.

The interference check standard solution (ICSA) associated with batch 280-578891 had results for one or more elements at a level greater than 2 times the RL. The ICSA result (3.2 ppb) is >2x the RL (1 ppb) for Ba. The vendor acknowledges that these elements are trace impurities in the ICSA standard. These results are not indicative of a matrix interference.

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

DISSOLVED MERCURY - Method 7470

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

TOTAL MERCURY - Method 7470

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

GENERAL CHEMISTRY - VARIOUS

For method 9040B, the sample duplicate (DUP) precision for analytical batch 280-578603 was outside control limits. Sample matrix interference is suspected.

The parent sample in QC Batch 280-578603 did not equilibrate to within 0.05 pH units after three measurements, however, its duplicate sample did, thus the sample was not reanalyzed.

Several samples required a dilution due to matrix interferences or high analyte concentrations for Method 9056. The reporting limits have been adjusted relative to the dilution required.

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

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

Client Sample ID: W-14

Lab Sample ID: 280-163349-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.67		0.10	0.0015	mg/L	1		6010C	Total Recoverable
Lithium	3400	^+	20	9.1	ug/L	1		6010C	Total Recoverable
Antimony	0.00062	J	0.0020	0.00040	mg/L	1		6020B	Total Recoverable
Arsenic	0.00046	J	0.0050	0.00033	mg/L	1		6020B	Total Recoverable
Barium	0.017	^6+	0.0010	0.00029	mg/L	1		6020B	Total Recoverable
Beryllium	0.00034	J	0.0010	0.000080	mg/L	1		6020B	Total Recoverable
Cadmium	0.0012		0.0010	0.00027	mg/L	1		6020B	Total Recoverable
Chromium	0.00068	J	0.0020	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.010		0.0010	0.000092	mg/L	1		6020B	Total Recoverable
Lead	0.00038	J	0.0010	0.00018	mg/L	1		6020B	Total Recoverable
Molybdenum	0.016		0.0020	0.00014	mg/L	1		6020B	Total Recoverable
Selenium	1.2		0.0050	0.00037	mg/L	1		6020B	Total Recoverable
Thallium	0.0020		0.0010	0.000089	mg/L	1		6020B	Total Recoverable
Calcium	440	B	10	1.9	mg/L	50		6020B	Total Recoverable
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	660		30	10	mg/L	10		9056A	Total/NA
Fluoride	1.2		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	31000		1000	210	mg/L	200		9056A	Total/NA
Total Dissolved Solids (TDS)	28000		1000	470	mg/L	1		SM 2540C	Total/NA

Client Sample ID: W-14-EB

Lab Sample ID: 280-163349-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.0015	J	0.10	0.0015	mg/L	1		6010C	Total Recoverable
Antimony	0.00040	J	0.0020	0.00040	mg/L	1		6020B	Total Recoverable
Barium	0.00030	J ^6+	0.0010	0.00029	mg/L	1		6020B	Total Recoverable
Selenium	0.00063	J	0.0050	0.00037	mg/L	1		6020B	Total Recoverable
Calcium	0.40		0.20	0.038	mg/L	1		6020B	Total Recoverable
pH adj. to 25 deg C	6.5	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Total Dissolved Solids (TDS)	9.0	J	10	4.7	mg/L	1		SM 2540C	Total/NA

Client Sample ID: W-5B

Lab Sample ID: 280-163349-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.1		0.10	0.0015	mg/L	1		6010C	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

Client Sample ID: W-5B (Continued)

Lab Sample ID: 280-163349-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lithium	300		20	9.1	ug/L	1		6010C	Total
Antimony	0.00049	J	0.0020	0.00040	mg/L	1		6020B	Recoverable Total
Arsenic	0.00036	J	0.0050	0.00033	mg/L	1		6020B	Recoverable Total
Barium	0.019	^6+	0.0010	0.00029	mg/L	1		6020B	Recoverable Total
Cadmium	0.00090	J	0.0010	0.00027	mg/L	1		6020B	Recoverable Total
Cobalt	0.0028		0.0010	0.000092	mg/L	1		6020B	Recoverable Total
Lead	0.00020	J	0.0010	0.00018	mg/L	1		6020B	Recoverable Total
Molybdenum	0.0015	J	0.0020	0.00014	mg/L	1		6020B	Recoverable Total
Selenium	0.00057	J	0.0050	0.00037	mg/L	1		6020B	Recoverable Total
Thallium	0.00084	J	0.0010	0.000089	mg/L	1		6020B	Recoverable Total
Calcium	550	B	10	1.9	mg/L	50		6020B	Recoverable Total
pH adj. to 25 deg C	7.1	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	19.9	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	100		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.45	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	3500		250	52	mg/L	50		9056A	Total/NA
Total Dissolved Solids (TDS)	5300		40	19	mg/L	1		SM 2540C	Total/NA

Client Sample ID: W-5B-FD

Lab Sample ID: 280-163349-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.1		0.10	0.0015	mg/L	1		6010C	Total
Lithium	290		20	9.1	ug/L	1		6010C	Recoverable Total
Barium	0.020	^6+	0.0010	0.00029	mg/L	1		6020B	Recoverable Total
Cadmium	0.0010		0.0010	0.00027	mg/L	1		6020B	Recoverable Total
Lead	0.00022	J	0.0010	0.00018	mg/L	1		6020B	Recoverable Total
Molybdenum	0.0015	J	0.0020	0.00014	mg/L	1		6020B	Recoverable Total
Thallium	0.00075	J	0.0010	0.000089	mg/L	1		6020B	Recoverable Total
Calcium	530	B	10	1.9	mg/L	50		6020B	Recoverable Total
pH adj. to 25 deg C	6.9	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.2	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	100		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.46	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	3600		100	21	mg/L	20		9056A	Total/NA
Total Dissolved Solids (TDS)	5400		40	19	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

Client Sample ID: W-2A

Lab Sample ID: 280-163349-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.4		0.10	0.0015	mg/L	1		6010C	Total
Lithium	5000	^+	20	9.1	ug/L	1		6010C	Recoverable
Boron	1.4		0.10	0.0015	mg/L	1		6010C	Total
Lithium	4.9		0.020	0.0091	mg/L	1		6010C	Recoverable
Arsenic	0.00035	J	0.0050	0.00033	mg/L	1		6020B	Dissolved
Barium	0.013	^6+	0.0010	0.00029	mg/L	1		6020B	Total
Cadmium	0.0044		0.0010	0.00027	mg/L	1		6020B	Recoverable
Cobalt	0.0028		0.0010	0.000092	mg/L	1		6020B	Total
Lead	0.00047	J	0.0010	0.00018	mg/L	1		6020B	Recoverable
Molybdenum	0.0025		0.0020	0.00014	mg/L	1		6020B	Total
Selenium	2.6		0.0050	0.00037	mg/L	1		6020B	Recoverable
Thallium	0.0042		0.0010	0.000089	mg/L	1		6020B	Total
Calcium	530	B	10	1.9	mg/L	50		6020B	Recoverable
Antimony	0.00092	J	0.0020	0.00040	mg/L	1		6020B	Total
Arsenic	0.00055	J	0.0050	0.00033	mg/L	1		6020B	Dissolved
Barium	0.013	^6+ B	0.0010	0.00029	mg/L	1		6020B	Dissolved
Beryllium	0.00080	J	0.0010	0.000080	mg/L	1		6020B	Dissolved
Cadmium	0.0043		0.0010	0.00027	mg/L	1		6020B	Dissolved
Cobalt	0.012		0.0010	0.000092	mg/L	1		6020B	Dissolved
Lead	0.00036	J	0.0010	0.00018	mg/L	1		6020B	Dissolved
Calcium	450000	B	10000	1900	ug/L	50		6020B	Dissolved
Molybdenum	0.0042		0.0020	0.00014	mg/L	1		6020B	Dissolved
Selenium	2.7		0.0050	0.00037	mg/L	1		6020B	Dissolved
Thallium	0.0042		0.0010	0.000089	mg/L	1		6020B	Dissolved
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.9	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	880		30	10	mg/L	10		9056A	Total/NA
Sulfate	51000		2500	520	mg/L	500		9056A	Total/NA
Total Dissolved Solids (TDS)	74000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	12		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-2C

Lab Sample ID: 280-163349-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.5		0.10	0.0015	mg/L	1		6010C	Total
Lithium	4600	^+	20	9.1	ug/L	1		6010C	Recoverable
Boron	1.4		0.10	0.0015	mg/L	1		6010C	Total
Lithium	4.4		0.020	0.0091	mg/L	1		6010C	Recoverable
Arsenic	0.00040	J	0.0050	0.00033	mg/L	1		6020B	Dissolved
Barium	0.014	^6+	0.0010	0.00029	mg/L	1		6020B	Total
									Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

Client Sample ID: W-2C (Continued)

Lab Sample ID: 280-163349-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cadmium	0.0043		0.0010	0.00027	mg/L	1		6020B	Total
									Recoverable
Chromium	0.00067	J	0.0020	0.00050	mg/L	1		6020B	Total
									Recoverable
Cobalt	0.0029		0.0010	0.000092	mg/L	1		6020B	Total
									Recoverable
Lead	0.00043	J	0.0010	0.00018	mg/L	1		6020B	Total
									Recoverable
Molybdenum	0.0024		0.0020	0.00014	mg/L	1		6020B	Total
									Recoverable
Selenium	2.9		0.0050	0.00037	mg/L	1		6020B	Total
									Recoverable
Thallium	0.0038		0.0010	0.000089	mg/L	1		6020B	Total
									Recoverable
Calcium	490	B	10	1.9	mg/L	50		6020B	Total
									Recoverable
Arsenic	0.0021	J F1	0.010	0.00066	mg/L	1		6020B	Dissolved
Barium	0.012	^6+ F1 B	0.0020	0.00058	mg/L	1		6020B	Dissolved
Cadmium	0.0047	F1	0.0020	0.00053	mg/L	1		6020B	Dissolved
Cobalt	0.0035	F1	0.0020	0.00018	mg/L	1		6020B	Dissolved
Calcium	440000	B	20000	3800	ug/L	50		6020B	Dissolved
Molybdenum	0.0025	J F1	0.0040	0.00028	mg/L	1		6020B	Dissolved
Selenium	2.6		0.010	0.00075	mg/L	1		6020B	Dissolved
Thallium	0.0037	F1	0.0020	0.00018	mg/L	1		6020B	Dissolved
pH adj. to 25 deg C	7.1	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.2	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	870		30	10	mg/L	10		9056A	Total/NA
Sulfate	43000		2500	520	mg/L	500		9056A	Total/NA
Total Dissolved Solids (TDS)	66000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	10		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-16

Lab Sample ID: 280-163349-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.81		0.10	0.0015	mg/L	1		6010C	Total
									Recoverable
Lithium	2400	^+	20	9.1	ug/L	1		6010C	Total
									Recoverable
Arsenic	0.00068	J	0.0050	0.00033	mg/L	1		6020B	Total
									Recoverable
Barium	0.014	^6+	0.0010	0.00029	mg/L	1		6020B	Total
									Recoverable
Cadmium	0.0021		0.0010	0.00027	mg/L	1		6020B	Total
									Recoverable
Cobalt	0.013		0.0010	0.000092	mg/L	1		6020B	Total
									Recoverable
Lead	0.00041	J	0.0010	0.00018	mg/L	1		6020B	Total
									Recoverable
Molybdenum	0.0032		0.0020	0.00014	mg/L	1		6020B	Total
									Recoverable
Selenium	0.098		0.0050	0.00037	mg/L	1		6020B	Total
									Recoverable
Thallium	0.0050		0.0010	0.000089	mg/L	1		6020B	Total
									Recoverable
Calcium	450	B	10	1.9	mg/L	50		6020B	Total
									Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

Client Sample ID: W-16 (Continued)

Lab Sample ID: 280-163349-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
pH adj. to 25 deg C	6.9	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.3	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	260		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	0.48	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	13000		500	100	mg/L	100		9056A	Total/NA
Total Dissolved Solids (TDS)	21000		1000	470	mg/L	1		SM 2540C	Total/NA

Client Sample ID: W-3B

Lab Sample ID: 280-163349-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.88		0.50	0.0073	mg/L	5		6010C	Total Recoverable
Lithium	3100	^+	20	9.1	ug/L	1		6010C	Total Recoverable
Arsenic	0.00082	J	0.0050	0.00033	mg/L	1		6020B	Total Recoverable
Barium	0.015	^6+	0.0010	0.00029	mg/L	1		6020B	Total Recoverable
Cadmium	0.015		0.0010	0.00027	mg/L	1		6020B	Total Recoverable
Chromium	0.00054	J	0.0020	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.0035		0.0010	0.000092	mg/L	1		6020B	Total Recoverable
Lead	0.00057	J	0.0010	0.00018	mg/L	1		6020B	Total Recoverable
Molybdenum	0.0017	J	0.0020	0.00014	mg/L	1		6020B	Total Recoverable
Selenium	0.0061		0.0050	0.00037	mg/L	1		6020B	Total Recoverable
Thallium	0.0029		0.0010	0.000089	mg/L	1		6020B	Total Recoverable
Calcium	480	B	10	1.9	mg/L	50		6020B	Total Recoverable
pH adj. to 25 deg C	6.7	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.2	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1200		30	10	mg/L	10		9056A	Total/NA
Sulfate	50000		2500	520	mg/L	500		9056A	Total/NA
Total Dissolved Solids (TDS)	73000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	5.6		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-6B

Lab Sample ID: 280-163349-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.1		0.50	0.0073	mg/L	5		6010C	Total Recoverable
Lithium	3800	^+	20	9.1	ug/L	1		6010C	Total Recoverable
Barium	0.018	^6+	0.0010	0.00029	mg/L	1		6020B	Total Recoverable
Cadmium	0.0089		0.0010	0.00027	mg/L	1		6020B	Total Recoverable
Cobalt	0.013		0.0010	0.000092	mg/L	1		6020B	Total Recoverable
Lead	0.00040	J	0.0010	0.00018	mg/L	1		6020B	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

Client Sample ID: W-6B (Continued)

Lab Sample ID: 280-163349-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Molybdenum	0.0033		0.0020	0.00014	mg/L	1		6020B	Total
									Recoverable
Selenium	0.0034	J	0.0050	0.00037	mg/L	1		6020B	Total
									Recoverable
Thallium	0.0025		0.0010	0.000089	mg/L	1		6020B	Total
									Recoverable
Calcium	500	B	10	1.9	mg/L	50		6020B	Total
									Recoverable
pH adj. to 25 deg C	6.8	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1300		60	20	mg/L	20		9056A	Total/NA
Sulfate	48000		2500	520	mg/L	500		9056A	Total/NA
Total Dissolved Solids (TDS)	73000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	9.2		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-7

Lab Sample ID: 280-163349-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.71	B	0.10	0.0015	mg/L	1		6010C	Total
									Recoverable
Lithium	2200	^+	20	9.1	ug/L	1		6010C	Total
									Recoverable
Arsenic	0.00074	J	0.0050	0.00033	mg/L	1		6020B	Total
									Recoverable
Barium	0.011	^6+	0.0010	0.00029	mg/L	1		6020B	Total
									Recoverable
Cadmium	0.00074	J	0.0010	0.00027	mg/L	1		6020B	Total
									Recoverable
Chromium	0.00052	J	0.0020	0.00050	mg/L	1		6020B	Total
									Recoverable
Cobalt	0.12		0.0010	0.000092	mg/L	1		6020B	Total
									Recoverable
Molybdenum	0.0032		0.0020	0.00014	mg/L	1		6020B	Total
									Recoverable
Selenium	0.39		0.0050	0.00037	mg/L	1		6020B	Total
									Recoverable
Thallium	0.0015		0.0010	0.000089	mg/L	1		6020B	Total
									Recoverable
Calcium	450	B	10	1.9	mg/L	50		6020B	Total
									Recoverable
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	19.4	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	340		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	0.43	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	10000		500	100	mg/L	100		9056A	Total/NA
Total Dissolved Solids (TDS)	17000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	8.8		4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Method Summary

Client: HDR Inc

Job ID: 280-163349-1

Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL DEN
6020B	Metals (ICP/MS)	SW846	TAL DEN
7470A	Mercury (CVAA)	SW846	TAL DEN
9040B	pH	SW846	TAL DEN
9056A	Anions, Ion Chromatography	SW846	TAL DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL DEN
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL DEN
7470A	Preparation, Mercury	SW846	TAL DEN
FILTRATION	Sample Filtration	None	TAL DEN

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.

Laboratory References:

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

Sample Summary

Client: HDR Inc

Job ID: 280-163349-1

Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-163349-1	W-14	Water	06/06/22 16:45	06/10/22 16:55
280-163349-2	W-14-EB	Water	06/07/22 09:15	06/10/22 16:55
280-163349-3	W-5B	Water	06/07/22 13:00	06/10/22 16:55
280-163349-4	W-5B-FD	Water	06/07/22 13:15	06/10/22 16:55
280-163349-5	W-2A	Water	06/07/22 17:45	06/10/22 16:55
280-163349-6	W-2C	Water	06/07/22 17:50	06/10/22 16:55
280-163349-7	W-16	Water	06/08/22 11:45	06/10/22 16:55
280-163349-8	W-3B	Water	06/08/22 14:55	06/10/22 16:55
280-163349-9	W-6B	Water	06/08/22 16:20	06/10/22 16:55
280-163349-10	MW-7	Water	06/10/22 13:10	06/10/22 16:55

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

Method: 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: W-14
Date Collected: 06/06/22 16:45
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.67		0.10	0.0015	mg/L		06/17/22 17:58	06/20/22 16:40	1
Lithium	3400	^+	20	9.1	ug/L		06/17/22 17:58	06/20/22 16:40	1

Client Sample ID: W-14-EB
Date Collected: 06/07/22 09:15
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.0015	J	0.10	0.0015	mg/L		06/17/22 17:58	06/20/22 16:44	1
Lithium	ND	^+	20	9.1	ug/L		06/17/22 17:58	06/20/22 16:44	1

Client Sample ID: W-5B
Date Collected: 06/07/22 13:00
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.1		0.10	0.0015	mg/L		06/17/22 17:58	06/20/22 17:05	1
Lithium	300		20	9.1	ug/L		06/17/22 17:58	06/20/22 20:20	1

Client Sample ID: W-5B-FD
Date Collected: 06/07/22 13:15
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.1		0.10	0.0015	mg/L		06/17/22 17:58	06/20/22 17:09	1
Lithium	290		20	9.1	ug/L		06/17/22 17:58	06/20/22 20:24	1

Client Sample ID: W-2A
Date Collected: 06/07/22 17:45
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.4		0.10	0.0015	mg/L		06/17/22 17:58	06/20/22 17:13	1
Lithium	5000	^+	20	9.1	ug/L		06/17/22 17:58	06/20/22 17:13	1

Client Sample ID: W-2C
Date Collected: 06/07/22 17:50
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.5		0.10	0.0015	mg/L		06/17/22 17:58	06/20/22 17:17	1
Lithium	4600	^+	20	9.1	ug/L		06/17/22 17:58	06/20/22 17:17	1

Client Sample ID: W-16
Date Collected: 06/08/22 11:45
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.81		0.10	0.0015	mg/L		06/17/22 17:58	06/20/22 17:21	1
Lithium	2400	^+	20	9.1	ug/L		06/17/22 17:58	06/20/22 17:21	1

Client Sample ID: W-3B
Date Collected: 06/08/22 14:55
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.88		0.50	0.0073	mg/L		06/17/22 17:58	06/20/22 20:29	5
Lithium	3100	^+	20	9.1	ug/L		06/17/22 17:58	06/20/22 17:25	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

Method: 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: W-6B
Date Collected: 06/08/22 16:20
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.1		0.50	0.0073	mg/L		06/17/22 17:58	06/20/22 20:33	5
Lithium	3800	^+	20	9.1	ug/L		06/17/22 17:58	06/20/22 17:30	1

Client Sample ID: MW-7
Date Collected: 06/10/22 13:10
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.71	B	0.10	0.0015	mg/L		06/20/22 08:27	06/21/22 16:16	1
Lithium	2200	^+	20	9.1	ug/L		06/20/22 08:27	06/21/22 16:16	1

Method: 6010C - Metals (ICP) - Dissolved

Client Sample ID: W-2A
Date Collected: 06/07/22 17:45
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.4		0.10	0.0015	mg/L		06/16/22 19:27	06/20/22 11:10	1
Lithium	4.9		0.020	0.0091	mg/L		06/16/22 19:27	06/20/22 11:10	1

Client Sample ID: W-2C
Date Collected: 06/07/22 17:50
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.4		0.10	0.0015	mg/L		06/16/22 19:27	06/20/22 11:14	1
Lithium	4.4		0.020	0.0091	mg/L		06/16/22 19:27	06/20/22 11:14	1

Method: 6020B - Metals (ICP/MS) - Total Recoverable

Client Sample ID: W-14
Date Collected: 06/06/22 16:45
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00062	J	0.0020	0.00040	mg/L		06/17/22 08:32	06/21/22 01:05	1
Arsenic	0.00046	J	0.0050	0.00033	mg/L		06/17/22 08:32	06/17/22 21:10	1
Barium	0.017	^6+	0.0010	0.00029	mg/L		06/17/22 08:32	06/22/22 01:35	1
Beryllium	0.00034	J	0.0010	0.000080	mg/L		06/17/22 08:32	06/22/22 13:24	1
Cadmium	0.0012		0.0010	0.00027	mg/L		06/17/22 08:32	06/17/22 21:10	1
Chromium	0.00068	J	0.0020	0.00050	mg/L		06/17/22 08:32	06/17/22 21:10	1
Cobalt	0.010		0.0010	0.000092	mg/L		06/17/22 08:32	06/17/22 21:10	1
Lead	0.00038	J	0.0010	0.00018	mg/L		06/17/22 08:32	06/17/22 21:10	1
Molybdenum	0.016		0.0020	0.00014	mg/L		06/17/22 08:32	06/17/22 21:10	1
Selenium	1.2		0.0050	0.00037	mg/L		06/17/22 08:32	06/17/22 21:10	1
Thallium	0.0020		0.0010	0.000089	mg/L		06/17/22 08:32	06/17/22 21:10	1
Calcium	440	B	10	1.9	mg/L		06/17/22 08:32	06/20/22 17:22	50

Client Sample ID: W-14-EB
Date Collected: 06/07/22 09:15
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00040	J	0.0020	0.00040	mg/L		06/17/22 08:32	06/21/22 01:09	1
Arsenic	ND		0.0050	0.00033	mg/L		06/17/22 08:32	06/17/22 21:14	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

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

Client Sample ID: W-14-EB
Date Collected: 06/07/22 09:15
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.00030	J ^6+	0.0010	0.00029	mg/L		06/17/22 08:32	06/22/22 01:39	1
Beryllium	ND		0.0010	0.000080	mg/L		06/17/22 08:32	06/22/22 13:28	1
Cadmium	ND		0.0010	0.00027	mg/L		06/17/22 08:32	06/17/22 21:14	1
Chromium	ND		0.0020	0.00050	mg/L		06/17/22 08:32	06/17/22 21:14	1
Cobalt	ND		0.0010	0.000092	mg/L		06/17/22 08:32	06/17/22 21:14	1
Lead	ND		0.0010	0.00018	mg/L		06/17/22 08:32	06/17/22 21:14	1
Molybdenum	ND		0.0020	0.00014	mg/L		06/17/22 08:32	06/17/22 21:14	1
Selenium	0.00063	J	0.0050	0.00037	mg/L		06/17/22 08:32	06/17/22 21:14	1
Thallium	ND		0.0010	0.000089	mg/L		06/17/22 08:32	06/17/22 21:14	1
Calcium	0.40		0.20	0.038	mg/L		06/17/22 08:32	06/22/22 01:39	1

Client Sample ID: W-5B
Date Collected: 06/07/22 13:00
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00049	J	0.0020	0.00040	mg/L		06/17/22 08:32	06/21/22 01:13	1
Arsenic	0.00036	J	0.0050	0.00033	mg/L		06/17/22 08:32	06/17/22 21:18	1
Barium	0.019	^6+	0.0010	0.00029	mg/L		06/17/22 08:32	06/22/22 01:42	1
Beryllium	ND		0.0010	0.000080	mg/L		06/17/22 08:32	06/22/22 13:32	1
Cadmium	0.00090	J	0.0010	0.00027	mg/L		06/17/22 08:32	06/17/22 21:18	1
Chromium	ND		0.0020	0.00050	mg/L		06/17/22 08:32	06/17/22 21:18	1
Cobalt	0.0028		0.0010	0.000092	mg/L		06/17/22 08:32	06/17/22 21:18	1
Lead	0.00020	J	0.0010	0.00018	mg/L		06/17/22 08:32	06/17/22 21:18	1
Molybdenum	0.0015	J	0.0020	0.00014	mg/L		06/17/22 08:32	06/17/22 21:18	1
Selenium	0.00057	J	0.0050	0.00037	mg/L		06/17/22 08:32	06/17/22 21:18	1
Thallium	0.00084	J	0.0010	0.000089	mg/L		06/17/22 08:32	06/17/22 21:18	1
Calcium	550	B	10	1.9	mg/L		06/17/22 08:32	06/20/22 17:26	50

Client Sample ID: W-5B-FD
Date Collected: 06/07/22 13:15
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		06/17/22 08:32	06/21/22 01:28	1
Arsenic	ND		0.0050	0.00033	mg/L		06/17/22 08:32	06/21/22 01:28	1
Barium	0.020	^6+	0.0010	0.00029	mg/L		06/17/22 08:32	06/22/22 01:46	1
Beryllium	ND		0.0010	0.000080	mg/L		06/17/22 08:32	06/21/22 01:28	1
Cadmium	0.0010		0.0010	0.00027	mg/L		06/17/22 08:32	06/17/22 21:33	1
Chromium	ND		0.0020	0.00050	mg/L		06/17/22 08:32	06/21/22 01:28	1
Cobalt	ND		0.0010	0.000092	mg/L		06/17/22 08:32	06/21/22 01:28	1
Lead	0.00022	J	0.0010	0.00018	mg/L		06/17/22 08:32	06/17/22 21:33	1
Molybdenum	0.0015	J	0.0020	0.00014	mg/L		06/17/22 08:32	06/17/22 21:33	1
Selenium	ND		0.0050	0.00037	mg/L		06/17/22 08:32	06/17/22 21:33	1
Thallium	0.00075	J	0.0010	0.000089	mg/L		06/17/22 08:32	06/17/22 21:33	1
Calcium	530	B	10	1.9	mg/L		06/17/22 08:32	06/20/22 17:41	50

Client Sample ID: W-2A
Date Collected: 06/07/22 17:45
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		06/17/22 08:32	06/21/22 01:31	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

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

Client Sample ID: W-2A
Date Collected: 06/07/22 17:45
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00035	J	0.0050	0.00033	mg/L		06/17/22 08:32	06/21/22 01:31	1
Barium	0.013	^6+	0.0010	0.00029	mg/L		06/17/22 08:32	06/22/22 01:50	1
Beryllium	ND		0.0010	0.000080	mg/L		06/17/22 08:32	06/21/22 01:31	1
Cadmium	0.0044		0.0010	0.00027	mg/L		06/17/22 08:32	06/17/22 21:36	1
Chromium	ND		0.0020	0.00050	mg/L		06/17/22 08:32	06/21/22 01:31	1
Cobalt	0.0028		0.0010	0.000092	mg/L		06/17/22 08:32	06/21/22 01:31	1
Lead	0.00047	J	0.0010	0.00018	mg/L		06/17/22 08:32	06/17/22 21:36	1
Molybdenum	0.0025		0.0020	0.00014	mg/L		06/17/22 08:32	06/17/22 21:36	1
Selenium	2.6		0.0050	0.00037	mg/L		06/17/22 08:32	06/17/22 21:36	1
Thallium	0.0042		0.0010	0.000089	mg/L		06/17/22 08:32	06/17/22 21:36	1
Calcium	530	B	10	1.9	mg/L		06/17/22 08:32	06/20/22 17:44	50

Client Sample ID: W-2C
Date Collected: 06/07/22 17:50
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		06/17/22 08:32	06/21/22 01:35	1
Arsenic	0.00040	J	0.0050	0.00033	mg/L		06/17/22 08:32	06/21/22 01:35	1
Barium	0.014	^6+	0.0010	0.00029	mg/L		06/17/22 08:32	06/22/22 01:54	1
Beryllium	ND		0.0010	0.000080	mg/L		06/17/22 08:32	06/21/22 01:35	1
Cadmium	0.0043		0.0010	0.00027	mg/L		06/17/22 08:32	06/17/22 21:40	1
Chromium	0.00067	J	0.0020	0.00050	mg/L		06/17/22 08:32	06/21/22 01:35	1
Cobalt	0.0029		0.0010	0.000092	mg/L		06/17/22 08:32	06/21/22 01:35	1
Lead	0.00043	J	0.0010	0.00018	mg/L		06/17/22 08:32	06/17/22 21:40	1
Molybdenum	0.0024		0.0020	0.00014	mg/L		06/17/22 08:32	06/17/22 21:40	1
Selenium	2.9		0.0050	0.00037	mg/L		06/17/22 08:32	06/17/22 21:40	1
Thallium	0.0038		0.0010	0.000089	mg/L		06/17/22 08:32	06/17/22 21:40	1
Calcium	490	B	10	1.9	mg/L		06/17/22 08:32	06/20/22 17:48	50

Client Sample ID: W-16
Date Collected: 06/08/22 11:45
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		06/17/22 08:32	06/21/22 01:39	1
Arsenic	0.00068	J	0.0050	0.00033	mg/L		06/17/22 08:32	06/21/22 01:39	1
Barium	0.014	^6+	0.0010	0.00029	mg/L		06/17/22 08:32	06/22/22 01:58	1
Beryllium	ND		0.0010	0.000080	mg/L		06/17/22 08:32	06/21/22 01:39	1
Cadmium	0.0021		0.0010	0.00027	mg/L		06/17/22 08:32	06/17/22 21:44	1
Chromium	ND		0.0020	0.00050	mg/L		06/17/22 08:32	06/21/22 01:39	1
Cobalt	0.013		0.0010	0.000092	mg/L		06/17/22 08:32	06/21/22 01:39	1
Lead	0.00041	J	0.0010	0.00018	mg/L		06/17/22 08:32	06/17/22 21:44	1
Molybdenum	0.0032		0.0020	0.00014	mg/L		06/17/22 08:32	06/17/22 21:44	1
Selenium	0.098		0.0050	0.00037	mg/L		06/17/22 08:32	06/17/22 21:44	1
Thallium	0.0050		0.0010	0.000089	mg/L		06/17/22 08:32	06/17/22 21:44	1
Calcium	450	B	10	1.9	mg/L		06/17/22 08:32	06/20/22 17:52	50

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

Method: 6020B - Metals (ICP/MS) - Total Recoverable

Client Sample ID: W-3B
Date Collected: 06/08/22 14:55
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		06/17/22 08:32	06/21/22 01:43	1
Arsenic	0.00082	J	0.0050	0.00033	mg/L		06/17/22 08:32	06/21/22 01:43	1
Barium	0.015	^6+	0.0010	0.00029	mg/L		06/17/22 08:32	06/22/22 02:13	1
Beryllium	ND		0.0010	0.000080	mg/L		06/17/22 08:32	06/21/22 01:43	1
Cadmium	0.015		0.0010	0.00027	mg/L		06/17/22 08:32	06/17/22 21:48	1
Chromium	0.00054	J	0.0020	0.00050	mg/L		06/17/22 08:32	06/21/22 01:43	1
Cobalt	0.0035		0.0010	0.000092	mg/L		06/17/22 08:32	06/21/22 01:43	1
Lead	0.00057	J	0.0010	0.00018	mg/L		06/17/22 08:32	06/17/22 21:48	1
Molybdenum	0.0017	J	0.0020	0.00014	mg/L		06/17/22 08:32	06/17/22 21:48	1
Selenium	0.0061		0.0050	0.00037	mg/L		06/17/22 08:32	06/17/22 21:48	1
Thallium	0.0029		0.0010	0.000089	mg/L		06/17/22 08:32	06/17/22 21:48	1
Calcium	480	B	10	1.9	mg/L		06/17/22 08:32	06/20/22 17:56	50

Client Sample ID: W-6B
Date Collected: 06/08/22 16:20
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		06/17/22 08:32	06/21/22 01:47	1
Arsenic	ND		0.0050	0.00033	mg/L		06/17/22 08:32	06/21/22 01:47	1
Barium	0.018	^6+	0.0010	0.00029	mg/L		06/17/22 08:32	06/22/22 02:16	1
Beryllium	ND		0.0010	0.000080	mg/L		06/17/22 08:32	06/21/22 01:47	1
Cadmium	0.0089		0.0010	0.00027	mg/L		06/17/22 08:32	06/17/22 21:52	1
Chromium	ND		0.0020	0.00050	mg/L		06/17/22 08:32	06/21/22 01:47	1
Cobalt	0.013		0.0010	0.000092	mg/L		06/17/22 08:32	06/21/22 01:47	1
Lead	0.00040	J	0.0010	0.00018	mg/L		06/17/22 08:32	06/17/22 21:52	1
Molybdenum	0.0033		0.0020	0.00014	mg/L		06/17/22 08:32	06/17/22 21:52	1
Selenium	0.0034	J	0.0050	0.00037	mg/L		06/17/22 08:32	06/17/22 21:52	1
Thallium	0.0025		0.0010	0.000089	mg/L		06/17/22 08:32	06/17/22 21:52	1
Calcium	500	B	10	1.9	mg/L		06/17/22 08:32	06/20/22 17:59	50

Client Sample ID: MW-7
Date Collected: 06/10/22 13:10
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		06/17/22 08:32	06/21/22 01:50	1
Arsenic	0.00074	J	0.0050	0.00033	mg/L		06/17/22 08:32	06/21/22 01:50	1
Barium	0.011	^6+	0.0010	0.00029	mg/L		06/17/22 08:32	06/22/22 02:20	1
Beryllium	ND		0.0010	0.000080	mg/L		06/17/22 08:32	06/21/22 01:50	1
Cadmium	0.00074	J	0.0010	0.00027	mg/L		06/17/22 08:32	06/17/22 21:55	1
Chromium	0.00052	J	0.0020	0.00050	mg/L		06/17/22 08:32	06/21/22 01:50	1
Cobalt	0.12		0.0010	0.000092	mg/L		06/17/22 08:32	06/21/22 01:50	1
Lead	ND		0.0010	0.00018	mg/L		06/17/22 08:32	06/17/22 21:55	1
Molybdenum	0.0032		0.0020	0.00014	mg/L		06/17/22 08:32	06/17/22 21:55	1
Selenium	0.39		0.0050	0.00037	mg/L		06/17/22 08:32	06/17/22 21:55	1
Thallium	0.0015		0.0010	0.000089	mg/L		06/17/22 08:32	06/17/22 21:55	1
Calcium	450	B	10	1.9	mg/L		06/17/22 08:32	06/20/22 18:03	50

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

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

Client Sample ID: W-2A
Date Collected: 06/07/22 17:45
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00092	J	0.0020	0.00040	mg/L		06/21/22 08:46	06/21/22 18:30	1
Arsenic	0.00055	J	0.0050	0.00033	mg/L		06/21/22 08:46	06/21/22 18:30	1
Barium	0.013	^6+ B	0.0010	0.00029	mg/L		06/21/22 08:46	06/22/22 14:24	1
Beryllium	0.00080	J	0.0010	0.000080	mg/L		06/21/22 08:46	06/22/22 14:24	1
Cadmium	0.0043		0.0010	0.00027	mg/L		06/21/22 08:46	06/21/22 18:30	1
Chromium	ND		0.0020	0.00050	mg/L		06/21/22 08:46	06/21/22 18:30	1
Cobalt	0.012		0.0010	0.000092	mg/L		06/21/22 08:46	06/21/22 18:30	1
Lead	0.00036	J	0.0010	0.00018	mg/L		06/21/22 08:46	06/21/22 18:30	1
Calcium	450000	B	10000	1900	ug/L		06/21/22 08:46	06/21/22 18:01	50
Molybdenum	0.0042		0.0020	0.00014	mg/L		06/21/22 08:46	06/21/22 18:30	1
Selenium	2.7		0.0050	0.00037	mg/L		06/21/22 08:46	06/21/22 18:30	1
Thallium	0.0042		0.0010	0.000089	mg/L		06/21/22 08:46	06/21/22 18:30	1

Client Sample ID: W-2C
Date Collected: 06/07/22 17:50
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	F1	0.0040	0.00080	mg/L		06/21/22 08:46	06/21/22 18:12	1
Arsenic	0.0021	J F1	0.010	0.00066	mg/L		06/21/22 08:46	06/21/22 18:12	1
Barium	0.012	^6+ F1 B	0.0020	0.00058	mg/L		06/21/22 08:46	06/22/22 14:06	1
Beryllium	ND	F1	0.0020	0.00016	mg/L		06/21/22 08:46	06/22/22 14:06	1
Cadmium	0.0047	F1	0.0020	0.00053	mg/L		06/21/22 08:46	06/21/22 18:12	1
Chromium	ND	F1	0.0040	0.0010	mg/L		06/21/22 08:46	06/21/22 18:12	1
Cobalt	0.0035	F1	0.0020	0.00018	mg/L		06/21/22 08:46	06/21/22 18:12	1
Lead	ND	F1	0.0020	0.00036	mg/L		06/21/22 08:46	06/21/22 18:12	1
Calcium	440000	B	20000	3800	ug/L		06/21/22 08:46	06/21/22 17:42	50
Molybdenum	0.0025	J F1	0.0040	0.00028	mg/L		06/21/22 08:46	06/21/22 18:12	1
Selenium	2.6		0.010	0.00075	mg/L		06/21/22 08:46	06/21/22 18:12	1
Thallium	0.0037	F1	0.0020	0.00018	mg/L		06/21/22 08:46	06/21/22 18:12	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: W-14
Date Collected: 06/06/22 16:45
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		06/16/22 19:20	06/17/22 12:18	1

Client Sample ID: W-14-EB
Date Collected: 06/07/22 09:15
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		06/16/22 19:20	06/17/22 12:21	1

Client Sample ID: W-5B
Date Collected: 06/07/22 13:00
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		06/16/22 19:20	06/17/22 12:23	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

Method: 7470A - Mercury (CVAA)

Client Sample ID: W-5B-FD
Date Collected: 06/07/22 13:15
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		06/16/22 19:20	06/17/22 12:26	1

Client Sample ID: W-2A
Date Collected: 06/07/22 17:45
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		06/16/22 19:20	06/17/22 12:28	1

Client Sample ID: W-2C
Date Collected: 06/07/22 17:50
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		06/16/22 19:20	06/17/22 12:31	1

Client Sample ID: W-16
Date Collected: 06/08/22 11:45
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		06/16/22 19:20	06/17/22 12:33	1

Client Sample ID: W-3B
Date Collected: 06/08/22 14:55
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		06/16/22 19:20	06/17/22 12:36	1

Client Sample ID: W-6B
Date Collected: 06/08/22 16:20
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		06/16/22 19:20	06/17/22 12:44	1

Client Sample ID: MW-7
Date Collected: 06/10/22 13:10
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		06/16/22 19:20	06/17/22 12:46	1

Method: 7470A - Mercury (CVAA) - Dissolved

Client Sample ID: W-2A
Date Collected: 06/07/22 17:45
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.061	ug/L		06/16/22 19:20	06/17/22 01:49	1

Client Sample ID: W-2C
Date Collected: 06/07/22 17:50
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.061	ug/L		06/16/22 19:20	06/17/22 01:52	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

General Chemistry

Client Sample ID: W-14
Date Collected: 06/06/22 16:45
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU			06/20/22 17:02	1
Temperature	20.6	HF	1.0	1.0	Degrees C			06/20/22 17:02	1
Chloride	660		30	10	mg/L			06/15/22 18:48	10
Fluoride	1.2		0.50	0.17	mg/L			06/15/22 18:32	1
Sulfate	31000		1000	210	mg/L			06/15/22 19:04	200
Total Dissolved Solids (TDS)	28000		1000	470	mg/L			06/13/22 10:45	1
Total Suspended Solids	ND		4.0	1.1	mg/L			06/13/22 10:41	1

Client Sample ID: W-14-EB
Date Collected: 06/07/22 09:15
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	6.5	HF	0.1	0.1	SU			06/20/22 17:14	1
Temperature	20.0	HF	1.0	1.0	Degrees C			06/20/22 17:14	1
Chloride	ND		3.0	1.0	mg/L			06/16/22 05:27	1
Fluoride	ND		0.50	0.17	mg/L			06/16/22 05:27	1
Sulfate	ND		5.0	1.0	mg/L			06/16/22 05:27	1
Total Dissolved Solids (TDS)	9.0	J	10	4.7	mg/L			06/13/22 10:45	1
Total Suspended Solids	ND		4.0	1.1	mg/L			06/13/22 10:41	1

Client Sample ID: W-5B
Date Collected: 06/07/22 13:00
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.1	HF	0.1	0.1	SU			06/20/22 17:22	1
Temperature	19.9	HF	1.0	1.0	Degrees C			06/20/22 17:22	1
Chloride	100		3.0	1.0	mg/L			06/15/22 20:24	1
Fluoride	0.45	J	0.50	0.17	mg/L			06/15/22 20:24	1
Sulfate	3500		250	52	mg/L			06/15/22 21:28	50
Total Dissolved Solids (TDS)	5300		40	19	mg/L			06/13/22 10:45	1
Total Suspended Solids	ND		4.0	1.1	mg/L			06/13/22 10:41	1

Client Sample ID: W-5B-FD
Date Collected: 06/07/22 13:15
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	6.9	HF	0.1	0.1	SU			06/20/22 17:26	1
Temperature	20.2	HF	1.0	1.0	Degrees C			06/20/22 17:26	1
Chloride	100		3.0	1.0	mg/L			06/15/22 21:44	1
Fluoride	0.46	J	0.50	0.17	mg/L			06/15/22 21:44	1
Sulfate	3600		100	21	mg/L			06/16/22 18:33	20
Total Dissolved Solids (TDS)	5400		40	19	mg/L			06/13/22 10:45	1
Total Suspended Solids	ND		4.0	1.1	mg/L			06/13/22 10:41	1

Client Sample ID: W-2A
Date Collected: 06/07/22 17:45
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU			06/20/22 17:30	1
Temperature	20.9	HF	1.0	1.0	Degrees C			06/20/22 17:30	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

General Chemistry (Continued)

Client Sample ID: W-2A
Date Collected: 06/07/22 17:45
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	880		30	10	mg/L			06/15/22 22:47	10
Fluoride	ND		0.50	0.17	mg/L			06/15/22 22:31	1
Sulfate	51000		2500	520	mg/L			06/15/22 23:03	500
Total Dissolved Solids (TDS)	74000		1000	470	mg/L			06/13/22 10:45	1
Total Suspended Solids	12		4.0	1.1	mg/L			06/13/22 10:41	1

Client Sample ID: W-2C
Date Collected: 06/07/22 17:50
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.1	HF	0.1	0.1	SU			06/20/22 17:33	1
Temperature	20.2	HF	1.0	1.0	Degrees C			06/20/22 17:33	1
Chloride	870		30	10	mg/L			06/15/22 23:35	10
Fluoride	ND		0.50	0.17	mg/L			06/15/22 23:19	1
Sulfate	43000		2500	520	mg/L			06/15/22 23:51	500
Total Dissolved Solids (TDS)	66000		1000	470	mg/L			06/13/22 10:45	1
Total Suspended Solids	10		4.0	1.1	mg/L			06/13/22 10:41	1

Client Sample ID: W-16
Date Collected: 06/08/22 11:45
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	6.9	HF	0.1	0.1	SU			06/20/22 17:37	1
Temperature	20.3	HF	1.0	1.0	Degrees C			06/20/22 17:37	1
Chloride	260		15	5.1	mg/L			06/16/22 00:55	5
Fluoride	0.48	J	0.50	0.17	mg/L			06/16/22 00:39	1
Sulfate	13000		500	100	mg/L			06/16/22 01:11	100
Total Dissolved Solids (TDS)	21000		1000	470	mg/L			06/13/22 10:45	1
Total Suspended Solids	ND		4.0	1.1	mg/L			06/13/22 10:41	1

Client Sample ID: W-3B
Date Collected: 06/08/22 14:55
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	6.7	HF	0.1	0.1	SU			06/20/22 17:41	1
Temperature	20.2	HF	1.0	1.0	Degrees C			06/20/22 17:41	1
Chloride	1200		30	10	mg/L			06/16/22 01:43	10
Fluoride	ND		0.50	0.17	mg/L			06/16/22 01:27	1
Sulfate	50000		2500	520	mg/L			06/16/22 01:59	500
Total Dissolved Solids (TDS)	73000		1000	470	mg/L			06/13/22 10:45	1
Total Suspended Solids	5.6		4.0	1.1	mg/L			06/13/22 10:41	1

Client Sample ID: W-6B
Date Collected: 06/08/22 16:20
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	6.8	HF	0.1	0.1	SU			06/20/22 17:44	1
Temperature	20.0	HF	1.0	1.0	Degrees C			06/20/22 17:44	1
Chloride	1300		60	20	mg/L			06/16/22 02:31	20
Fluoride	ND		0.50	0.17	mg/L			06/16/22 02:15	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

General Chemistry (Continued)

Client Sample ID: W-6B

Date Collected: 06/08/22 16:20

Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-9

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	48000		2500	520	mg/L			06/16/22 02:47	500
Total Dissolved Solids (TDS)	73000		1000	470	mg/L			06/13/22 10:45	1
Total Suspended Solids	9.2		4.0	1.1	mg/L			06/13/22 10:41	1

Client Sample ID: MW-7

Date Collected: 06/10/22 13:10

Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-10

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU			06/20/22 17:47	1
Temperature	19.4	HF	1.0	1.0	Degrees C			06/20/22 17:47	1
Chloride	340		15	5.1	mg/L			06/16/22 03:51	5
Fluoride	0.43	J	0.50	0.17	mg/L			06/16/22 03:03	1
Sulfate	10000		500	100	mg/L			06/16/22 18:49	100
Total Dissolved Solids (TDS)	17000		1000	470	mg/L			06/13/22 10:45	1
Total Suspended Solids	8.8		4.0	1.1	mg/L			06/13/22 10:41	1

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-578090/1-A
Matrix: Water
Analysis Batch: 578573

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 578090

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.0015	mg/L		06/17/22 17:58	06/20/22 15:31	1
Lithium	ND	^+	20	9.1	ug/L		06/17/22 17:58	06/20/22 15:31	1

Lab Sample ID: LCS 280-578090/2-A
Matrix: Water
Analysis Batch: 578573

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 578090

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	2.06		mg/L		103	86 - 110
Lithium	1000	982	^+	ug/L		98	90 - 112

Lab Sample ID: MB 280-578367/1-A
Matrix: Water
Analysis Batch: 578742

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 578367

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.00658	J	0.10	0.0015	mg/L		06/20/22 08:27	06/21/22 15:52	1
Lithium	ND		20	9.1	ug/L		06/20/22 08:27	06/21/22 15:52	1

Lab Sample ID: LCS 280-578367/2-A
Matrix: Water
Analysis Batch: 578742

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 578367

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	2.04		mg/L		102	86 - 110
Lithium	1000	1040		ug/L		104	90 - 112

Lab Sample ID: MB 280-578065/1-B
Matrix: Water
Analysis Batch: 578527

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 578247

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.0015	mg/L		06/16/22 19:27	06/20/22 09:25	1
Lithium	ND		0.020	0.0091	mg/L		06/16/22 19:27	06/20/22 09:25	1

Lab Sample ID: LCS 280-578065/2-B
Matrix: Water
Analysis Batch: 578527

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 578247

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	2.02		mg/L		101	86 - 110
Lithium	1.00	0.963		mg/L		96	90 - 112

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-578251/1-A

Matrix: Water

Analysis Batch: 578478

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 578251

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050	0.00033	mg/L		06/17/22 08:32	06/17/22 20:14	1
Cadmium	ND		0.0010	0.00027	mg/L		06/17/22 08:32	06/17/22 20:14	1
Chromium	ND		0.0020	0.00050	mg/L		06/17/22 08:32	06/17/22 20:14	1
Cobalt	ND		0.0010	0.000092	mg/L		06/17/22 08:32	06/17/22 20:14	1
Lead	ND		0.0010	0.00018	mg/L		06/17/22 08:32	06/17/22 20:14	1
Molybdenum	ND		0.0020	0.00014	mg/L		06/17/22 08:32	06/17/22 20:14	1
Selenium	ND		0.0050	0.00037	mg/L		06/17/22 08:32	06/17/22 20:14	1
Thallium	ND		0.0010	0.000089	mg/L		06/17/22 08:32	06/17/22 20:14	1

Lab Sample ID: MB 280-578251/1-A

Matrix: Water

Analysis Batch: 578595

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 578251

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.0010	0.000080	mg/L		06/17/22 08:32	06/20/22 16:56	1
Calcium	0.166	J	0.20	0.038	mg/L		06/17/22 08:32	06/20/22 16:56	1

Lab Sample ID: MB 280-578251/1-A

Matrix: Water

Analysis Batch: 578596

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 578251

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		06/17/22 08:32	06/21/22 00:16	1

Lab Sample ID: MB 280-578251/1-A

Matrix: Water

Analysis Batch: 578747

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 578251

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND	^6+	0.0010	0.00029	mg/L		06/17/22 08:32	06/22/22 00:50	1

Lab Sample ID: LCS 280-578251/2-A

Matrix: Water

Analysis Batch: 578478

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 578251

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	0.0400	0.0399		mg/L		100	92 - 112
Cadmium	0.0400	0.0397		mg/L		99	91 - 114
Chromium	0.0400	0.0411		mg/L		103	91 - 114
Cobalt	0.0400	0.0409		mg/L		102	94 - 115
Lead	0.0400	0.0406		mg/L		101	95 - 116
Molybdenum	0.0400	0.0405		mg/L		101	84 - 117
Selenium	0.0400	0.0395		mg/L		99	90 - 115
Thallium	0.0400	0.0401		mg/L		100	94 - 115

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

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

Lab Sample ID: LCS 280-578251/2-A
Matrix: Water
Analysis Batch: 578658

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 578251

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0410		mg/L		103	80 - 111
Beryllium	0.0400	0.0389		mg/L		97	87 - 118
Calcium	0.800	0.806		mg/L		101	80 - 120

Lab Sample ID: LCS 280-578251/2-A
Matrix: Water
Analysis Batch: 578747

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 578251

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Barium	0.0400	0.0411	^6+	mg/L		103	92 - 117

Lab Sample ID: MB 280-578136/1-C
Matrix: Water
Analysis Batch: 578745

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 578491

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		06/21/22 08:46	06/21/22 17:34	1
Arsenic	ND		0.0050	0.00033	mg/L		06/21/22 08:46	06/21/22 17:34	1
Cadmium	ND		0.0010	0.00027	mg/L		06/21/22 08:46	06/21/22 17:34	1
Chromium	ND		0.0020	0.00050	mg/L		06/21/22 08:46	06/21/22 17:34	1
Cobalt	ND		0.0010	0.000092	mg/L		06/21/22 08:46	06/21/22 17:34	1
Lead	ND		0.0010	0.00018	mg/L		06/21/22 08:46	06/21/22 17:34	1
Molybdenum	ND		0.0020	0.00014	mg/L		06/21/22 08:46	06/21/22 17:34	1
Selenium	ND		0.0050	0.00037	mg/L		06/21/22 08:46	06/21/22 17:34	1
Calcium	45.2 J		200	38	ug/L		06/21/22 08:46	06/21/22 17:34	1
Thallium	ND		0.0010	0.000089	mg/L		06/21/22 08:46	06/21/22 17:34	1

Lab Sample ID: MB 280-578136/1-C
Matrix: Water
Analysis Batch: 578891

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 578491

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.000559	J ^6+	0.0010	0.00029	mg/L		06/21/22 08:46	06/22/22 13:58	1
Beryllium	ND		0.0010	0.000080	mg/L		06/21/22 08:46	06/22/22 13:58	1

Lab Sample ID: LCS 280-578136/2-C
Matrix: Water
Analysis Batch: 578745

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 578491

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0405		mg/L		101	80 - 111
Arsenic	0.0400	0.0399		mg/L		100	92 - 112
Cadmium	0.0400	0.0400		mg/L		100	91 - 114
Chromium	0.0400	0.0408		mg/L		102	91 - 114
Cobalt	0.0400	0.0406		mg/L		101	94 - 115
Lead	0.0400	0.0405		mg/L		101	95 - 116
Molybdenum	0.0400	0.0406		mg/L		101	84 - 117
Selenium	0.0400	0.0412		mg/L		103	90 - 115
Calcium	800	812		ug/L		101	80 - 120

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

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

Lab Sample ID: LCS 280-578136/2-C
Matrix: Water
Analysis Batch: 578745

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 578491

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Thallium	0.0400	0.0398		mg/L		99	94 - 115

Lab Sample ID: LCS 280-578136/2-C
Matrix: Water
Analysis Batch: 578891

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 578491

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Barium	0.0400	0.0421	^6+	mg/L		105	92 - 117
Beryllium	0.0400	0.0384		mg/L		96	87 - 118

Lab Sample ID: 280-163349-6 MS
Matrix: Water
Analysis Batch: 578745

Client Sample ID: W-2C
Prep Type: Dissolved
Prep Batch: 578491

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	440000	B	1600	425000	4	ug/L		-1172	80 - 120

Lab Sample ID: 280-163349-6 MS
Matrix: Water
Analysis Batch: 578745

Client Sample ID: W-2C
Prep Type: Dissolved
Prep Batch: 578491

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	ND	F1	0.0800	0.0429	F1	mg/L		54	80 - 111
Arsenic	0.0021	J F1	0.0800	0.0417	F1	mg/L		50	92 - 112
Cadmium	0.0047	F1	0.0800	0.0426	F1	mg/L		47	91 - 114
Chromium	ND	F1	0.0800	0.0426	F1	mg/L		53	91 - 114
Cobalt	0.0035	F1	0.0800	0.0415	F1	mg/L		48	94 - 115
Lead	ND	F1	0.0800	0.0363	F1	mg/L		45	95 - 116
Molybdenum	0.0025	J F1	0.0800	0.0456	F1	mg/L		54	84 - 117
Selenium	2.6		0.0800	2.53	4	mg/L		-103	90 - 115
Thallium	0.0037	F1	0.0800	0.0397	F1	mg/L		45	94 - 115

Lab Sample ID: 280-163349-6 MS
Matrix: Water
Analysis Batch: 578891

Client Sample ID: W-2C
Prep Type: Dissolved
Prep Batch: 578491

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Barium	0.012	^6+ F1 B	0.0800	0.0518	^6+ F1	mg/L		50	92 - 117
Beryllium	ND	F1	0.0800	0.0464	F1	mg/L		58	87 - 118

Lab Sample ID: 280-163349-6 MSD
Matrix: Water
Analysis Batch: 578745

Client Sample ID: W-2C
Prep Type: Dissolved
Prep Batch: 578491

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	440000	B	1600	457000	4	ug/L		826	80 - 120	7	20

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

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

Lab Sample ID: 280-163349-6 MSD

Matrix: Water

Analysis Batch: 578745

Client Sample ID: W-2C

Prep Type: Dissolved

Prep Batch: 578491

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	ND	F1	0.0800	0.0422	F1	mg/L		53	80 - 111	2	20
Arsenic	0.0021	J F1	0.0800	0.0429	F1	mg/L		51	92 - 112	3	20
Cadmium	0.0047	F1	0.0800	0.0452	F1	mg/L		51	91 - 114	6	20
Chromium	ND	F1	0.0800	0.0408	F1	mg/L		51	91 - 114	4	20
Cobalt	0.0035	F1	0.0800	0.0414	F1	mg/L		47	94 - 115	0	20
Lead	ND	F1	0.0800	0.0364	F1	mg/L		45	95 - 116	0	20
Molybdenum	0.0025	J F1	0.0800	0.0467	F1	mg/L		55	84 - 117	2	20
Selenium	2.6		0.0800	2.73	4	mg/L		149	90 - 115	8	20
Thallium	0.0037	F1	0.0800	0.0399	F1	mg/L		45	94 - 115	0	20

Lab Sample ID: 280-163349-6 MSD

Matrix: Water

Analysis Batch: 578891

Client Sample ID: W-2C

Prep Type: Dissolved

Prep Batch: 578491

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Barium	0.012	^6+ F1 B	0.0800	0.0556	^6+ F1	mg/L		55	92 - 117	7	20
Beryllium	ND	F1	0.0800	0.0509	F1	mg/L		64	87 - 118	9	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-578301/1-A

Matrix: Water

Analysis Batch: 578402

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 578301

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		06/16/22 19:20	06/17/22 11:42	1

Lab Sample ID: LCS 280-578301/2-A

Matrix: Water

Analysis Batch: 578402

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 578301

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00499		mg/L		100	84 - 120

Lab Sample ID: MB 280-578136/1-B

Matrix: Water

Analysis Batch: 578402

Client Sample ID: Method Blank

Prep Type: Dissolved

Prep Batch: 578300

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.061	ug/L		06/16/22 19:20	06/17/22 01:19	1

Lab Sample ID: LCS 280-578136/2-B

Matrix: Water

Analysis Batch: 578402

Client Sample ID: Lab Control Sample

Prep Type: Dissolved

Prep Batch: 578300

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	5.00	4.84		ug/L		97	84 - 120

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

Method: 9040B - pH

Lab Sample ID: LCS 280-578603/27

Matrix: Water

Analysis Batch: 578603

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH adj. to 25 deg C	7.00	7.0		SU		100	99 - 101

Lab Sample ID: LCS 280-578603/4

Matrix: Water

Analysis Batch: 578603

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH adj. to 25 deg C	7.00	7.0		SU		100	99 - 101

Lab Sample ID: 280-163349-2 DU

Matrix: Water

Analysis Batch: 578603

Client Sample ID: W-14-EB

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH adj. to 25 deg C	6.5	HF	6.1	F3	SU		7	5
Temperature	20.0	HF	19.9		Degrees C		0.8	10

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-578058/6

Matrix: Water

Analysis Batch: 578058

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			06/15/22 11:03	1
Fluoride	ND		0.50	0.17	mg/L			06/15/22 11:03	1
Sulfate	ND		5.0	1.0	mg/L			06/15/22 11:03	1

Lab Sample ID: MB 280-578058/72

Matrix: Water

Analysis Batch: 578058

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			06/16/22 05:11	1
Fluoride	ND		0.50	0.17	mg/L			06/16/22 05:11	1
Sulfate	ND		5.0	1.0	mg/L			06/16/22 05:11	1

Lab Sample ID: LCS 280-578058/4

Matrix: Water

Analysis Batch: 578058

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	101		mg/L		101	90 - 110
Fluoride	5.00	5.04		mg/L		101	90 - 110
Sulfate	100	102		mg/L		102	90 - 110

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

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

Lab Sample ID: LCS 280-578058/70

Matrix: Water

Analysis Batch: 578058

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	102		mg/L		102	90 - 110
Fluoride	5.00	4.73		mg/L		95	90 - 110
Sulfate	100	104		mg/L		104	90 - 110

Lab Sample ID: LCSD 280-578058/5

Matrix: Water

Analysis Batch: 578058

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	101		mg/L		101	90 - 110	0	10
Fluoride	5.00	5.00		mg/L		100	90 - 110	1	10
Sulfate	100	102		mg/L		102	90 - 110	0	10

Lab Sample ID: LCSD 280-578058/71

Matrix: Water

Analysis Batch: 578058

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	102		mg/L		102	90 - 110	0	10
Fluoride	5.00	4.86		mg/L		97	90 - 110	3	10
Sulfate	100	104		mg/L		104	90 - 110	0	10

Lab Sample ID: MRL 280-578058/3

Matrix: Water

Analysis Batch: 578058

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.00	4.69		mg/L		94	50 - 150
Fluoride	0.500	0.482	J	mg/L		96	50 - 150
Sulfate	5.00	4.54	J	mg/L		91	50 - 150

Lab Sample ID: 280-163349-2 MS

Matrix: Water

Analysis Batch: 578058

Client Sample ID: W-14-EB

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	ND		50.0	50.5		mg/L		101	80 - 120
Fluoride	ND		5.00	4.69		mg/L		94	80 - 120
Sulfate	ND		50.0	51.0		mg/L		102	80 - 120

Lab Sample ID: 280-163349-2 MSD

Matrix: Water

Analysis Batch: 578058

Client Sample ID: W-14-EB

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	ND		50.0	51.4		mg/L		103	80 - 120	2	20
Fluoride	ND		5.00	4.80		mg/L		96	80 - 120	2	20
Sulfate	ND		50.0	52.0		mg/L		104	80 - 120	2	20

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

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

Lab Sample ID: 280-163349-2 DU

Matrix: Water

Analysis Batch: 578058

Client Sample ID: W-14-EB

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Chloride	ND		ND		mg/L		NC	15
Fluoride	ND		ND		mg/L		NC	15
Sulfate	ND		ND		mg/L		NC	15

Lab Sample ID: MB 280-578215/6

Matrix: Water

Analysis Batch: 578215

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		5.0	1.0	mg/L			06/16/22 11:28	1

Lab Sample ID: LCS 280-578215/4

Matrix: Water

Analysis Batch: 578215

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	100	102		mg/L		102	90 - 110

Lab Sample ID: LCSD 280-578215/5

Matrix: Water

Analysis Batch: 578215

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Sulfate	100	102		mg/L		102	90 - 110	0	10

Lab Sample ID: MRL 280-578215/3

Matrix: Water

Analysis Batch: 578215

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	5.00	4.63	J	mg/L		93	50 - 150

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

Lab Sample ID: MB 280-577952/1

Matrix: Water

Analysis Batch: 577952

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 (TDS)	ND		10	4.7	mg/L			06/13/22 10:45	1

Lab Sample ID: LCS 280-577952/2

Matrix: Water

Analysis Batch: 577952

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 (TDS)	506	505		mg/L		100	88 - 114

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

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

Lab Sample ID: LCSD 280-577952/3

Matrix: Water

Analysis Batch: 577952

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids (TDS)	506	510		mg/L		101	88 - 114	1	20

Lab Sample ID: 280-163349-1 DU

Matrix: Water

Analysis Batch: 577952

Client Sample ID: W-14

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids (TDS)	28000		27400		mg/L		4	10

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 280-577951/3

Matrix: Water

Analysis Batch: 577951

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			06/13/22 10:41	1

Lab Sample ID: LCS 280-577951/1

Matrix: Water

Analysis Batch: 577951

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	82.8		mg/L		83	79 - 114

Lab Sample ID: LCSD 280-577951/2

Matrix: Water

Analysis Batch: 577951

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	100	92.4		mg/L		92	79 - 114	11	20

Lab Sample ID: 280-163349-1 DU

Matrix: Water

Analysis Batch: 577951

Client Sample ID: W-14

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	ND		1.20	J	mg/L		NC	10

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

Metals

Filtration Batch: 578065

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-578065/1-B	Method Blank	Dissolved	Water	FILTRATION	
LCS 280-578065/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	

Prep Batch: 578090

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163349-1	W-14	Total Recoverable	Water	3005A	
280-163349-2	W-14-EB	Total Recoverable	Water	3005A	
280-163349-3	W-5B	Total Recoverable	Water	3005A	
280-163349-4	W-5B-FD	Total Recoverable	Water	3005A	
280-163349-5	W-2A	Total Recoverable	Water	3005A	
280-163349-6	W-2C	Total Recoverable	Water	3005A	
280-163349-7	W-16	Total Recoverable	Water	3005A	
280-163349-8	W-3B	Total Recoverable	Water	3005A	
280-163349-9	W-6B	Total Recoverable	Water	3005A	
MB 280-578090/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-578090/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Filtration Batch: 578136

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163349-5	W-2A	Dissolved	Water	FILTRATION	
280-163349-6	W-2C	Dissolved	Water	FILTRATION	
MB 280-578136/1-B	Method Blank	Dissolved	Water	FILTRATION	
MB 280-578136/1-C	Method Blank	Dissolved	Water	FILTRATION	
LCS 280-578136/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 280-578136/2-C	Lab Control Sample	Dissolved	Water	FILTRATION	
280-163349-6 MS	W-2C	Dissolved	Water	FILTRATION	
280-163349-6 MSD	W-2C	Dissolved	Water	FILTRATION	

Prep Batch: 578247

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163349-5	W-2A	Dissolved	Water	3005A	578136
280-163349-6	W-2C	Dissolved	Water	3005A	578136
MB 280-578065/1-B	Method Blank	Dissolved	Water	3005A	578065
LCS 280-578065/2-B	Lab Control Sample	Dissolved	Water	3005A	578065

Prep Batch: 578251

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163349-1	W-14	Total Recoverable	Water	3005A	
280-163349-2	W-14-EB	Total Recoverable	Water	3005A	
280-163349-3	W-5B	Total Recoverable	Water	3005A	
280-163349-4	W-5B-FD	Total Recoverable	Water	3005A	
280-163349-5	W-2A	Total Recoverable	Water	3005A	
280-163349-6	W-2C	Total Recoverable	Water	3005A	
280-163349-7	W-16	Total Recoverable	Water	3005A	
280-163349-8	W-3B	Total Recoverable	Water	3005A	
280-163349-9	W-6B	Total Recoverable	Water	3005A	
280-163349-10	MW-7	Total Recoverable	Water	3005A	
MB 280-578251/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-578251/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

Metals

Prep Batch: 578300

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163349-5	W-2A	Dissolved	Water	7470A	578136
280-163349-6	W-2C	Dissolved	Water	7470A	578136
MB 280-578136/1-B	Method Blank	Dissolved	Water	7470A	578136
LCS 280-578136/2-B	Lab Control Sample	Dissolved	Water	7470A	578136

Prep Batch: 578301

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163349-1	W-14	Total/NA	Water	7470A	
280-163349-2	W-14-EB	Total/NA	Water	7470A	
280-163349-3	W-5B	Total/NA	Water	7470A	
280-163349-4	W-5B-FD	Total/NA	Water	7470A	
280-163349-5	W-2A	Total/NA	Water	7470A	
280-163349-6	W-2C	Total/NA	Water	7470A	
280-163349-7	W-16	Total/NA	Water	7470A	
280-163349-8	W-3B	Total/NA	Water	7470A	
280-163349-9	W-6B	Total/NA	Water	7470A	
280-163349-10	MW-7	Total/NA	Water	7470A	
MB 280-578301/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-578301/2-A	Lab Control Sample	Total/NA	Water	7470A	

Prep Batch: 578367

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163349-10	MW-7	Total Recoverable	Water	3005A	
MB 280-578367/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-578367/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 578402

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163349-1	W-14	Total/NA	Water	7470A	578301
280-163349-2	W-14-EB	Total/NA	Water	7470A	578301
280-163349-3	W-5B	Total/NA	Water	7470A	578301
280-163349-4	W-5B-FD	Total/NA	Water	7470A	578301
280-163349-5	W-2A	Dissolved	Water	7470A	578300
280-163349-5	W-2A	Total/NA	Water	7470A	578301
280-163349-6	W-2C	Dissolved	Water	7470A	578300
280-163349-6	W-2C	Total/NA	Water	7470A	578301
280-163349-7	W-16	Total/NA	Water	7470A	578301
280-163349-8	W-3B	Total/NA	Water	7470A	578301
280-163349-9	W-6B	Total/NA	Water	7470A	578301
280-163349-10	MW-7	Total/NA	Water	7470A	578301
MB 280-578136/1-B	Method Blank	Dissolved	Water	7470A	578300
MB 280-578301/1-A	Method Blank	Total/NA	Water	7470A	578301
LCS 280-578136/2-B	Lab Control Sample	Dissolved	Water	7470A	578300
LCS 280-578301/2-A	Lab Control Sample	Total/NA	Water	7470A	578301

Analysis Batch: 578478

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163349-1	W-14	Total Recoverable	Water	6020B	578251
280-163349-2	W-14-EB	Total Recoverable	Water	6020B	578251
280-163349-3	W-5B	Total Recoverable	Water	6020B	578251
280-163349-4	W-5B-FD	Total Recoverable	Water	6020B	578251

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

Metals (Continued)

Analysis Batch: 578478 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163349-5	W-2A	Total Recoverable	Water	6020B	578251
280-163349-6	W-2C	Total Recoverable	Water	6020B	578251
280-163349-7	W-16	Total Recoverable	Water	6020B	578251
280-163349-8	W-3B	Total Recoverable	Water	6020B	578251
280-163349-9	W-6B	Total Recoverable	Water	6020B	578251
280-163349-10	MW-7	Total Recoverable	Water	6020B	578251
MB 280-578251/1-A	Method Blank	Total Recoverable	Water	6020B	578251
LCS 280-578251/2-A	Lab Control Sample	Total Recoverable	Water	6020B	578251

Prep Batch: 578491

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163349-5	W-2A	Dissolved	Water	3005A	578136
280-163349-6	W-2C	Dissolved	Water	3005A	578136
MB 280-578136/1-C	Method Blank	Dissolved	Water	3005A	578136
LCS 280-578136/2-C	Lab Control Sample	Dissolved	Water	3005A	578136
280-163349-6 MS	W-2C	Dissolved	Water	3005A	578136
280-163349-6 MSD	W-2C	Dissolved	Water	3005A	578136

Analysis Batch: 578527

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163349-5	W-2A	Dissolved	Water	6010C	578247
280-163349-6	W-2C	Dissolved	Water	6010C	578247
MB 280-578065/1-B	Method Blank	Dissolved	Water	6010C	578247
LCS 280-578065/2-B	Lab Control Sample	Dissolved	Water	6010C	578247

Analysis Batch: 578573

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163349-1	W-14	Total Recoverable	Water	6010C	578090
280-163349-2	W-14-EB	Total Recoverable	Water	6010C	578090
280-163349-3	W-5B	Total Recoverable	Water	6010C	578090
280-163349-4	W-5B-FD	Total Recoverable	Water	6010C	578090
280-163349-5	W-2A	Total Recoverable	Water	6010C	578090
280-163349-6	W-2C	Total Recoverable	Water	6010C	578090
280-163349-7	W-16	Total Recoverable	Water	6010C	578090
280-163349-8	W-3B	Total Recoverable	Water	6010C	578090
280-163349-9	W-6B	Total Recoverable	Water	6010C	578090
MB 280-578090/1-A	Method Blank	Total Recoverable	Water	6010C	578090
LCS 280-578090/2-A	Lab Control Sample	Total Recoverable	Water	6010C	578090

Analysis Batch: 578595

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163349-1	W-14	Total Recoverable	Water	6020B	578251
280-163349-3	W-5B	Total Recoverable	Water	6020B	578251
280-163349-4	W-5B-FD	Total Recoverable	Water	6020B	578251
280-163349-5	W-2A	Total Recoverable	Water	6020B	578251
280-163349-6	W-2C	Total Recoverable	Water	6020B	578251
280-163349-7	W-16	Total Recoverable	Water	6020B	578251
280-163349-8	W-3B	Total Recoverable	Water	6020B	578251
280-163349-9	W-6B	Total Recoverable	Water	6020B	578251
280-163349-10	MW-7	Total Recoverable	Water	6020B	578251
MB 280-578251/1-A	Method Blank	Total Recoverable	Water	6020B	578251

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

Metals

Analysis Batch: 578596

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163349-1	W-14	Total Recoverable	Water	6020B	578251
280-163349-2	W-14-EB	Total Recoverable	Water	6020B	578251
280-163349-3	W-5B	Total Recoverable	Water	6020B	578251
280-163349-4	W-5B-FD	Total Recoverable	Water	6020B	578251
280-163349-5	W-2A	Total Recoverable	Water	6020B	578251
280-163349-6	W-2C	Total Recoverable	Water	6020B	578251
280-163349-7	W-16	Total Recoverable	Water	6020B	578251
280-163349-8	W-3B	Total Recoverable	Water	6020B	578251
280-163349-9	W-6B	Total Recoverable	Water	6020B	578251
280-163349-10	MW-7	Total Recoverable	Water	6020B	578251
MB 280-578251/1-A	Method Blank	Total Recoverable	Water	6020B	578251

Analysis Batch: 578599

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163349-3	W-5B	Total Recoverable	Water	6010C	578090
280-163349-4	W-5B-FD	Total Recoverable	Water	6010C	578090
280-163349-8	W-3B	Total Recoverable	Water	6010C	578090
280-163349-9	W-6B	Total Recoverable	Water	6010C	578090

Analysis Batch: 578658

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 280-578251/2-A	Lab Control Sample	Total Recoverable	Water	6020B	578251

Analysis Batch: 578742

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163349-10	MW-7	Total Recoverable	Water	6010C	578367
MB 280-578367/1-A	Method Blank	Total Recoverable	Water	6010C	578367
LCS 280-578367/2-A	Lab Control Sample	Total Recoverable	Water	6010C	578367

Analysis Batch: 578745

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163349-5	W-2A	Dissolved	Water	6020B	578491
280-163349-5	W-2A	Dissolved	Water	6020B	578491
280-163349-6	W-2C	Dissolved	Water	6020B	578491
280-163349-6	W-2C	Dissolved	Water	6020B	578491
MB 280-578136/1-C	Method Blank	Dissolved	Water	6020B	578491
LCS 280-578136/2-C	Lab Control Sample	Dissolved	Water	6020B	578491
280-163349-6 MS	W-2C	Dissolved	Water	6020B	578491
280-163349-6 MS	W-2C	Dissolved	Water	6020B	578491
280-163349-6 MSD	W-2C	Dissolved	Water	6020B	578491
280-163349-6 MSD	W-2C	Dissolved	Water	6020B	578491

Analysis Batch: 578747

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163349-1	W-14	Total Recoverable	Water	6020B	578251
280-163349-2	W-14-EB	Total Recoverable	Water	6020B	578251
280-163349-3	W-5B	Total Recoverable	Water	6020B	578251
280-163349-4	W-5B-FD	Total Recoverable	Water	6020B	578251
280-163349-5	W-2A	Total Recoverable	Water	6020B	578251
280-163349-6	W-2C	Total Recoverable	Water	6020B	578251
280-163349-7	W-16	Total Recoverable	Water	6020B	578251

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

Metals (Continued)

Analysis Batch: 578747 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163349-8	W-3B	Total Recoverable	Water	6020B	578251
280-163349-9	W-6B	Total Recoverable	Water	6020B	578251
280-163349-10	MW-7	Total Recoverable	Water	6020B	578251
MB 280-578251/1-A	Method Blank	Total Recoverable	Water	6020B	578251
LCS 280-578251/2-A	Lab Control Sample	Total Recoverable	Water	6020B	578251

Analysis Batch: 578891

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163349-1	W-14	Total Recoverable	Water	6020B	578251
280-163349-2	W-14-EB	Total Recoverable	Water	6020B	578251
280-163349-3	W-5B	Total Recoverable	Water	6020B	578251
280-163349-5	W-2A	Dissolved	Water	6020B	578491
280-163349-6	W-2C	Dissolved	Water	6020B	578491
MB 280-578136/1-C	Method Blank	Dissolved	Water	6020B	578491
LCS 280-578136/2-C	Lab Control Sample	Dissolved	Water	6020B	578491
280-163349-6 MS	W-2C	Dissolved	Water	6020B	578491
280-163349-6 MSD	W-2C	Dissolved	Water	6020B	578491

General Chemistry

Analysis Batch: 577951

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163349-1	W-14	Total/NA	Water	SM 2540D	
280-163349-2	W-14-EB	Total/NA	Water	SM 2540D	
280-163349-3	W-5B	Total/NA	Water	SM 2540D	
280-163349-4	W-5B-FD	Total/NA	Water	SM 2540D	
280-163349-5	W-2A	Total/NA	Water	SM 2540D	
280-163349-6	W-2C	Total/NA	Water	SM 2540D	
280-163349-7	W-16	Total/NA	Water	SM 2540D	
280-163349-8	W-3B	Total/NA	Water	SM 2540D	
280-163349-9	W-6B	Total/NA	Water	SM 2540D	
280-163349-10	MW-7	Total/NA	Water	SM 2540D	
MB 280-577951/3	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-577951/1	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-577951/2	Lab Control Sample Dup	Total/NA	Water	SM 2540D	
280-163349-1 DU	W-14	Total/NA	Water	SM 2540D	

Analysis Batch: 577952

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163349-1	W-14	Total/NA	Water	SM 2540C	
280-163349-2	W-14-EB	Total/NA	Water	SM 2540C	
280-163349-3	W-5B	Total/NA	Water	SM 2540C	
280-163349-4	W-5B-FD	Total/NA	Water	SM 2540C	
280-163349-5	W-2A	Total/NA	Water	SM 2540C	
280-163349-6	W-2C	Total/NA	Water	SM 2540C	
280-163349-7	W-16	Total/NA	Water	SM 2540C	
280-163349-8	W-3B	Total/NA	Water	SM 2540C	
280-163349-9	W-6B	Total/NA	Water	SM 2540C	
280-163349-10	MW-7	Total/NA	Water	SM 2540C	
MB 280-577952/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-577952/2	Lab Control Sample	Total/NA	Water	SM 2540C	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

General Chemistry (Continued)

Analysis Batch: 577952 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 280-577952/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
280-163349-1 DU	W-14	Total/NA	Water	SM 2540C	

Analysis Batch: 578058

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163349-1	W-14	Total/NA	Water	9056A	
280-163349-1	W-14	Total/NA	Water	9056A	
280-163349-1	W-14	Total/NA	Water	9056A	
280-163349-2	W-14-EB	Total/NA	Water	9056A	
280-163349-3	W-5B	Total/NA	Water	9056A	
280-163349-3	W-5B	Total/NA	Water	9056A	
280-163349-4	W-5B-FD	Total/NA	Water	9056A	
280-163349-5	W-2A	Total/NA	Water	9056A	
280-163349-5	W-2A	Total/NA	Water	9056A	
280-163349-5	W-2A	Total/NA	Water	9056A	
280-163349-6	W-2C	Total/NA	Water	9056A	
280-163349-6	W-2C	Total/NA	Water	9056A	
280-163349-6	W-2C	Total/NA	Water	9056A	
280-163349-7	W-16	Total/NA	Water	9056A	
280-163349-7	W-16	Total/NA	Water	9056A	
280-163349-7	W-16	Total/NA	Water	9056A	
280-163349-8	W-3B	Total/NA	Water	9056A	
280-163349-8	W-3B	Total/NA	Water	9056A	
280-163349-8	W-3B	Total/NA	Water	9056A	
280-163349-9	W-6B	Total/NA	Water	9056A	
280-163349-9	W-6B	Total/NA	Water	9056A	
280-163349-9	W-6B	Total/NA	Water	9056A	
280-163349-10	MW-7	Total/NA	Water	9056A	
280-163349-10	MW-7	Total/NA	Water	9056A	
MB 280-578058/6	Method Blank	Total/NA	Water	9056A	
MB 280-578058/72	Method Blank	Total/NA	Water	9056A	
LCS 280-578058/4	Lab Control Sample	Total/NA	Water	9056A	
LCS 280-578058/70	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-578058/5	Lab Control Sample Dup	Total/NA	Water	9056A	
LCSD 280-578058/71	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-578058/3	Lab Control Sample	Total/NA	Water	9056A	
280-163349-2 MS	W-14-EB	Total/NA	Water	9056A	
280-163349-2 MSD	W-14-EB	Total/NA	Water	9056A	
280-163349-2 DU	W-14-EB	Total/NA	Water	9056A	

Analysis Batch: 578215

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163349-4	W-5B-FD	Total/NA	Water	9056A	
280-163349-10	MW-7	Total/NA	Water	9056A	
MB 280-578215/6	Method Blank	Total/NA	Water	9056A	
LCS 280-578215/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-578215/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-578215/3	Lab Control Sample	Total/NA	Water	9056A	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

General Chemistry

Analysis Batch: 578603

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163349-1	W-14	Total/NA	Water	9040B	
280-163349-2	W-14-EB	Total/NA	Water	9040B	
280-163349-3	W-5B	Total/NA	Water	9040B	
280-163349-4	W-5B-FD	Total/NA	Water	9040B	
280-163349-5	W-2A	Total/NA	Water	9040B	
280-163349-6	W-2C	Total/NA	Water	9040B	
280-163349-7	W-16	Total/NA	Water	9040B	
280-163349-8	W-3B	Total/NA	Water	9040B	
280-163349-9	W-6B	Total/NA	Water	9040B	
280-163349-10	MW-7	Total/NA	Water	9040B	
LCS 280-578603/27	Lab Control Sample	Total/NA	Water	9040B	
LCS 280-578603/4	Lab Control Sample	Total/NA	Water	9040B	
280-163349-2 DU	W-14-EB	Total/NA	Water	9040B	

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

Client Sample ID: W-14

Date Collected: 06/06/22 16:45

Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	578090	06/17/22 17:58	PFM	TAL DEN
Total Recoverable	Analysis	6010C		1			578573	06/20/22 16:40	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			578478	06/17/22 21:10	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		50			578595	06/20/22 17:22	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			578596	06/21/22 01:05	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			578747	06/22/22 01:35	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			578891	06/22/22 13:24	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	578301	06/16/22 19:20	CEH	TAL DEN
Total/NA	Analysis	7470A		1			578402	06/17/22 12:18	CEH	TAL DEN
Total/NA	Analysis	9040B		1			578603	06/20/22 17:02	KEG	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	578058	06/15/22 18:32	RAF	TAL DEN
Total/NA	Analysis	9056A		10	10 mL	10 mL	578058	06/15/22 18:48	RAF	TAL DEN
Total/NA	Analysis	9056A		200	10 mL	10 mL	578058	06/15/22 19:04	RAF	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	577952	06/13/22 10:45	CAI	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	577951	06/13/22 10:41	CAI	TAL DEN

Client Sample ID: W-14-EB

Date Collected: 06/07/22 09:15

Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	578090	06/17/22 17:58	PFM	TAL DEN
Total Recoverable	Analysis	6010C		1			578573	06/20/22 16:44	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			578478	06/17/22 21:14	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			578596	06/21/22 01:09	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			578747	06/22/22 01:39	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			578891	06/22/22 13:28	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	578301	06/16/22 19:20	CEH	TAL DEN
Total/NA	Analysis	7470A		1			578402	06/17/22 12:21	CEH	TAL DEN
Total/NA	Analysis	9040B		1			578603	06/20/22 17:14	KEG	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	578058	06/16/22 05:27	RAF	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	577952	06/13/22 10:45	CAI	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	577951	06/13/22 10:41	CAI	TAL DEN

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

Client Sample ID: W-5B

Date Collected: 06/07/22 13:00

Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	578090	06/17/22 17:58	PFM	TAL DEN
Total Recoverable	Analysis	6010C		1			578573	06/20/22 17:05	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578090	06/17/22 17:58	PFM	TAL DEN
Total Recoverable	Analysis	6010C		1			578599	06/20/22 20:20	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			578478	06/17/22 21:18	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		50			578595	06/20/22 17:26	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			578596	06/21/22 01:13	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			578747	06/22/22 01:42	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			578891	06/22/22 13:32	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	578301	06/16/22 19:20	CEH	TAL DEN
Total/NA	Analysis	7470A		1			578402	06/17/22 12:23	CEH	TAL DEN
Total/NA	Analysis	9040B		1			578603	06/20/22 17:22	KEG	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	578058	06/15/22 20:24	RAF	TAL DEN
Total/NA	Analysis	9056A		50	10 mL	10 mL	578058	06/15/22 21:28	RAF	TAL DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	577952	06/13/22 10:45	CAI	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	577951	06/13/22 10:41	CAI	TAL DEN

Client Sample ID: W-5B-FD

Date Collected: 06/07/22 13:15

Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	578090	06/17/22 17:58	PFM	TAL DEN
Total Recoverable	Analysis	6010C		1			578573	06/20/22 17:09	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578090	06/17/22 17:58	PFM	TAL DEN
Total Recoverable	Analysis	6010C		1			578599	06/20/22 20:24	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			578478	06/17/22 21:33	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		50			578595	06/20/22 17:41	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			578596	06/21/22 01:28	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			578747	06/22/22 01:46	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	578301	06/16/22 19:20	CEH	TAL DEN
Total/NA	Analysis	7470A		1			578402	06/17/22 12:26	CEH	TAL DEN
Total/NA	Analysis	9040B		1			578603	06/20/22 17:26	KEG	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	578058	06/15/22 21:44	RAF	TAL DEN
Total/NA	Analysis	9056A		20	10 mL	10 mL	578215	06/16/22 18:33	RAF	TAL DEN

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

Client Sample ID: W-5B-FD

Lab Sample ID: 280-163349-4

Date Collected: 06/07/22 13:15

Matrix: Water

Date Received: 06/10/22 16:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	577952	06/13/22 10:45	CAI	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	577951	06/13/22 10:41	CAI	TAL DEN

Client Sample ID: W-2A

Lab Sample ID: 280-163349-5

Date Collected: 06/07/22 17:45

Matrix: Water

Date Received: 06/10/22 16:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			200 mL	200 mL	578136	06/15/22 14:20	MAB	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	578247	06/16/22 19:27	PFM	TAL DEN
Dissolved	Analysis	6010C		1			578527	06/20/22 11:10	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578090	06/17/22 17:58	PFM	TAL DEN
Total Recoverable	Analysis	6010C		1			578573	06/20/22 17:13	MAB	TAL DEN
Dissolved	Filtration	FILTRATION			200 mL	200 mL	578136	06/15/22 14:20	MAB	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	578491	06/21/22 08:46	PFM	TAL DEN
Dissolved	Analysis	6020B		50			578745	06/21/22 18:01	LMT	TAL DEN
Dissolved	Filtration	FILTRATION			200 mL	200 mL	578136	06/15/22 14:20	MAB	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	578491	06/21/22 08:46	PFM	TAL DEN
Dissolved	Analysis	6020B		1			578745	06/21/22 18:30	LMT	TAL DEN
Dissolved	Filtration	FILTRATION			200 mL	200 mL	578136	06/15/22 14:20	MAB	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	578491	06/21/22 08:46	PFM	TAL DEN
Dissolved	Analysis	6020B		1			578891	06/22/22 14:24	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			578478	06/17/22 21:36	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		50			578595	06/20/22 17:44	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			578596	06/21/22 01:31	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			578747	06/22/22 01:50	LMT	TAL DEN
Dissolved	Filtration	FILTRATION			200 mL	200 mL	578136	06/15/22 14:20	MAB	TAL DEN
Dissolved	Prep	7470A			30 mL	50 mL	578300	06/16/22 19:20	CEH	TAL DEN
Dissolved	Analysis	7470A		1			578402	06/17/22 01:49	CEH	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	578301	06/16/22 19:20	CEH	TAL DEN
Total/NA	Analysis	7470A		1			578402	06/17/22 12:28	CEH	TAL DEN
Total/NA	Analysis	9040B		1			578603	06/20/22 17:30	KEG	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	578058	06/15/22 22:31	RAF	TAL DEN
Total/NA	Analysis	9056A		10	10 mL	10 mL	578058	06/15/22 22:47	RAF	TAL DEN
Total/NA	Analysis	9056A		500	10 mL	10 mL	578058	06/15/22 23:03	RAF	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	577952	06/13/22 10:45	CAI	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	577951	06/13/22 10:41	CAI	TAL DEN

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

Client Sample ID: W-2C

Date Collected: 06/07/22 17:50

Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			200 mL	200 mL	578136	06/15/22 14:20	MAB	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	578247	06/16/22 19:27	PFM	TAL DEN
Dissolved	Analysis	6010C		1			578527	06/20/22 11:14	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578090	06/17/22 17:58	PFM	TAL DEN
Total Recoverable	Analysis	6010C		1			578573	06/20/22 17:17	MAB	TAL DEN
Dissolved	Filtration	FILTRATION			200 mL	200 mL	578136	06/15/22 14:20	MAB	TAL DEN
Dissolved	Prep	3005A			25 mL	50 mL	578491	06/21/22 08:46	PFM	TAL DEN
Dissolved	Analysis	6020B		50			578745	06/21/22 17:42	LMT	TAL DEN
Dissolved	Filtration	FILTRATION			200 mL	200 mL	578136	06/15/22 14:20	MAB	TAL DEN
Dissolved	Prep	3005A			25 mL	50 mL	578491	06/21/22 08:46	PFM	TAL DEN
Dissolved	Analysis	6020B		1			578745	06/21/22 18:12	LMT	TAL DEN
Dissolved	Filtration	FILTRATION			200 mL	200 mL	578136	06/15/22 14:20	MAB	TAL DEN
Dissolved	Prep	3005A			25 mL	50 mL	578491	06/21/22 08:46	PFM	TAL DEN
Dissolved	Analysis	6020B		1			578891	06/22/22 14:06	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			578478	06/17/22 21:40	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		50			578595	06/20/22 17:48	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			578596	06/21/22 01:35	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			578747	06/22/22 01:54	LMT	TAL DEN
Dissolved	Filtration	FILTRATION			200 mL	200 mL	578136	06/15/22 14:20	MAB	TAL DEN
Dissolved	Prep	7470A			30 mL	50 mL	578300	06/16/22 19:20	CEH	TAL DEN
Dissolved	Analysis	7470A		1			578402	06/17/22 01:52	CEH	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	578301	06/16/22 19:20	CEH	TAL DEN
Total/NA	Analysis	7470A		1			578402	06/17/22 12:31	CEH	TAL DEN
Total/NA	Analysis	9040B		1			578603	06/20/22 17:33	KEG	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	578058	06/15/22 23:19	RAF	TAL DEN
Total/NA	Analysis	9056A		10	10 mL	10 mL	578058	06/15/22 23:35	RAF	TAL DEN
Total/NA	Analysis	9056A		500	10 mL	10 mL	578058	06/15/22 23:51	RAF	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	577952	06/13/22 10:45	CAI	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	577951	06/13/22 10:41	CAI	TAL DEN

Client Sample ID: W-16

Date Collected: 06/08/22 11:45

Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	578090	06/17/22 17:58	PFM	TAL DEN
Total Recoverable	Analysis	6010C		1			578573	06/20/22 17:21	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			578478	06/17/22 21:44	LMT	TAL DEN

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

Client Sample ID: W-16

Date Collected: 06/08/22 11:45

Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		50			578595	06/20/22 17:52	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			578596	06/21/22 01:39	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			578747	06/22/22 01:58	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	578301	06/16/22 19:20	CEH	TAL DEN
Total/NA	Analysis	7470A		1			578402	06/17/22 12:33	CEH	TAL DEN
Total/NA	Analysis	9040B		1			578603	06/20/22 17:37	KEG	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	578058	06/16/22 00:39	RAF	TAL DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	578058	06/16/22 00:55	RAF	TAL DEN
Total/NA	Analysis	9056A		100	10 mL	10 mL	578058	06/16/22 01:11	RAF	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	577952	06/13/22 10:45	CAI	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	577951	06/13/22 10:41	CAI	TAL DEN

Client Sample ID: W-3B

Date Collected: 06/08/22 14:55

Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	578090	06/17/22 17:58	PFM	TAL DEN
Total Recoverable	Analysis	6010C		1			578573	06/20/22 17:25	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578090	06/17/22 17:58	PFM	TAL DEN
Total Recoverable	Analysis	6010C		5			578599	06/20/22 20:29	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			578478	06/17/22 21:48	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		50			578595	06/20/22 17:56	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			578596	06/21/22 01:43	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			578747	06/22/22 02:13	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	578301	06/16/22 19:20	CEH	TAL DEN
Total/NA	Analysis	7470A		1			578402	06/17/22 12:36	CEH	TAL DEN
Total/NA	Analysis	9040B		1			578603	06/20/22 17:41	KEG	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	578058	06/16/22 01:27	RAF	TAL DEN
Total/NA	Analysis	9056A		10	10 mL	10 mL	578058	06/16/22 01:43	RAF	TAL DEN
Total/NA	Analysis	9056A		500	10 mL	10 mL	578058	06/16/22 01:59	RAF	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	577952	06/13/22 10:45	CAI	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	577951	06/13/22 10:41	CAI	TAL DEN

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

Client Sample ID: W-6B

Date Collected: 06/08/22 16:20

Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	578090	06/17/22 17:58	PFM	TAL DEN
Total Recoverable	Analysis	6010C		1			578573	06/20/22 17:30	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578090	06/17/22 17:58	PFM	TAL DEN
Total Recoverable	Analysis	6010C		5			578599	06/20/22 20:33	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			578478	06/17/22 21:52	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		50			578595	06/20/22 17:59	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			578596	06/21/22 01:47	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			578747	06/22/22 02:16	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	578301	06/16/22 19:20	CEH	TAL DEN
Total/NA	Analysis	7470A		1			578402	06/17/22 12:44	CEH	TAL DEN
Total/NA	Analysis	9040B		1			578603	06/20/22 17:44	KEG	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	578058	06/16/22 02:15	RAF	TAL DEN
Total/NA	Analysis	9056A		20	10 mL	10 mL	578058	06/16/22 02:31	RAF	TAL DEN
Total/NA	Analysis	9056A		500	10 mL	10 mL	578058	06/16/22 02:47	RAF	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	577952	06/13/22 10:45	CAI	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	577951	06/13/22 10:41	CAI	TAL DEN

Client Sample ID: MW-7

Date Collected: 06/10/22 13:10

Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	578367	06/20/22 08:27	PFM	TAL DEN
Total Recoverable	Analysis	6010C		1			578742	06/21/22 16:16	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			578478	06/17/22 21:55	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		50			578595	06/20/22 18:03	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			578596	06/21/22 01:50	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			578747	06/22/22 02:20	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	578301	06/16/22 19:20	CEH	TAL DEN
Total/NA	Analysis	7470A		1			578402	06/17/22 12:46	CEH	TAL DEN
Total/NA	Analysis	9040B		1			578603	06/20/22 17:47	KEG	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	578058	06/16/22 03:03	RAF	TAL DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	578058	06/16/22 03:51	RAF	TAL DEN
Total/NA	Analysis	9056A		100	10 mL	10 mL	578215	06/16/22 18:49	RAF	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	577952	06/13/22 10:45	CAI	TAL DEN

Eurofins Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

Client Sample ID: MW-7

Lab Sample ID: 280-163349-10

Date Collected: 06/10/22 13:10

Matrix: Water

Date Received: 06/10/22 16:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	577951	06/13/22 10:41	CAI	TAL DEN

Laboratory References:

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

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-1

Laboratory: Eurofins Denver

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

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-23

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	Calcium
9040B		Water	Temperature

Chain of Custody Record

Client Information		Sampler: F. Ray		Lab PM: Harrington, Danielle M		Carrier Tracking No(s):		COC No: 280-110862-32017.2	
Client Contact: Molly Reeves		Phone: (720) 298-3594		E-Mail: Danielle.Harrington@Eurofinset.com		State of Origin:		Page: 1 of 1	
Company: HDR Inc		PWSID:		Job #:					
Address: 1670 Broadway Suite 3400		Due Date Requested:		Analysis Requested		Preservation Codes:			
City: Denver		TAT Requested (days): ASAP		6010C, 6020B, 7470A Total Metals - APP III + IV metals		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:			
State Zip: CO, 80202		Compliance Project: Δ Yes Δ No		Perform MS/MSD (Yes or No)		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)			
Phone: 734-263-7138(Tel)		PO #: DEN-021		Field Filtered Sample (Yes or No)		Total Number of containers			
Email: Molly.Reeves@hdrinc.com		WO #: 28014376		9040B pH, 9056A, 280DChloride, Fluoride, Sulfate		Special Instructions/Note:			
Project Name: Xcel Energy GW CCR Monitoring - Comanche		Project #: 28014376		Radium-226 9135 and Radium-228 Method 9320/ Ra226Ra228GFPC - ETA St Louis					
Site/COLORADO		SSOW#: APP III + IV - TSS		25400 - TSS/2540C TDS					
APP III + IV - TSS									
Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=Grab)		Matrix (W=water, S=solid, O=waste/oil, BT=tissue, AS=air)	
W-14		6/6/22		1645		G		W	
W-14-EB		6/7/22		0915		G		W	
W-5B		6/7/22		1300		G		W	
W-5B-FD		6/7/22		1315		G		W	
W-2A		6/7/22		1745		G		W	
W-2C		6/7/22		1750		G		W	
W-16		6/8/22		1145		G		W	
W-3B		6/8/22		1455		G		W	
W-6B		6/8/22		1620		G		W	
MW-7		6/10/22		1310		G		W	
Possible Hazard Identification		☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological		Date: 6/10/22 1655		Company: HDR		Received by: [Signature]	
Deliverable Requested: I, II, III, IV, Other (specify)		☐ Return To Client ☐ Disposal By Lab ☐ Archive For		Date/Time: 6/10/22 1655		Company: ETA DEN		Received by: [Signature]	
Empty Kit Relinquished by:		Date: 6/10/22 1655		Company: HDR		Received by: [Signature]		Received by: [Signature]	
Relinquished by:		Date/Time:		Company:		Received by:		Received by:	
Relinquished by:		Date/Time:		Company:		Received by:		Received by:	
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 12.9 C Ex 0.1 IR(2)		Company:		Company:	

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-163349-1

Login Number: 163349

List Number: 1

Creator: Roehsner, Karen P

List Source: Eurofins Denver

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

ANALYTICAL REPORT

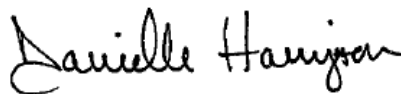
Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-163349-2

Client Project/Site: Xcel Energy GW CCR Monitoring -
Comanche

For:
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Attn: Molly Reeves



Authorized for release by:
7/18/2022 1:39:49 PM

Danielle Harrington, Project Manager II
(303)736-0176

Danielle.Harrington@et.eurofinsus.com

LINKS

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results through



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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-2

Qualifiers

Rad

Qualifier	Qualifier Description
G	The Sample MDC is greater than the requested RL.
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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-2

Job ID: 280-163349-2

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-163349-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 06/10/2022; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt were 4.0°C and 5.2°C

RADIUM-226 (GFPC)- Method 9315

Method 9315_Ra226: Radium-226 Prep Batch 160-570442The following samples were prepared at a reduced aliquot due to Matrix: W-14 (280-163349-1), W-5B (280-163349-3), W-5B-FD (280-163349-4), W-2A (280-163349-5), W-2C (280-163349-6), W-16 (280-163349-7), W-3B (280-163349-8), W-6B (280-163349-9) and MW-7 (280-163349-10).

The method 9315 MS/MSD could not be performed for this batch, due to insufficient sample volume. Method precision and accuracy have been verified by the acceptable LCS/LCSD analysis data.

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

RADIUM-228- Method 9320

Method 9320_Ra228: Radium-228 Prep Batch 160-570444The following samples were prepared at a reduced aliquot due to Matrix: W-14 (280-163349-1), W-5B (280-163349-3), W-5B-FD (280-163349-4), W-2A (280-163349-5), W-2C (280-163349-6), W-16 (280-163349-7), W-3B (280-163349-8), W-6B (280-163349-9) and MW-7 (280-163349-10).

Method 9320_Ra228: Radium-228 batch 570444The detection goal was not met for the following sample(s). Sample was prepped at a reduced volume due to the presence of matrix interferences: W-2C (280-163349-6). Analytical results are reported with the detection limit achieved.

Radium-228 was detected in method blank MB 160-570444/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

The method 9320 MS/MSD could not be performed for this batch, due to insufficient sample volume. Method precision and accuracy have been verified by the acceptable LCS/LCSD analysis data.

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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-2

Job ID: 280-163349-2 (Continued)

Laboratory: Eurofins Denver (Continued)

RADIUM-226/RADIUM-228 (GFPC)

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

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Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-2

Client Sample ID: W-14

Lab Sample ID: 280-163349-1

☐ No Detections.

Client Sample ID: W-14-EB

Lab Sample ID: 280-163349-2

☐ No Detections.

Client Sample ID: W-5B

Lab Sample ID: 280-163349-3

☐ No Detections.

Client Sample ID: W-5B-FD

Lab Sample ID: 280-163349-4

☐ No Detections.

Client Sample ID: W-2A

Lab Sample ID: 280-163349-5

☐ No Detections.

Client Sample ID: W-2C

Lab Sample ID: 280-163349-6

☐ No Detections.

Client Sample ID: W-16

Lab Sample ID: 280-163349-7

☐ No Detections.

Client Sample ID: W-3B

Lab Sample ID: 280-163349-8

☐ No Detections.

Client Sample ID: W-6B

Lab Sample ID: 280-163349-9

☐ No Detections.

Client Sample ID: MW-7

Lab Sample ID: 280-163349-10

☐ No Detections.

This Detection Summary does not include radiochemical test results.

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Method Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-2

Method	Method Description	Protocol	Laboratory
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

Protocol References:

None = None

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:

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

Sample Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-163349-1	W-14	Water	06/06/22 16:45	06/10/22 16:55
280-163349-2	W-14-EB	Water	06/07/22 09:15	06/10/22 16:55
280-163349-3	W-5B	Water	06/07/22 13:00	06/10/22 16:55
280-163349-4	W-5B-FD	Water	06/07/22 13:15	06/10/22 16:55
280-163349-5	W-2A	Water	06/07/22 17:45	06/10/22 16:55
280-163349-6	W-2C	Water	06/07/22 17:50	06/10/22 16:55
280-163349-7	W-16	Water	06/08/22 11:45	06/10/22 16:55
280-163349-8	W-3B	Water	06/08/22 14:55	06/10/22 16:55
280-163349-9	W-6B	Water	06/08/22 16:20	06/10/22 16:55
280-163349-10	MW-7	Water	06/10/22 13:10	06/10/22 16:55

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-2

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: W-14
Date Collected: 06/06/22 16:45
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.25		0.219	0.246	1.00	0.128	pCi/L	06/17/22 09:57	07/11/22 08:32	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.0		40 - 110					06/17/22 09:57	07/11/22 08:32	1

Client Sample ID: W-14-EB
Date Collected: 06/07/22 09:15
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0277	U	0.0493	0.0493	1.00	0.0869	pCi/L	06/17/22 09:57	07/11/22 08:32	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	108		40 - 110					06/17/22 09:57	07/11/22 08:32	1

Client Sample ID: W-5B
Date Collected: 06/07/22 13:00
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.524		0.138	0.145	1.00	0.109	pCi/L	06/17/22 09:57	07/11/22 08:32	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	108		40 - 110					06/17/22 09:57	07/11/22 08:32	1

Client Sample ID: W-5B-FD
Date Collected: 06/07/22 13:15
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.700		0.154	0.167	1.00	0.0999	pCi/L	06/17/22 09:57	07/11/22 08:33	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	108		40 - 110					06/17/22 09:57	07/11/22 08:33	1

Client Sample ID: W-2A
Date Collected: 06/07/22 17:45
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.987		0.227	0.244	1.00	0.171	pCi/L	06/17/22 09:57	07/11/22 08:33	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	67.5		40 - 110					06/17/22 09:57	07/11/22 08:33	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-2

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: W-2C
Date Collected: 06/07/22 17:50
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.35		0.292	0.317	1.00	0.170	pCi/L	06/17/22 09:57	07/11/22 08:33	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	50.5		40 - 110					06/17/22 09:57	07/11/22 08:33	1

Client Sample ID: W-16
Date Collected: 06/08/22 11:45
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.488		0.144	0.151	1.00	0.116	pCi/L	06/17/22 09:57	07/11/22 08:34	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.5		40 - 110					06/17/22 09:57	07/11/22 08:34	1

Client Sample ID: W-3B
Date Collected: 06/08/22 14:55
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	3.53		0.350	0.473	1.00	0.111	pCi/L	06/17/22 09:57	07/11/22 08:34	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.8		40 - 110					06/17/22 09:57	07/11/22 08:34	1

Client Sample ID: W-6B
Date Collected: 06/08/22 16:20
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	2.59		0.329	0.403	1.00	0.161	pCi/L	06/17/22 09:57	07/11/22 08:34	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	81.8		40 - 110					06/17/22 09:57	07/11/22 08:34	1

Client Sample ID: MW-7
Date Collected: 06/10/22 13:10
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-10
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.241		0.104	0.106	1.00	0.112	pCi/L	06/17/22 09:57	07/11/22 08:34	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	102		40 - 110					06/17/22 09:57	07/11/22 08:34	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-2

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: W-14
Date Collected: 06/06/22 16:45
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.685		0.444	0.448	1.00	0.657	pCi/L	06/17/22 10:33	06/24/22 12:52	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.0		40 - 110					06/17/22 10:33	06/24/22 12:52	1
Y Carrier	89.0		40 - 110					06/17/22 10:33	06/24/22 12:52	1

Client Sample ID: W-14-EB
Date Collected: 06/07/22 09:15
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.138	U	0.226	0.226	1.00	0.456	pCi/L	06/17/22 10:33	06/24/22 12:52	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	108		40 - 110					06/17/22 10:33	06/24/22 12:52	1
Y Carrier	88.2		40 - 110					06/17/22 10:33	06/24/22 12:52	1

Client Sample ID: W-5B
Date Collected: 06/07/22 13:00
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.09		0.443	0.454	1.00	0.581	pCi/L	06/17/22 10:33	06/24/22 12:52	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	108		40 - 110					06/17/22 10:33	06/24/22 12:52	1
Y Carrier	88.2		40 - 110					06/17/22 10:33	06/24/22 12:52	1

Client Sample ID: W-5B-FD
Date Collected: 06/07/22 13:15
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.28		0.437	0.453	1.00	0.523	pCi/L	06/17/22 10:33	06/24/22 12:52	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	108		40 - 110					06/17/22 10:33	06/24/22 12:52	1
Y Carrier	90.1		40 - 110					06/17/22 10:33	06/24/22 12:52	1

Client Sample ID: W-2A
Date Collected: 06/07/22 17:45
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.36		0.690	0.701	1.00	0.971	pCi/L	06/17/22 10:33	06/24/22 12:52	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-2

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	67.5		40 - 110	06/17/22 10:33	06/24/22 12:52	1
Y Carrier	86.7		40 - 110	06/17/22 10:33	06/24/22 12:52	1

Client Sample ID: W-2C
Date Collected: 06/07/22 17:50
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-6
Matrix: Water

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	3.62	G	1.03	1.08	1.00	1.08	pCi/L	06/17/22 10:33	06/24/22 12:52	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	50.5		40 - 110					06/17/22 10:33	06/24/22 12:52	1
Y Carrier	87.1		40 - 110					06/17/22 10:33	06/24/22 12:52	1

Client Sample ID: W-16
Date Collected: 06/08/22 11:45
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-7
Matrix: Water

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.17		0.524	0.535	1.00	0.698	pCi/L	06/17/22 10:33	06/24/22 12:52	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.5		40 - 110					06/17/22 10:33	06/24/22 12:52	1
Y Carrier	87.5		40 - 110					06/17/22 10:33	06/24/22 12:52	1

Client Sample ID: W-3B
Date Collected: 06/08/22 14:55
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	4.63		0.755	0.867	1.00	0.617	pCi/L	06/17/22 10:33	06/24/22 12:52	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.8		40 - 110					06/17/22 10:33	06/24/22 12:52	1
Y Carrier	88.2		40 - 110					06/17/22 10:33	06/24/22 12:52	1

Client Sample ID: W-6B
Date Collected: 06/08/22 16:20
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	4.40		0.799	0.896	1.00	0.610	pCi/L	06/17/22 10:33	06/24/22 12:53	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	81.8		40 - 110					06/17/22 10:33	06/24/22 12:53	1
Y Carrier	87.5		40 - 110					06/17/22 10:33	06/24/22 12:53	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-2

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: MW-7
Date Collected: 06/10/22 13:10
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-10
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.538		0.334	0.338	1.00	0.475	pCi/L	06/17/22 10:33	06/24/22 12:53	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	102		40 - 110					06/17/22 10:33	06/24/22 12:53	1
Y Carrier	90.5		40 - 110					06/17/22 10:33	06/24/22 12:53	1

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

Client Sample ID: W-14
Date Collected: 06/06/22 16:45
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.94		0.495	0.511	5.00	0.657	pCi/L		07/12/22 12:09	1

Client Sample ID: W-14-EB
Date Collected: 06/07/22 09:15
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.111	U	0.231	0.231	5.00	0.456	pCi/L		07/12/22 12:09	1

Client Sample ID: W-5B
Date Collected: 06/07/22 13:00
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.61		0.464	0.477	5.00	0.581	pCi/L		07/12/22 12:09	1

Client Sample ID: W-5B-FD
Date Collected: 06/07/22 13:15
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.98		0.463	0.483	5.00	0.523	pCi/L		07/12/22 12:09	1

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-2

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

Client Sample ID: W-2A
Date Collected: 06/07/22 17:45
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.35		0.726	0.742	5.00	0.971	pCi/L		07/12/22 12:09	1

Client Sample ID: W-2C
Date Collected: 06/07/22 17:50
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	4.98		1.07	1.13	5.00	1.08	pCi/L		07/12/22 12:09	1

Client Sample ID: W-16
Date Collected: 06/08/22 11:45
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.66		0.543	0.556	5.00	0.698	pCi/L		07/18/22 10:25	1

Client Sample ID: W-3B
Date Collected: 06/08/22 14:55
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	8.15		0.832	0.988	5.00	0.617	pCi/L		07/12/22 12:09	1

Client Sample ID: W-6B
Date Collected: 06/08/22 16:20
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	6.99		0.864	0.982	5.00	0.610	pCi/L		07/12/22 12:09	1

Client Sample ID: MW-7
Date Collected: 06/10/22 13:10
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-10
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.779		0.350	0.354	5.00	0.475	pCi/L		07/12/22 12:09	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-2

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-570442/1-A

Matrix: Water

Analysis Batch: 573477

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 570442

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.01917	U	0.0482	0.0482	1.00	0.0890	pCi/L	06/17/22 09:57	07/11/22 08:30	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	102		40 - 110					06/17/22 09:57	07/11/22 08:30	1

Lab Sample ID: LCS 160-570442/2-A

Matrix: Water

Analysis Batch: 573477

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 570442

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226		11.3	9.654		0.993	1.00	0.113	pCi/L	85	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits							
Ba Carrier	105		40 - 110							

Lab Sample ID: LCSD 160-570442/3-A

Matrix: Water

Analysis Batch: 573477

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 570442

Analyte		Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-226		11.3	9.601		0.988	1.00	0.0805	pCi/L	85	75 - 125	0.03	1
Carrier	LCSD %Yield	LCSD Qualifier	Limits									
Ba Carrier	100		40 - 110									

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-570444/1-A

Matrix: Water

Analysis Batch: 571618

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 570444

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.5364		0.321	0.325	1.00	0.473	pCi/L	06/17/22 10:33	06/24/22 12:51	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	102		40 - 110					06/17/22 10:33	06/24/22 12:51	1
Y Carrier	88.2		40 - 110					06/17/22 10:33	06/24/22 12:51	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-2

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

Lab Sample ID: LCS 160-570444/2-A

Matrix: Water

Analysis Batch: 571618

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 570444

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-228		8.51	8.946		1.17	1.00	0.465	pCi/L	105	75 - 125

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	105		40 - 110
Y Carrier	88.2		40 - 110

Lab Sample ID: LCSD 160-570444/3-A

Matrix: Water

Analysis Batch: 571618

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 570444

Analyte		Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-228		8.51	8.524		1.14	1.00	0.437	pCi/L	100	75 - 125	0.18	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	100		40 - 110
Y Carrier	87.5		40 - 110

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-2

Rad

Prep Batch: 570442

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163349-1	W-14	Total/NA	Water	PrecSep-21	
280-163349-2	W-14-EB	Total/NA	Water	PrecSep-21	
280-163349-3	W-5B	Total/NA	Water	PrecSep-21	
280-163349-4	W-5B-FD	Total/NA	Water	PrecSep-21	
280-163349-5	W-2A	Total/NA	Water	PrecSep-21	
280-163349-6	W-2C	Total/NA	Water	PrecSep-21	
280-163349-7	W-16	Total/NA	Water	PrecSep-21	
280-163349-8	W-3B	Total/NA	Water	PrecSep-21	
280-163349-9	W-6B	Total/NA	Water	PrecSep-21	
280-163349-10	MW-7	Total/NA	Water	PrecSep-21	
MB 160-570442/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-570442/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-570442/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 570444

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163349-1	W-14	Total/NA	Water	PrecSep_0	
280-163349-2	W-14-EB	Total/NA	Water	PrecSep_0	
280-163349-3	W-5B	Total/NA	Water	PrecSep_0	
280-163349-4	W-5B-FD	Total/NA	Water	PrecSep_0	
280-163349-5	W-2A	Total/NA	Water	PrecSep_0	
280-163349-6	W-2C	Total/NA	Water	PrecSep_0	
280-163349-7	W-16	Total/NA	Water	PrecSep_0	
280-163349-8	W-3B	Total/NA	Water	PrecSep_0	
280-163349-9	W-6B	Total/NA	Water	PrecSep_0	
280-163349-10	MW-7	Total/NA	Water	PrecSep_0	
MB 160-570444/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-570444/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-570444/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-2

Client Sample ID: W-14

Date Collected: 06/06/22 16:45

Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			759.67 mL	1.0 g	570442	06/17/22 09:57	MS	TAL SL
Total/NA	Analysis	9315		1			573477	07/11/22 08:32	FLC	TAL SL
Total/NA	Prep	PrecSep_0			759.67 mL	1.0 g	570444	06/17/22 10:33	MS	TAL SL
Total/NA	Analysis	9320		1			571618	06/24/22 12:52	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			573546	07/12/22 12:09	CAH	TAL SL

Client Sample ID: W-14-EB

Date Collected: 06/07/22 09:15

Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			997.83 mL	1.0 g	570442	06/17/22 09:57	MS	TAL SL
Total/NA	Analysis	9315		1			573477	07/11/22 08:32	FLC	TAL SL
Total/NA	Prep	PrecSep_0			997.83 mL	1.0 g	570444	06/17/22 10:33	MS	TAL SL
Total/NA	Analysis	9320		1			571618	06/24/22 12:52	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			573546	07/12/22 12:09	CAH	TAL SL

Client Sample ID: W-5B

Date Collected: 06/07/22 13:00

Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			749.84 mL	1.0 g	570442	06/17/22 09:57	MS	TAL SL
Total/NA	Analysis	9315		1			573477	07/11/22 08:32	FLC	TAL SL
Total/NA	Prep	PrecSep_0			749.84 mL	1.0 g	570444	06/17/22 10:33	MS	TAL SL
Total/NA	Analysis	9320		1			571618	06/24/22 12:52	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			573546	07/12/22 12:09	CAH	TAL SL

Client Sample ID: W-5B-FD

Date Collected: 06/07/22 13:15

Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			741.10 mL	1.0 g	570442	06/17/22 09:57	MS	TAL SL
Total/NA	Analysis	9315		1			573477	07/11/22 08:33	FLC	TAL SL
Total/NA	Prep	PrecSep_0			741.10 mL	1.0 g	570444	06/17/22 10:33	MS	TAL SL
Total/NA	Analysis	9320		1			571618	06/24/22 12:52	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			573546	07/12/22 12:09	CAH	TAL SL

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-2

Client Sample ID: W-2A

Date Collected: 06/07/22 17:45

Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			740.84 mL	1.0 g	570442	06/17/22 09:57	MS	TAL SL
Total/NA	Analysis	9315		1			573477	07/11/22 08:33	FLC	TAL SL
Total/NA	Prep	PrecSep_0			740.84 mL	1.0 g	570444	06/17/22 10:33	MS	TAL SL
Total/NA	Analysis	9320		1			571618	06/24/22 12:52	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			573546	07/12/22 12:09	CAH	TAL SL

Client Sample ID: W-2C

Date Collected: 06/07/22 17:50

Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			753.50 mL	1.0 g	570442	06/17/22 09:57	MS	TAL SL
Total/NA	Analysis	9315		1			573477	07/11/22 08:33	FLC	TAL SL
Total/NA	Prep	PrecSep_0			753.50 mL	1.0 g	570444	06/17/22 10:33	MS	TAL SL
Total/NA	Analysis	9320		1			571618	06/24/22 12:52	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			573546	07/12/22 12:09	CAH	TAL SL

Client Sample ID: W-16

Date Collected: 06/08/22 11:45

Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			744.23 mL	1.0 g	570442	06/17/22 09:57	MS	TAL SL
Total/NA	Analysis	9315		1			573477	07/11/22 08:34	FLC	TAL SL
Total/NA	Prep	PrecSep_0			744.23 mL	1.0 g	570444	06/17/22 10:33	MS	TAL SL
Total/NA	Analysis	9320		1			571618	06/24/22 12:52	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			574267	07/18/22 10:25	EMH	TAL SL

Client Sample ID: W-3B

Date Collected: 06/08/22 14:55

Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			747.75 mL	1.0 g	570442	06/17/22 09:57	MS	TAL SL
Total/NA	Analysis	9315		1			573477	07/11/22 08:34	FLC	TAL SL
Total/NA	Prep	PrecSep_0			747.75 mL	1.0 g	570444	06/17/22 10:33	MS	TAL SL
Total/NA	Analysis	9320		1			571618	06/24/22 12:52	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			573546	07/12/22 12:09	CAH	TAL SL

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-2

Client Sample ID: W-6B

Date Collected: 06/08/22 16:20

Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			744.29 mL	1.0 g	570442	06/17/22 09:57	MS	TAL SL
Total/NA	Analysis	9315		1			573477	07/11/22 08:34	FLC	TAL SL
Total/NA	Prep	PrecSep_0			744.29 mL	1.0 g	570444	06/17/22 10:33	MS	TAL SL
Total/NA	Analysis	9320		1			571618	06/24/22 12:53	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			573546	07/12/22 12:09	CAH	TAL SL

Client Sample ID: MW-7

Date Collected: 06/10/22 13:10

Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			744.37 mL	1.0 g	570442	06/17/22 09:57	MS	TAL SL
Total/NA	Analysis	9315		1			573477	07/11/22 08:34	FLC	TAL SL
Total/NA	Prep	PrecSep_0			744.37 mL	1.0 g	570444	06/17/22 10:33	MS	TAL SL
Total/NA	Analysis	9320		1			571618	06/24/22 12:53	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			573546	07/12/22 12:09	CAH	TAL SL

Laboratory References:

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

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-2

Laboratory: Eurofins St. Louis

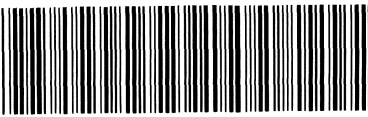
All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-22
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	07-01-22 *
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-22
Iowa	State	373	12-01-22
Kansas	NELAP	E-10236	10-31-22
Kentucky (DW)	State	KY90125	12-31-22
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-22
Louisiana	NELAP	04080	06-30-22 *
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-22
Maryland	State	310	09-30-22
MI - RadChem Recognition	State	9005	06-30-22 *
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-22
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	04-01-23
North Dakota	State	R-207	06-30-22 *
NRC	NRC	24-24817-01	12-31-22
Oklahoma	NELAP	9997	08-31-22
Oregon	NELAP	4157	09-01-22
Pennsylvania	NELAP	68-00540	02-28-23
South Carolina	State	85002001	06-30-22 *
Texas	NELAP	T104704193	07-31-22
US Fish & Wildlife	US Federal Programs	058448	07-31-22
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	08-01-22
Virginia	NELAP	10310	06-14-23
Washington	State	C592	08-30-22
West Virginia DEP	State	381	10-31-22

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

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Chain of Custody Record

Client Information		Sampler: F. Ray		Lab PM: Harrington, Danielle M	Carrier Tracking No(s):	COC No: 280-110862-32017.2
Client Contact: Molly Reeves		Phone: (720) 298-3594		E-Mail: Danielle.Harrington@Eurofinset.com	State of Origin:	Page: 1 of 1
Company: HDR Inc		PWSID:		Job #:		
Address: 1670 Broadway Suite 3400		Due Date Requested:		Analysis Requested		
City: Denver		TAT Requested (days): ASAP		 280-163349 Chain of Custody		
State/Zip: CO, 80202		Compliance Project: Δ Yes Δ No		6010C, 6020B, 7470A Total Metals - APP III + IV metals 9040B pH, 9056A, 280DChloride, Fluoride, Sulfate Radium-226 9135 and Radium-228 Method 9320/ Ra226Ra22228GFPC - ETA St Louis 2540D - TSS/2540C TDS		
Phone: 734-263-7138(Tel)		PO #: DEN-021		Field Filtered Sample (Yes or No) Perform MS/MSD (Yes or No)		
Email: Molly.Reeves@hdrinc.com		WO #: 28014376		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 M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)		
Project Name: Xcel Energy GW CCR Monitoring - Comanche		Project #: 28014376		Other:		
Site/COLORADO		SSOW#:		Special Instructions/Note:		
APP III + IV - TSS				Total Number of containers		
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix (W=water, S=solid, O=waste/oil, BT=biota, AS=air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)
W-14	6/6/22	1645	G	W	X	X
W-14-EB	6/7/22	0915	G	W	X	X
W-5B	6/7/22	1300	G	W	X	X
W-5B-FD	6/7/22	1315	G	W	X	X
W-2A	6/7/22	1745	G	W	X	X
W-2C	6/7/22	1750	G	W	X	X
W-16	6/8/22	1145	G	W	X	X
W-3B	6/8/22	1455	G	W	X	X
W-6B	6/8/22	1620	G	W	X	X
MW-7	6/10/22	1310	G	W	X	X
Possible Hazard Identification		Date:		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological		Time:		☐ Return To Client ☐ Disposal By Lab ☐ Archive For Months		
Deliverable Requested: I, II, III, IV, Other (specify)		Special Instructions/QC Requirements:		Method of Shipment:		
Empty Kit Relinquished by:		Date:		Received by:		
Relinquished by: Sarah Reg		Date/Time: 6/10/22 1655		Date/Time: 6/10/22 1655		
Relinquished by:		Date/Time:		Date/Time:		
Relinquished by:		Date/Time:		Date/Time:		
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 12.9 CF 0.1 IR 2		

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-163349-2

Login Number: 163349

List Number: 1

Creator: Roehsner, Karen P

List Source: Eurofins Denver

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

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-163349-2

Login Number: 163349

List Number: 2

Creator: Bohlmann, Jessica M

List Source: Eurofins St. Louis

List Creation: 06/16/22 11:03 AM

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

Tracer/Carrier Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-2

Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	
280-163349-1	W-14	89.0	
280-163349-2	W-14-EB	108	
280-163349-3	W-5B	108	
280-163349-4	W-5B-FD	108	
280-163349-5	W-2A	67.5	
280-163349-6	W-2C	50.5	
280-163349-7	W-16	86.5	
280-163349-8	W-3B	97.8	
280-163349-9	W-6B	81.8	
280-163349-10	MW-7	102	
LCS 160-570442/2-A	Lab Control Sample	105	
LCSD 160-570442/3-A	Lab Control Sample Dup	100	
MB 160-570442/1-A	Method Blank	102	
Tracer/Carrier Legend			
Ba = Ba Carrier			

Method: 9320 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)
280-163349-1	W-14	89.0	89.0
280-163349-2	W-14-EB	108	88.2
280-163349-3	W-5B	108	88.2
280-163349-4	W-5B-FD	108	90.1
280-163349-5	W-2A	67.5	86.7
280-163349-6	W-2C	50.5	87.1
280-163349-7	W-16	86.5	87.5
280-163349-8	W-3B	97.8	88.2
280-163349-9	W-6B	81.8	87.5
280-163349-10	MW-7	102	90.5
LCS 160-570444/2-A	Lab Control Sample	105	88.2
LCSD 160-570444/3-A	Lab Control Sample Dup	100	87.5
MB 160-570444/1-A	Method Blank	102	88.2
Tracer/Carrier Legend			
Ba = Ba Carrier			
Y = Y Carrier			

ANALYTICAL REPORT

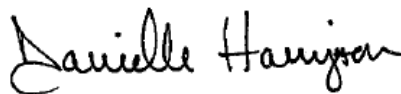
Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-163349-3

Client Project/Site: Xcel Energy GW CCR Monitoring -
Comanche

For:
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Attn: Molly Reeves



Authorized for release by:
7/13/2022 3:20:41 PM

Danielle Harrington, Project Manager II
(303)736-0176

Danielle.Harrington@et.eurofinsus.com

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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-3

Qualifiers

Metals

Qualifier	Qualifier Description
^6+	Interference Check Standard (ICSA and/or ICSAB) is outside acceptance limits, high biased.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-3

Job ID: 280-163349-3

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-163349-3

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

This report may include reporting limits (RLs) less than Eurofins TestAmerica's standard reporting limit. The reported sample results and associated reporting limits are being used specifically to meet the needs of this project. Note that data are not normally reported to these levels without qualification because they are inherently less reliable and potentially less defensible than required by the latest industry standards.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 6/10/2022 4:55 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 4.0° C and 5.2° C.

Per client request this report only contains the results for sample W-16.

DISSOLVED METALS - Method 6020

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

TOTAL METALS - Method 6020

Sample W-16 required a dilution due to matrix interferences or high analyte concentrations for Method 6010/6020. The reporting limits have been adjusted relative to the dilution required.

Low levels of Calcium are present in the method blank associated with QC batch 280-578745. Because the concentration in the method blank is not present at a level greater than the reporting limit, corrective action is deemed unnecessary.

Laboratory generated MS/MSD analysis data have been provided. The MS/MSD for method 6020 exhibited spike compound recoveries outside the QC limits in QC Batch 280-578745. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

Low levels of Calcium are present in the method blank associated with QC batch 280-578595. Because the concentration in the method blank is not present at a level greater than the reporting limit, corrective action is deemed unnecessary.

Laboratory generated MS/MSD analysis data have been provided. The MS/MSD for method 6020B exhibited spike compound recoveries outside the QC limits in QC Batch 280-578747. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-3

Job ID: 280-163349-3 (Continued)

Laboratory: Eurofins Denver (Continued)

The accuracy and precision of the 6020B MS/MSD performed on a laboratory generated sample could not be reliably evaluated, as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

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

GENERAL CHEMISTRY - VARIOUS

For method 9040B, the sample duplicate (DUP) precision for analytical batch 280-578603 was outside control limits. Sample matrix interference is suspected.

Sample W-16 required a dilution due to matrix interferences or high analyte concentrations for Method 9056. The reporting limits have been adjusted relative to the dilution required.

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

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-3

Client Sample ID: W-16

Lab Sample ID: 280-163349-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cobalt	0.013		0.0010	0.000092	mg/L	1		6020B	Total
Calcium	450	B	10	1.9	mg/L	50		6020B	Recoverable
pH adj. to 25 deg C	6.9	HF	0.1	0.1	SU	1		9040B	Total
Temperature	20.3	HF	1.0	1.0	Degrees C	1		9040B	Recoverable
Chloride	260		15	5.1	mg/L	5		9056A	Total/NA
Sulfate	13000		500	100	mg/L	100		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Method Summary

Client: HDR Inc

Job ID: 280-163349-3

Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Method	Method Description	Protocol	Laboratory
6020B	Metals (ICP/MS)	SW846	TAL DEN
9040B	pH	SW846	TAL DEN
9056A	Anions, Ion Chromatography	SW846	TAL DEN
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL DEN

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:

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

Sample Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-163349-7	W-16	Water	06/08/22 11:45	06/10/22 16:55

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

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-3

Method: 6020B - Metals (ICP/MS) - Total Recoverable

Client Sample ID: W-16
Date Collected: 06/08/22 11:45
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	0.013		0.0010	0.000092	mg/L		06/17/22 08:32	06/21/22 01:39	1
Calcium	450	B	10	1.9	mg/L		06/17/22 08:32	06/20/22 17:52	50

General Chemistry

Client Sample ID: W-16
Date Collected: 06/08/22 11:45
Date Received: 06/10/22 16:55

Lab Sample ID: 280-163349-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	6.9	HF	0.1	0.1	SU			06/20/22 17:37	1
Temperature	20.3	HF	1.0	1.0	Degrees C			06/20/22 17:37	1
Chloride	260		15	5.1	mg/L			06/16/22 00:55	5
Sulfate	13000		500	100	mg/L			06/16/22 01:11	100
Total Suspended Solids	ND		4.0	1.1	mg/L			06/13/22 10:41	1

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-3

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-578251/1-A
Matrix: Water
Analysis Batch: 578478

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 578251

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	ND		0.0010	0.000092	mg/L		06/17/22 08:32	06/17/22 20:14	1

Lab Sample ID: MB 280-578251/1-A
Matrix: Water
Analysis Batch: 578595

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 578251

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	0.166	J	0.20	0.038	mg/L		06/17/22 08:32	06/20/22 16:56	1

Lab Sample ID: LCS 280-578251/2-A
Matrix: Water
Analysis Batch: 578478

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 578251

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	0.0400	0.0399		mg/L		100	92 - 112
Cadmium	0.0400	0.0397		mg/L		99	91 - 114
Chromium	0.0400	0.0411		mg/L		103	91 - 114
Cobalt	0.0400	0.0409		mg/L		102	94 - 115
Lead	0.0400	0.0406		mg/L		101	95 - 116
Molybdenum	0.0400	0.0405		mg/L		101	84 - 117
Selenium	0.0400	0.0395		mg/L		99	90 - 115
Thallium	0.0400	0.0401		mg/L		100	94 - 115

Lab Sample ID: LCS 280-578251/2-A
Matrix: Water
Analysis Batch: 578658

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 578251

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0410		mg/L		103	80 - 111
Beryllium	0.0400	0.0389		mg/L		97	87 - 118
Calcium	0.800	0.806		mg/L		101	80 - 120

Lab Sample ID: LCS 280-578251/2-A
Matrix: Water
Analysis Batch: 578747

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 578251

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Barium	0.0400	0.0411	^6+	mg/L		103	92 - 117

Method: 9040B - pH

Lab Sample ID: LCS 280-578603/27
Matrix: Water
Analysis Batch: 578603

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH adj. to 25 deg C	7.00	7.0		SU		100	99 - 101

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-3

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-578058/6

Matrix: Water

Analysis Batch: 578058

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			06/15/22 11:03	1
Sulfate	ND		5.0	1.0	mg/L			06/15/22 11:03	1

Lab Sample ID: MB 280-578058/72

Matrix: Water

Analysis Batch: 578058

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			06/16/22 05:11	1
Sulfate	ND		5.0	1.0	mg/L			06/16/22 05:11	1

Lab Sample ID: LCS 280-578058/4

Matrix: Water

Analysis Batch: 578058

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	101		mg/L		101	90 - 110
Fluoride	5.00	5.04		mg/L		101	90 - 110
Sulfate	100	102		mg/L		102	90 - 110

Lab Sample ID: LCS 280-578058/70

Matrix: Water

Analysis Batch: 578058

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	102		mg/L		102	90 - 110
Fluoride	5.00	4.73		mg/L		95	90 - 110
Sulfate	100	104		mg/L		104	90 - 110

Lab Sample ID: LCSD 280-578058/5

Matrix: Water

Analysis Batch: 578058

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	101		mg/L		101	90 - 110	0	10
Fluoride	5.00	5.00		mg/L		100	90 - 110	1	10
Sulfate	100	102		mg/L		102	90 - 110	0	10

Lab Sample ID: LCSD 280-578058/71

Matrix: Water

Analysis Batch: 578058

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	102		mg/L		102	90 - 110	0	10
Fluoride	5.00	4.86		mg/L		97	90 - 110	3	10
Sulfate	100	104		mg/L		104	90 - 110	0	10

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-3

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

Lab Sample ID: MRL 280-578058/3

Matrix: Water

Analysis Batch: 578058

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.00	4.69		mg/L		94	50 - 150
Fluoride	0.500	0.482	J	mg/L		96	50 - 150
Sulfate	5.00	4.54	J	mg/L		91	50 - 150

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 280-577951/3

Matrix: Water

Analysis Batch: 577951

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			06/13/22 10:41	1

Lab Sample ID: LCS 280-577951/1

Matrix: Water

Analysis Batch: 577951

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	82.8		mg/L		83	79 - 114

Lab Sample ID: LCSD 280-577951/2

Matrix: Water

Analysis Batch: 577951

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	100	92.4		mg/L		92	79 - 114	11	20

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-3

Metals

Prep Batch: 578251

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163349-7	W-16	Total Recoverable	Water	3005A	
MB 280-578251/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-578251/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 578478

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-578251/1-A	Method Blank	Total Recoverable	Water	6020B	578251
LCS 280-578251/2-A	Lab Control Sample	Total Recoverable	Water	6020B	578251

Analysis Batch: 578595

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163349-7	W-16	Total Recoverable	Water	6020B	578251
MB 280-578251/1-A	Method Blank	Total Recoverable	Water	6020B	578251

Analysis Batch: 578596

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163349-7	W-16	Total Recoverable	Water	6020B	578251
MB 280-578251/1-A	Method Blank	Total Recoverable	Water	6020B	578251

Analysis Batch: 578658

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 280-578251/2-A	Lab Control Sample	Total Recoverable	Water	6020B	578251

Analysis Batch: 578747

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-578251/1-A	Method Blank	Total Recoverable	Water	6020B	578251
LCS 280-578251/2-A	Lab Control Sample	Total Recoverable	Water	6020B	578251

General Chemistry

Analysis Batch: 577951

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163349-7	W-16	Total/NA	Water	SM 2540D	
MB 280-577951/3	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-577951/1	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-577951/2	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 578058

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163349-7	W-16	Total/NA	Water	9056A	
280-163349-7	W-16	Total/NA	Water	9056A	
MB 280-578058/6	Method Blank	Total/NA	Water	9056A	
MB 280-578058/72	Method Blank	Total/NA	Water	9056A	
LCS 280-578058/4	Lab Control Sample	Total/NA	Water	9056A	
LCS 280-578058/70	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-578058/5	Lab Control Sample Dup	Total/NA	Water	9056A	
LCSD 280-578058/71	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-578058/3	Lab Control Sample	Total/NA	Water	9056A	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-3

General Chemistry

Analysis Batch: 578603

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163349-7	W-16	Total/NA	Water	9040B	
LCS 280-578603/27	Lab Control Sample	Total/NA	Water	9040B	

1

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-3

Client Sample ID: W-16

Lab Sample ID: 280-163349-7

Date Collected: 06/08/22 11:45

Matrix: Water

Date Received: 06/10/22 16:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		50			578595	06/20/22 17:52	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	578251	06/17/22 08:32	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			578596	06/21/22 01:39	LMT	TAL DEN
Total/NA	Analysis	9040B		1			578603	06/20/22 17:37	KEG	TAL DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	578058	06/16/22 00:55	RAF	TAL DEN
Total/NA	Analysis	9056A		100	10 mL	10 mL	578058	06/16/22 01:11	RAF	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	577951	06/13/22 10:41	CAI	TAL DEN

Laboratory References:

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

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-163349-3

Laboratory: Eurofins Denver

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

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-23

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	Calcium
9040B		Water	Temperature

Chain of Custody Record

Client Information		Sampler: F. Ray		Lab PM: Harrington, Danielle M		Carrier Tracking No(s):		COC No: 280-110862-32017.2	
Client Contact: Molly Reeves		Phone: (720) 298-3594		E-Mail: Danielle.Harrington@Eurofinset.com		State of Origin:		Page: 1 of 1	
Company: HDR Inc		PWSID:		Analysis Requested		Job #:			
Address: 1670 Broadway Suite 3400		Due Date Requested:		Perform MS/MSD (Yes or No)		Total Number of Containers		Preservation Codes:	
City: Denver		TAT Requested (days): ASAP		6010C, 6020B, 7470A Total Metals - APP III + IV metals		280-163349 Chain of Custody		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:	
State/Zip: CO, 80202		Compliance Project: Δ Yes Δ No		9040B pH, 9056A, 280DChloride, Fluoride, Sulfate				M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)	
Phone: 734-263-7138(Tel)		PO #: DEN-021		Radium-226 9135 and Radium-228 Method 9320/					
Email: Molly.Reeves@hdrinc.com		WO #: 28014376		2540D - TSS/2540C TDS					
Project Name: Xcel Energy GW CCR Monitoring - Comanche		Project #: 28014376		Field Filtered Sample (Yes or No)				Special Instructions/Note:	
Site/COLORADO		SSOW#: APP III + IV - TSS							
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix (W=water, S=solid, O=waste/oil, BT=biota, AS=air)				
W-14		6/6/22	1645	G	W				
W-14-EB		6/7/22	0915	G	W				
W-5B		6/7/22	1300	G	W				
W-5B-FD		6/7/22	1315	G	W				
W-2A		6/7/22	1745	G	W				
W-2C		6/7/22	1750	G	W				
W-16		6/8/22	1145	G	W				
W-3B		6/8/22	1455	G	W				
W-6B		6/8/22	1620	G	W				
MW-7		6/10/22	1310	G	W				
Possible Hazard Identification						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)			
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological						☐ Return To Client ☐ Disposal By Lab ☐ Archive For Months			
Deliverable Requested: I, II, III, IV, Other (specify)						Special Instructions/QC Requirements:			
Empty Kit Relinquished by:						Method of Shipment:			
Relinquished by: Sarah Reg						Date/Time: 6/10/22 1655			
Relinquished by:						Date/Time:			
Relinquished by:						Date/Time:			
Custody Seals Intact: Δ Yes Δ No						Cooler Temperature(s) °C and Other Remarks: 12.9 CF 0.1 IR 2			

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-163349-3

Login Number: 163349

List Source: Eurofins Denver

List Number: 1

Creator: Roehsner, Karen P

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

ANALYTICAL REPORT

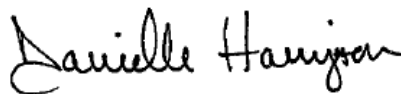
Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-164515-1

Client Project/Site: Xcel Energy GW CCR Monitoring -
Comanche

For:
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Attn: Molly Reeves



Authorized for release by:
7/27/2022 9:52:34 AM

Danielle Harrington, Project Manager II
(303)736-0176

Danielle.Harrington@et.eurofinsus.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

Qualifiers

Metals

Qualifier	Qualifier Description
^+	Continuing Calibration Verification (CCV) is outside acceptance limits, high biased.
^6+	Interference Check Standard (ICSA and/or ICSAB) is outside acceptance limits, high biased.
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.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
^+	Continuing Calibration Verification (CCV) is outside acceptance limits, high biased.
B	Compound was found in the blank and sample.
H	Sample was prepped or analyzed beyond the specified holding time
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

Job ID: 280-164515-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-164515-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 07/18/2022; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt were 0.2°C, 0.2°C and 1.6°C.

DISSOLVED METALS- Method 6010C/6020B

Sample W-10B (280-164515-5) required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Boron was detected in method blank MB 280-581415/1-B at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

The accuracy and precision of the Dissolved Lithium MS/MSD performed on a sample W-10B could not be reliably evaluated, as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

Laboratory generated MS/MSD analysis data have been provided. The Selenium and Cobalt MS/MSD for method 6020B exhibited spike compound recoveries outside the QC limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The accuracy and precision of the Calcium MS/MSD performed on a laboratory generated sample could not be reliably evaluated, as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The accuracy and precision of the Calcium, Magnesium, and Sodium MS/MSD performed on a laboratory generated sample could not be reliably evaluated, as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The accuracy and precision of the Barium and Potassium MS/MSD performed on a laboratory generated sample could not be reliably evaluated, as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

Job ID: 280-164515-1 (Continued)

Laboratory: Eurofins Denver (Continued)

Method 6020B: The interference check standard solution (ICSA) associated with batch 280-581791 had results for one or more elements at a level greater than the RL. The ICSA result (3.34 ppb) was >RL (3 ppb) for Barium. The vendor acknowledges that these elements are trace impurities in the ICSA standard. These results are not indicative of a matrix interference..

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

TOTAL RECOVERABLE METALS- Method 6010C/6020B

Several samples required dilution prior to analysis for various methods. The reporting limits have been adjusted accordingly.

Boron was detected in method blank MB 280-581304/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Beryllium, Molybdenum and Thallium were detected in method blank MB 280-581479/1-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

The accuracy and precision of the Potassium, Calcium, Magnesium, and Sodium MS/MSD performed on a laboratory generated sample could not be reliably evaluated, as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

Method 6020B: The interference check standard solution (ICSA) associated with batch 280-581849 had results for one or more elements at a level greater than the RL. The ICSA result (3.097 ppb) was >RL (3 ppb) for Barium. The vendor acknowledges that these elements are trace impurities in the ICSA standard. These results are not indicative of a matrix interference.

The continuing calibration verification (CCV) associated with batch 280-581901 recovered (113%) above the upper control limit (110%) for Beryllium. The samples associated with this CCV were <LOD for the affected analytes; therefore, the data have been reported.

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

DISSOLVED MERCURY

Method 7470A: Insufficient filtrate volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 280-581414 and 280-581576. An LCSD was performed instead.

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

TOTAL MERCURY

Method 7470A: Insufficient filtrate volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 280-581414 and 280-581576. An LCSD was performed instead.

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

GENERAL CHEMISTRY- VARIOUS

Several samples required dilution prior to analysis for various methods. The reporting limits have been adjusted accordingly.

Method 2540C_Calcd: Reanalysis of the following sample was performed outside of the analytical holding time to confirm that the value was outside of historical limits. The reanalysis of this sample obtained a value within historical limits. Only the re-analysis is reported for sample MW-7 (280-164515-8)

Alkalinity and Bicarbonate Alkalinity as CaCO₃ was detected in method blank MB 280-581326/5 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

Job ID: 280-164515-1 (Continued)

Laboratory: Eurofins Denver (Continued)

Total Dissolved Solids (TDS) exceeded the RPD limit for the duplicate of sample 160-46272-3. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

Laboratory generated MS/MSD analysis data have been provided. The MS/MSD for Chloride and Sulfate method 9056A exhibited spike compound recoveries outside the QC limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

Laboratory generated MS/MSD analysis data have been provided. The MS/MSD for Chloride method 9056A exhibited spike compound recoveries outside the QC limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The accuracy and precision of the Sulfate MS/MSD performed on a laboratory generated sample could not be reliably evaluated, as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

Method 2320B: The CCB for analytical batch 280-581326 contained Alkalinity, Bicarbonate Alkalinity as CaCO₃ and Carbonate Alkalinity as CaCO₃ above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-analysis of samples was not performed.

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

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

Client Sample ID: W-2A

Lab Sample ID: 280-164515-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Boron	1.3		0.10	0.0015	mg/L	1			6010C	Total Recoverable
Lithium	4800		20	9.1	ug/L	1			6010C	Total Recoverable
Magnesium	8000		2.5	1.1	mg/L	50			6020B	Total Recoverable
Arsenic	0.00042	J	0.0050	0.00033	mg/L	1			6020B	Total Recoverable
Sodium	5600		7.5	3.2	mg/L	50			6020B	Total Recoverable
Barium	0.014	^6+	0.0010	0.00029	mg/L	1			6020B	Total Recoverable
Potassium	59		6.0	2.6	mg/L	50			6020B	Total Recoverable
Beryllium	0.000095	J B ^+	0.0010	0.000080	mg/L	1			6020B	Total Recoverable
Cadmium	0.0038		0.0010	0.00027	mg/L	1			6020B	Total Recoverable
Chromium	0.00096	J	0.0020	0.00050	mg/L	1			6020B	Total Recoverable
Cobalt	0.012		0.0010	0.000092	mg/L	1			6020B	Total Recoverable
Lead	0.00096	J	0.0010	0.00018	mg/L	1			6020B	Total Recoverable
Molybdenum	0.037	B	0.0020	0.00014	mg/L	1			6020B	Total Recoverable
Selenium	3.3		0.0050	0.00037	mg/L	1			6020B	Total Recoverable
Thallium	0.0040	B	0.0010	0.000089	mg/L	1			6020B	Total Recoverable
Calcium	470		10	1.9	mg/L	50			6020B	Total Recoverable
pH adj. to 25 deg C	6.9	HF	0.1	0.1	SU	1			9040B	Total/NA
Temperature	20.3	HF	1.0	1.0	Degrees C	1			9040B	Total/NA
Chloride	790		60	20	mg/L	20			9056A	Total/NA
Fluoride	88		10	3.3	mg/L	20			9056A	Total/NA
Sulfate	49000		2500	520	mg/L	500			9056A	Total/NA
Alkalinity	680	B	10	3.1	mg/L	1			SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	680	B	10	3.1	mg/L	1			SM 2320B	Total/NA
Total Dissolved Solids (TDS)	64000		1000	470	mg/L	1			SM 2540C	Total/NA
Total Suspended Solids	3.2	J	4.0	1.1	mg/L	1			SM 2540D	Total/NA

Client Sample ID: W-2A-FD

Lab Sample ID: 280-164515-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Boron	1.3		0.10	0.0015	mg/L	1			6010C	Total Recoverable
Lithium	4700		20	9.1	ug/L	1			6010C	Total Recoverable
Magnesium	7800		2.5	1.1	mg/L	50			6020B	Total Recoverable
Arsenic	0.00037	J	0.0050	0.00033	mg/L	1			6020B	Total Recoverable
Sodium	5400		7.5	3.2	mg/L	50			6020B	Total Recoverable
Barium	0.013	^6+	0.0010	0.00029	mg/L	1			6020B	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

Client Sample ID: W-2A-FD (Continued)

Lab Sample ID: 280-164515-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Potassium	58		6.0	2.6	mg/L	50		6020B	Total
									Recoverable
Beryllium	0.00012	J B ^+	0.0010	0.000080	mg/L	1		6020B	Total
									Recoverable
Cadmium	0.0041		0.0010	0.00027	mg/L	1		6020B	Total
									Recoverable
Chromium	0.0013	J	0.0020	0.00050	mg/L	1		6020B	Total
									Recoverable
Cobalt	0.012		0.0010	0.000092	mg/L	1		6020B	Total
									Recoverable
Lead	0.00060	J	0.0010	0.00018	mg/L	1		6020B	Total
									Recoverable
Molybdenum	0.010	B	0.0020	0.00014	mg/L	1		6020B	Total
									Recoverable
Selenium	3.3		0.0050	0.00037	mg/L	1		6020B	Total
									Recoverable
Thallium	0.0041	B	0.0010	0.000089	mg/L	1		6020B	Total
									Recoverable
Calcium	470		10	1.9	mg/L	50		6020B	Total
									Recoverable
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	800		60	20	mg/L	20		9056A	Total/NA
Fluoride	87		10	3.3	mg/L	20		9056A	Total/NA
Sulfate	46000		2500	520	mg/L	500		9056A	Total/NA
Alkalinity	670	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	670	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	63000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	2.4	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-2C

Lab Sample ID: 280-164515-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	2.1		0.10	0.0015	mg/L	1		6010C	Total
									Recoverable
Lithium	2000		20	9.1	ug/L	1		6010C	Total
									Recoverable
Magnesium	3500		2.5	1.1	mg/L	50		6020B	Total
									Recoverable
Arsenic	0.00056	J	0.0050	0.00033	mg/L	1		6020B	Total
									Recoverable
Sodium	3200		7.5	3.2	mg/L	50		6020B	Total
									Recoverable
Barium	0.013	^6+	0.0010	0.00029	mg/L	1		6020B	Total
									Recoverable
Potassium	31		6.0	2.6	mg/L	50		6020B	Total
									Recoverable
Cadmium	0.0025		0.0010	0.00027	mg/L	1		6020B	Total
									Recoverable
Chromium	0.0010	J	0.0020	0.00050	mg/L	1		6020B	Total
									Recoverable
Cobalt	0.0012		0.0010	0.000092	mg/L	1		6020B	Total
									Recoverable
Lead	0.00039	J	0.0010	0.00018	mg/L	1		6020B	Total
									Recoverable
Molybdenum	0.0097	B	0.0020	0.00014	mg/L	1		6020B	Total
									Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

Client Sample ID: W-2C (Continued)

Lab Sample ID: 280-164515-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Selenium	2.0		0.0050	0.00037	mg/L	1		6020B	Total Recoverable
Thallium	0.0013	B	0.0010	0.000089	mg/L	1		6020B	Total Recoverable
Calcium	460		10	1.9	mg/L	50		6020B	Total Recoverable
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.7	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	640		60	20	mg/L	20		9056A	Total/NA
Fluoride	49		2.5	0.83	mg/L	5		9056A	Total/NA
Sulfate	20000		1000	210	mg/L	200		9056A	Total/NA
Alkalinity	340	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	340	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	28000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	2.4	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-10B-EB

Lab Sample ID: 280-164515-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Magnesium	0.10		0.050	0.021	mg/L	1		6020B	Total Recoverable
Sodium	0.077	J	0.15	0.065	mg/L	1		6020B	Total Recoverable
Barium	0.00098	J ^6+	0.0010	0.00029	mg/L	1		6020B	Total Recoverable
Potassium	0.099	J	0.12	0.052	mg/L	1		6020B	Total Recoverable
Chromium	0.0015	J	0.0020	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.00010	J	0.0010	0.000092	mg/L	1		6020B	Total Recoverable
Molybdenum	0.00039	J B	0.0020	0.00014	mg/L	1		6020B	Total Recoverable
Selenium	0.0026	J	0.0050	0.00037	mg/L	1		6020B	Total Recoverable
Calcium	0.75		0.20	0.038	mg/L	1		6020B	Total Recoverable
pH adj. to 25 deg C	7.4	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	19.3	HF	1.0	1.0	Degrees C	1		9040B	Total/NA

Client Sample ID: W-10B

Lab Sample ID: 280-164515-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.97		0.50	0.0073	mg/L	5		6010C	Total Recoverable
Lithium	5800		20	9.1	ug/L	1		6010C	Total Recoverable
Boron	0.90	B	0.50	0.0073	mg/L	5		6010C	Dissolved
Lithium	5500		20	9.1	ug/L	1		6010C	Dissolved
Magnesium	11000		2.5	1.1	mg/L	50		6020B	Total Recoverable
Arsenic	0.00066	J	0.0050	0.00033	mg/L	1		6020B	Total Recoverable
Sodium	6400		7.5	3.2	mg/L	50		6020B	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

Client Sample ID: W-10B (Continued)

Lab Sample ID: 280-164515-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Barium	0.019	^6+	0.0010	0.00029	mg/L	1			6020B	Total
Potassium	78		6.0	2.6	mg/L	50			6020B	Recoverable
Cadmium	0.00038	J	0.0010	0.00027	mg/L	1			6020B	Total
Chromium	0.0021		0.0020	0.00050	mg/L	1			6020B	Recoverable
Cobalt	0.0022		0.0010	0.000092	mg/L	1			6020B	Total
Lead	0.00034	J	0.0010	0.00018	mg/L	1			6020B	Recoverable
Molybdenum	0.0036	B	0.0020	0.00014	mg/L	1			6020B	Total
Selenium	4.9		0.25	0.019	mg/L	50			6020B	Recoverable
Thallium	0.0067	B	0.0010	0.000089	mg/L	1			6020B	Total
Calcium	430		10	1.9	mg/L	50			6020B	Recoverable
Arsenic	0.00082	J	0.0050	0.00033	mg/L	1			6020B	Dissolved
Barium	0.020	^6+	0.0010	0.00029	mg/L	1			6020B	Dissolved
Beryllium	0.00020	J	0.0010	0.000080	mg/L	1			6020B	Dissolved
Cadmium	0.00034	J	0.0010	0.00027	mg/L	1			6020B	Dissolved
Chromium	0.0024		0.0020	0.00050	mg/L	1			6020B	Dissolved
Cobalt	0.0022		0.0010	0.000092	mg/L	1			6020B	Dissolved
Lead	0.00093	J	0.0010	0.00018	mg/L	1			6020B	Dissolved
Calcium	49000		1000	1900	ug/L	50			6020B	Dissolved
Molybdenum	0.0034		0.0020	0.00014	mg/L	1			6020B	Dissolved
Selenium	4.8		0.25	0.019	mg/L	50			6020B	Dissolved
Thallium	0.0073		0.0010	0.000089	mg/L	1			6020B	Dissolved
pH adj. to 25 deg C	7.1	HF	0.1	0.1	SU	1			9040B	Total/NA
Temperature	20.3	HF	1.0	1.0	Degrees C	1			9040B	Total/NA
Chloride	1000		60	20	mg/L	20			9056A	Total/NA
Fluoride	110		10	3.3	mg/L	20			9056A	Total/NA
Sulfate	57000		2500	520	mg/L	500			9056A	Total/NA
Alkalinity	1000	B	10	3.1	mg/L	1			SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	1000	B	10	3.1	mg/L	1			SM 2320B	Total/NA
Total Dissolved Solids (TDS)	75000		1000	470	mg/L	1			SM 2540C	Total/NA
Total Suspended Solids	24		4.0	1.1	mg/L	1			SM 2540D	Total/NA

Client Sample ID: W-3B

Lab Sample ID: 280-164515-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Boron	0.93		0.50	0.0073	mg/L	5			6010C	Total
Lithium	3100		20	9.1	ug/L	1			6010C	Recoverable
Antimony	0.00044	J	0.0020	0.00040	mg/L	1			6020B	Total
Magnesium	5100		2.5	1.1	mg/L	50			6020B	Recoverable
Arsenic	0.00063	J	0.0050	0.00033	mg/L	1			6020B	Total

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

Client Sample ID: W-3B (Continued)

Lab Sample ID: 280-164515-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	12000		7.5	3.2	mg/L	50		6020B	Total
									Recoverable
Barium	0.015	^6+	0.0010	0.00029	mg/L	1		6020B	Total
									Recoverable
Potassium	40		6.0	2.6	mg/L	50		6020B	Total
									Recoverable
Beryllium	0.00012	J B ^+	0.0010	0.000080	mg/L	1		6020B	Total
									Recoverable
Cadmium	0.017		0.0010	0.00027	mg/L	1		6020B	Total
									Recoverable
Chromium	0.00057	J	0.0020	0.00050	mg/L	1		6020B	Total
									Recoverable
Cobalt	0.11		0.0010	0.000092	mg/L	1		6020B	Total
									Recoverable
Lead	0.00049	J	0.0010	0.00018	mg/L	1		6020B	Total
									Recoverable
Molybdenum	0.0022	B	0.0020	0.00014	mg/L	1		6020B	Total
									Recoverable
Selenium	0.011		0.0050	0.00037	mg/L	1		6020B	Total
									Recoverable
Thallium	0.0027	B	0.0010	0.000089	mg/L	1		6020B	Total
									Recoverable
Calcium	460		10	1.9	mg/L	50		6020B	Total
									Recoverable
pH adj. to 25 deg C	6.9	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.8	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1100		60	20	mg/L	20		9056A	Total/NA
Fluoride	82		10	3.3	mg/L	20		9056A	Total/NA
Sulfate	50000		2500	520	mg/L	500		9056A	Total/NA
Alkalinity	910	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	910	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	65000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	8.0		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-5B

Lab Sample ID: 280-164515-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.1		0.10	0.0015	mg/L	1		6010C	Total
									Recoverable
Lithium	330		20	9.1	ug/L	1		6010C	Total
									Recoverable
Magnesium	330		2.5	1.1	mg/L	50		6020B	Total
									Recoverable
Sodium	840		7.5	3.2	mg/L	50		6020B	Total
									Recoverable
Barium	0.017	^6+	0.0010	0.00029	mg/L	1		6020B	Total
									Recoverable
Potassium	15		6.0	2.6	mg/L	50		6020B	Total
									Recoverable
Cadmium	0.00066	J	0.0010	0.00027	mg/L	1		6020B	Total
									Recoverable
Chromium	0.00055	J	0.0020	0.00050	mg/L	1		6020B	Total
									Recoverable
Cobalt	0.0019		0.0010	0.000092	mg/L	1		6020B	Total
									Recoverable
Molybdenum	0.0080	B	0.0020	0.00014	mg/L	1		6020B	Total
									Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

Client Sample ID: W-5B (Continued)

Lab Sample ID: 280-164515-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Selenium	0.0020	J	0.0050	0.00037	mg/L	1		6020B	Total
Thallium	0.00061	J B	0.0010	0.000089	mg/L	1		6020B	Recoverable Total
Calcium	490		10	1.9	mg/L	50		6020B	Recoverable Total
pH adj. to 25 deg C	7.4	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	110		60	20	mg/L	20		9056A	Total/NA
Fluoride	6.8		1.0	0.33	mg/L	2		9056A	Total/NA
Sulfate	4100		2500	520	mg/L	500		9056A	Total/NA
Alkalinity	200	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	200	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	5200		40	19	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-7

Lab Sample ID: 280-164515-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.67	B	0.10	0.0015	mg/L	1		6010C	Total
Lithium	2100		20	9.1	ug/L	1		6010C	Recoverable Total
Antimony	0.0010	J	0.0020	0.00040	mg/L	1		6020B	Recoverable Total
Magnesium	950		2.5	1.1	mg/L	50		6020B	Recoverable Total
Arsenic	0.00055	J	0.0050	0.00033	mg/L	1		6020B	Recoverable Total
Sodium	2600		7.5	3.2	mg/L	50		6020B	Recoverable Total
Barium	0.011	^6+	0.0010	0.00029	mg/L	1		6020B	Recoverable Total
Potassium	29		6.0	2.6	mg/L	50		6020B	Recoverable Total
Cadmium	0.00077	J	0.0010	0.00027	mg/L	1		6020B	Recoverable Total
Cobalt	0.0063		0.0010	0.000092	mg/L	1		6020B	Recoverable Total
Lead	0.00020	J	0.0010	0.00018	mg/L	1		6020B	Recoverable Total
Molybdenum	0.0048		0.0020	0.00014	mg/L	1		6020B	Recoverable Total
Selenium	0.39		0.0050	0.00037	mg/L	1		6020B	Recoverable Total
Thallium	0.0015		0.0010	0.000089	mg/L	1		6020B	Recoverable Total
Calcium	410		10	1.9	mg/L	50		6020B	Recoverable Total
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.3	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	310		60	20	mg/L	20		9056A	Total/NA
Fluoride	18		2.5	0.83	mg/L	5		9056A	Total/NA
Sulfate	10000		1000	210	mg/L	200		9056A	Total/NA
Alkalinity	800	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	800	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	13000	H	1000	470	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

Client Sample ID: MW-7 (Continued)

Lab Sample ID: 280-164515-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Suspended Solids	4.0		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-16

Lab Sample ID: 280-164515-9

Sample Analysis Not Complete.

Client Sample ID: W-14

Lab Sample ID: 280-164515-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.60	B	0.10	0.0015	mg/L	1		6010C	Total Recoverable
Lithium	3300		20	9.1	ug/L	1		6010C	Total Recoverable
Antimony	0.00055	J	0.0020	0.00040	mg/L	1		6020B	Total Recoverable
Magnesium	1600		2.5	1.1	mg/L	50		6020B	Total Recoverable
Arsenic	0.00043	J	0.0050	0.00033	mg/L	1		6020B	Total Recoverable
Sodium	5500		7.5	3.2	mg/L	50		6020B	Total Recoverable
Barium	0.016	^6+	0.0010	0.00029	mg/L	1		6020B	Total Recoverable
Potassium	42		6.0	2.6	mg/L	50		6020B	Total Recoverable
Cadmium	0.0011		0.0010	0.00027	mg/L	1		6020B	Total Recoverable
Chromium	0.0013	J	0.0020	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.011		0.0010	0.000092	mg/L	1		6020B	Total Recoverable
Lead	0.00025	J	0.0010	0.00018	mg/L	1		6020B	Total Recoverable
Molybdenum	0.022		0.0020	0.00014	mg/L	1		6020B	Total Recoverable
Selenium	1.3		0.0050	0.00037	mg/L	1		6020B	Total Recoverable
Thallium	0.0025		0.0010	0.000089	mg/L	1		6020B	Total Recoverable
Calcium	430		10	1.9	mg/L	50		6020B	Total Recoverable
pH adj. to 25 deg C	7.5	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.9	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	670		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	37		2.5	0.83	mg/L	5		9056A	Total/NA
Sulfate	18000		1000	210	mg/L	200		9056A	Total/NA
Alkalinity	1100	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	1100	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	24000		1000	470	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Method Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL DEN
6020B	Metals (ICP/MS)	SW846	TAL DEN
7470A	Mercury (CVAA)	SW846	TAL DEN
9040B	pH	SW846	TAL DEN
9056A	Anions, Ion Chromatography	SW846	TAL DEN
SM 2320B	Alkalinity	SM	TAL DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL DEN
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL DEN
7470A	Preparation, Mercury	SW846	TAL DEN
FILTRATION	Sample Filtration	None	TAL DEN

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.

Laboratory References:

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

Sample Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-164515-1	W-2A	Water	07/13/22 10:40	07/18/22 08:25
280-164515-2	W-2A-FD	Water	07/13/22 10:40	07/18/22 08:25
280-164515-3	W-2C	Water	07/13/22 13:00	07/18/22 08:25
280-164515-4	W-10B-EB	Ground Water	07/14/22 09:30	07/18/22 08:25
280-164515-5	W-10B	Ground Water	07/14/22 10:00	07/18/22 08:25
280-164515-6	W-3B	Water	07/14/22 13:00	07/18/22 08:25
280-164515-7	W-5B	Water	07/14/22 14:30	07/18/22 08:25
280-164515-8	MW-7	Water	07/14/22 17:30	07/18/22 08:25
280-164515-9	W-16	Water	07/15/22 11:15	07/18/22 08:25
280-164515-10	W-14	Water	07/15/22 13:30	07/18/22 08:25

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

Method: 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: W-2A
Date Collected: 07/13/22 10:40
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.3		0.10	0.0015	mg/L		07/21/22 08:31	07/21/22 18:22	1
Lithium	4800		20	9.1	ug/L		07/21/22 08:31	07/21/22 18:22	1

Client Sample ID: W-2A-FD
Date Collected: 07/13/22 10:40
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.3		0.10	0.0015	mg/L		07/21/22 08:31	07/21/22 18:26	1
Lithium	4700		20	9.1	ug/L		07/21/22 08:31	07/21/22 18:26	1

Client Sample ID: W-2C
Date Collected: 07/13/22 13:00
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	2.1		0.10	0.0015	mg/L		07/21/22 08:31	07/21/22 18:30	1
Lithium	2000		20	9.1	ug/L		07/21/22 08:31	07/21/22 18:30	1

Client Sample ID: W-10B-EB
Date Collected: 07/14/22 09:30
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-4
Matrix: Ground Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.0015	mg/L		07/21/22 08:31	07/21/22 18:50	1
Lithium	ND		20	9.1	ug/L		07/21/22 08:31	07/21/22 18:50	1

Client Sample ID: W-10B
Date Collected: 07/14/22 10:00
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-5
Matrix: Ground Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.97		0.50	0.0073	mg/L		07/21/22 08:31	07/22/22 07:59	5
Lithium	5800		20	9.1	ug/L		07/21/22 08:31	07/21/22 18:54	1

Client Sample ID: W-3B
Date Collected: 07/14/22 13:00
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.93		0.50	0.0073	mg/L		07/21/22 08:31	07/22/22 08:03	5
Lithium	3100		20	9.1	ug/L		07/21/22 08:31	07/21/22 18:58	1

Client Sample ID: W-5B
Date Collected: 07/14/22 14:30
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.1		0.10	0.0015	mg/L		07/21/22 08:31	07/21/22 19:02	1
Lithium	330		20	9.1	ug/L		07/21/22 08:31	07/21/22 19:02	1

Client Sample ID: MW-7
Date Collected: 07/14/22 17:30
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.67	B	0.10	0.0015	mg/L		07/21/22 08:31	07/21/22 20:56	1
Lithium	2100		20	9.1	ug/L		07/21/22 08:31	07/21/22 20:56	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

Method: 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: W-16
Date Collected: 07/15/22 11:15
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.71	B	0.10	0.0015	mg/L		07/21/22 08:31	07/21/22 21:00	1
Lithium	2300		20	9.1	ug/L		07/21/22 08:31	07/21/22 21:00	1

Client Sample ID: W-14
Date Collected: 07/15/22 13:30
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.60	B	0.10	0.0015	mg/L		07/21/22 08:31	07/21/22 21:04	1
Lithium	3300		20	9.1	ug/L		07/21/22 08:31	07/21/22 21:04	1

Method: 6010C - Metals (ICP) - Dissolved

Client Sample ID: W-10B
Date Collected: 07/14/22 10:00
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-5
Matrix: Ground Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.90	B	0.50	0.0073	mg/L		07/21/22 15:20	07/22/22 08:11	5
Lithium	5500		20	9.1	ug/L		07/21/22 15:20	07/22/22 02:31	1

Method: 6020B - Metals (ICP/MS) - Total Recoverable

Client Sample ID: W-2A
Date Collected: 07/13/22 10:40
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		07/22/22 12:42	07/25/22 13:29	1
Magnesium	8000		2.5	1.1	mg/L		07/22/22 12:42	07/25/22 12:56	50
Arsenic	0.00042	J	0.0050	0.00033	mg/L		07/22/22 12:42	07/25/22 13:29	1
Sodium	5600		7.5	3.2	mg/L		07/22/22 12:42	07/25/22 12:56	50
Barium	0.014	^6+	0.0010	0.00029	mg/L		07/22/22 12:42	07/25/22 13:29	1
Potassium	59		6.0	2.6	mg/L		07/22/22 12:42	07/25/22 12:56	50
Beryllium	0.000095	J B ^+	0.0010	0.000080	mg/L		07/22/22 12:42	07/25/22 16:45	1
Cadmium	0.0038		0.0010	0.00027	mg/L		07/22/22 12:42	07/25/22 13:29	1
Chromium	0.00096	J	0.0020	0.00050	mg/L		07/22/22 12:42	07/25/22 13:29	1
Cobalt	0.012		0.0010	0.000092	mg/L		07/22/22 12:42	07/25/22 13:29	1
Lead	0.00096	J	0.0010	0.00018	mg/L		07/22/22 12:42	07/25/22 13:29	1
Molybdenum	0.037	B	0.0020	0.00014	mg/L		07/22/22 12:42	07/25/22 13:29	1
Selenium	3.3		0.0050	0.00037	mg/L		07/22/22 12:42	07/25/22 13:29	1
Thallium	0.0040	B	0.0010	0.000089	mg/L		07/22/22 12:42	07/25/22 13:29	1
Calcium	470		10	1.9	mg/L		07/22/22 12:42	07/25/22 12:56	50

Client Sample ID: W-2A-FD
Date Collected: 07/13/22 10:40
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		07/22/22 12:42	07/25/22 13:33	1
Magnesium	7800		2.5	1.1	mg/L		07/22/22 12:42	07/25/22 12:59	50
Arsenic	0.00037	J	0.0050	0.00033	mg/L		07/22/22 12:42	07/25/22 13:33	1
Sodium	5400		7.5	3.2	mg/L		07/22/22 12:42	07/25/22 12:59	50
Barium	0.013	^6+	0.0010	0.00029	mg/L		07/22/22 12:42	07/25/22 13:33	1
Potassium	58		6.0	2.6	mg/L		07/22/22 12:42	07/25/22 12:59	50

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

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

Client Sample ID: W-2A-FD
Date Collected: 07/13/22 10:40
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	0.00012	J B ^+	0.0010	0.000080	mg/L		07/22/22 12:42	07/25/22 16:49	1
Cadmium	0.0041		0.0010	0.00027	mg/L		07/22/22 12:42	07/25/22 13:33	1
Chromium	0.0013	J	0.0020	0.00050	mg/L		07/22/22 12:42	07/25/22 13:33	1
Cobalt	0.012		0.0010	0.000092	mg/L		07/22/22 12:42	07/25/22 13:33	1
Lead	0.00060	J	0.0010	0.00018	mg/L		07/22/22 12:42	07/25/22 13:33	1
Molybdenum	0.010	B	0.0020	0.00014	mg/L		07/22/22 12:42	07/25/22 13:33	1
Selenium	3.3		0.0050	0.00037	mg/L		07/22/22 12:42	07/25/22 13:33	1
Thallium	0.0041	B	0.0010	0.000089	mg/L		07/22/22 12:42	07/25/22 13:33	1
Calcium	470		10	1.9	mg/L		07/22/22 12:42	07/25/22 12:59	50

Client Sample ID: W-2C
Date Collected: 07/13/22 13:00
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		07/22/22 12:42	07/25/22 13:37	1
Magnesium	3500		2.5	1.1	mg/L		07/22/22 12:42	07/25/22 13:03	50
Arsenic	0.00056	J	0.0050	0.00033	mg/L		07/22/22 12:42	07/25/22 13:37	1
Sodium	3200		7.5	3.2	mg/L		07/22/22 12:42	07/25/22 13:03	50
Barium	0.013	^6+	0.0010	0.00029	mg/L		07/22/22 12:42	07/25/22 13:37	1
Potassium	31		6.0	2.6	mg/L		07/22/22 12:42	07/25/22 13:03	50
Beryllium	ND		0.050	0.0040	mg/L		07/22/22 12:42	07/25/22 13:03	50
Cadmium	0.0025		0.0010	0.00027	mg/L		07/22/22 12:42	07/25/22 13:37	1
Chromium	0.0010	J	0.0020	0.00050	mg/L		07/22/22 12:42	07/25/22 13:37	1
Cobalt	0.0012		0.0010	0.000092	mg/L		07/22/22 12:42	07/25/22 13:37	1
Lead	0.00039	J	0.0010	0.00018	mg/L		07/22/22 12:42	07/25/22 13:37	1
Molybdenum	0.0097	B	0.0020	0.00014	mg/L		07/22/22 12:42	07/25/22 13:37	1
Selenium	2.0		0.0050	0.00037	mg/L		07/22/22 12:42	07/25/22 13:37	1
Thallium	0.0013	B	0.0010	0.000089	mg/L		07/22/22 12:42	07/25/22 13:37	1
Calcium	460		10	1.9	mg/L		07/22/22 12:42	07/25/22 13:03	50

Client Sample ID: W-10B-EB
Date Collected: 07/14/22 09:30
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-4
Matrix: Ground Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		07/22/22 12:42	07/25/22 13:41	1
Magnesium	0.10		0.050	0.021	mg/L		07/22/22 12:42	07/26/22 08:04	1
Arsenic	ND		0.0050	0.00033	mg/L		07/22/22 12:42	07/25/22 13:41	1
Sodium	0.077	J	0.15	0.065	mg/L		07/22/22 12:42	07/26/22 08:04	1
Barium	0.00098	J ^6+	0.0010	0.00029	mg/L		07/22/22 12:42	07/25/22 13:41	1
Potassium	0.099	J	0.12	0.052	mg/L		07/22/22 12:42	07/25/22 16:57	1
Beryllium	ND	^+	0.0010	0.000080	mg/L		07/22/22 12:42	07/25/22 16:57	1
Cadmium	ND		0.0010	0.00027	mg/L		07/22/22 12:42	07/25/22 13:41	1
Chromium	0.0015	J	0.0020	0.00050	mg/L		07/22/22 12:42	07/25/22 13:41	1
Cobalt	0.00010	J	0.0010	0.000092	mg/L		07/22/22 12:42	07/25/22 13:41	1
Lead	ND		0.0010	0.00018	mg/L		07/22/22 12:42	07/25/22 13:41	1
Molybdenum	0.00039	J B	0.0020	0.00014	mg/L		07/22/22 12:42	07/25/22 13:41	1
Selenium	0.0026	J	0.0050	0.00037	mg/L		07/22/22 12:42	07/25/22 13:41	1
Thallium	ND		0.0010	0.000089	mg/L		07/22/22 12:42	07/25/22 13:41	1
Calcium	0.75		0.20	0.038	mg/L		07/22/22 12:42	07/25/22 13:41	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

Method: 6020B - Metals (ICP/MS) - Total Recoverable

Client Sample ID: W-10B
Date Collected: 07/14/22 10:00
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-5
Matrix: Ground Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		07/22/22 12:42	07/25/22 13:45	1
Magnesium	11000		2.5	1.1	mg/L		07/22/22 12:42	07/25/22 13:11	50
Arsenic	0.00066	J	0.0050	0.00033	mg/L		07/22/22 12:42	07/25/22 13:45	1
Sodium	6400		7.5	3.2	mg/L		07/22/22 12:42	07/25/22 13:11	50
Barium	0.019	^6+	0.0010	0.00029	mg/L		07/22/22 12:42	07/25/22 13:45	1
Potassium	78		6.0	2.6	mg/L		07/22/22 12:42	07/25/22 13:11	50
Beryllium	ND	^+	0.0010	0.000080	mg/L		07/22/22 12:42	07/25/22 17:00	1
Cadmium	0.00038	J	0.0010	0.00027	mg/L		07/22/22 12:42	07/25/22 13:45	1
Chromium	0.0021		0.0020	0.00050	mg/L		07/22/22 12:42	07/25/22 13:45	1
Cobalt	0.0022		0.0010	0.000092	mg/L		07/22/22 12:42	07/25/22 13:45	1
Lead	0.00034	J	0.0010	0.00018	mg/L		07/22/22 12:42	07/25/22 13:45	1
Molybdenum	0.0036	B	0.0020	0.00014	mg/L		07/22/22 12:42	07/25/22 13:45	1
Selenium	4.9		0.25	0.019	mg/L		07/22/22 12:42	07/25/22 13:11	50
Thallium	0.0067	B	0.0010	0.000089	mg/L		07/22/22 12:42	07/25/22 13:45	1
Calcium	430		10	1.9	mg/L		07/22/22 12:42	07/25/22 13:11	50

Client Sample ID: W-3B
Date Collected: 07/14/22 13:00
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00044	J	0.0020	0.00040	mg/L		07/22/22 12:42	07/25/22 13:49	1
Magnesium	5100		2.5	1.1	mg/L		07/22/22 12:42	07/25/22 13:14	50
Arsenic	0.00063	J	0.0050	0.00033	mg/L		07/22/22 12:42	07/25/22 13:49	1
Sodium	12000		7.5	3.2	mg/L		07/22/22 12:42	07/25/22 13:14	50
Barium	0.015	^6+	0.0010	0.00029	mg/L		07/22/22 12:42	07/25/22 13:49	1
Potassium	40		6.0	2.6	mg/L		07/22/22 12:42	07/25/22 13:14	50
Beryllium	0.00012	J B ^+	0.0010	0.000080	mg/L		07/22/22 12:42	07/25/22 17:04	1
Cadmium	0.017		0.0010	0.00027	mg/L		07/22/22 12:42	07/25/22 13:49	1
Chromium	0.00057	J	0.0020	0.00050	mg/L		07/22/22 12:42	07/25/22 13:49	1
Cobalt	0.11		0.0010	0.000092	mg/L		07/22/22 12:42	07/25/22 13:49	1
Lead	0.00049	J	0.0010	0.00018	mg/L		07/22/22 12:42	07/25/22 13:49	1
Molybdenum	0.0022	B	0.0020	0.00014	mg/L		07/22/22 12:42	07/25/22 13:49	1
Selenium	0.011		0.0050	0.00037	mg/L		07/22/22 12:42	07/25/22 13:49	1
Thallium	0.0027	B	0.0010	0.000089	mg/L		07/22/22 12:42	07/25/22 13:49	1
Calcium	460		10	1.9	mg/L		07/22/22 12:42	07/25/22 13:14	50

Client Sample ID: W-5B
Date Collected: 07/14/22 14:30
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		07/22/22 12:42	07/25/22 13:52	1
Magnesium	330		2.5	1.1	mg/L		07/22/22 12:42	07/25/22 13:18	50
Arsenic	ND		0.0050	0.00033	mg/L		07/22/22 12:42	07/25/22 13:52	1
Sodium	840		7.5	3.2	mg/L		07/22/22 12:42	07/25/22 13:18	50
Barium	0.017	^6+	0.0010	0.00029	mg/L		07/22/22 12:42	07/25/22 13:52	1
Potassium	15		6.0	2.6	mg/L		07/22/22 12:42	07/25/22 13:18	50
Beryllium	ND	^+	0.0010	0.000080	mg/L		07/22/22 12:42	07/25/22 17:08	1
Cadmium	0.00066	J	0.0010	0.00027	mg/L		07/22/22 12:42	07/25/22 13:52	1
Chromium	0.00055	J	0.0020	0.00050	mg/L		07/22/22 12:42	07/25/22 13:52	1
Cobalt	0.0019		0.0010	0.000092	mg/L		07/22/22 12:42	07/25/22 13:52	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

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

Client Sample ID: W-5B
Date Collected: 07/14/22 14:30
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0010	0.00018	mg/L		07/22/22 12:42	07/25/22 13:52	1
Molybdenum	0.0080	B	0.0020	0.00014	mg/L		07/22/22 12:42	07/25/22 13:52	1
Selenium	0.0020	J	0.0050	0.00037	mg/L		07/22/22 12:42	07/25/22 13:52	1
Thallium	0.00061	J B	0.0010	0.000089	mg/L		07/22/22 12:42	07/25/22 13:52	1
Calcium	490		10	1.9	mg/L		07/22/22 12:42	07/25/22 13:18	50

Client Sample ID: MW-7
Date Collected: 07/14/22 17:30
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0010	J	0.0020	0.00040	mg/L		07/22/22 08:51	07/23/22 00:54	1
Magnesium	950		2.5	1.1	mg/L		07/22/22 08:51	07/22/22 21:54	50
Arsenic	0.00055	J	0.0050	0.00033	mg/L		07/22/22 08:51	07/23/22 00:54	1
Sodium	2600		7.5	3.2	mg/L		07/22/22 08:51	07/22/22 21:54	50
Barium	0.011	^6+	0.0010	0.00029	mg/L		07/22/22 08:51	07/23/22 00:54	1
Potassium	29		6.0	2.6	mg/L		07/22/22 08:51	07/22/22 21:54	50
Beryllium	ND		0.0010	0.000080	mg/L		07/22/22 08:51	07/23/22 00:54	1
Cadmium	0.00077	J	0.0010	0.00027	mg/L		07/22/22 08:51	07/23/22 00:54	1
Chromium	ND		0.0020	0.00050	mg/L		07/22/22 08:51	07/23/22 00:54	1
Cobalt	0.0063		0.0010	0.000092	mg/L		07/22/22 08:51	07/23/22 00:54	1
Lead	0.00020	J	0.0010	0.00018	mg/L		07/22/22 08:51	07/23/22 00:54	1
Molybdenum	0.0048		0.0020	0.00014	mg/L		07/22/22 08:51	07/23/22 00:54	1
Selenium	0.39		0.0050	0.00037	mg/L		07/22/22 08:51	07/23/22 00:54	1
Thallium	0.0015		0.0010	0.000089	mg/L		07/22/22 08:51	07/23/22 00:54	1
Calcium	410		10	1.9	mg/L		07/22/22 08:51	07/22/22 21:54	50

Client Sample ID: W-16
Date Collected: 07/15/22 11:15
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00043	J	0.0020	0.00040	mg/L		07/22/22 08:51	07/23/22 00:58	1
Magnesium	2000		2.5	1.1	mg/L		07/22/22 08:51	07/22/22 21:58	50
Arsenic	ND		0.0050	0.00033	mg/L		07/22/22 08:51	07/23/22 00:58	1
Sodium	1500		7.5	3.2	mg/L		07/22/22 08:51	07/22/22 21:58	50
Barium	0.012	^6+	0.0010	0.00029	mg/L		07/22/22 08:51	07/23/22 00:58	1
Potassium	28		6.0	2.6	mg/L		07/22/22 08:51	07/22/22 21:58	50
Beryllium	ND		0.0010	0.000080	mg/L		07/22/22 08:51	07/23/22 00:58	1
Cadmium	0.0025		0.0010	0.00027	mg/L		07/22/22 08:51	07/23/22 00:58	1
Chromium	ND		0.0020	0.00050	mg/L		07/22/22 08:51	07/23/22 00:58	1
Cobalt	0.013		0.0010	0.000092	mg/L		07/22/22 08:51	07/23/22 00:58	1
Lead	ND		0.0010	0.00018	mg/L		07/22/22 08:51	07/23/22 00:58	1
Molybdenum	0.011		0.0020	0.00014	mg/L		07/22/22 08:51	07/23/22 00:58	1
Selenium	0.14		0.0050	0.00037	mg/L		07/22/22 08:51	07/23/22 00:58	1
Thallium	0.0049		0.0010	0.000089	mg/L		07/22/22 08:51	07/23/22 00:58	1
Calcium	410		10	1.9	mg/L		07/22/22 08:51	07/22/22 21:58	50

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

Method: 6020B - Metals (ICP/MS) - Total Recoverable

Client Sample ID: W-14
Date Collected: 07/15/22 13:30
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00055	J	0.0020	0.00040	mg/L		07/22/22 08:51	07/23/22 01:01	1
Magnesium	1600		2.5	1.1	mg/L		07/22/22 08:51	07/22/22 22:02	50
Arsenic	0.00043	J	0.0050	0.00033	mg/L		07/22/22 08:51	07/23/22 01:01	1
Sodium	5500		7.5	3.2	mg/L		07/22/22 08:51	07/22/22 22:02	50
Barium	0.016	^6+	0.0010	0.00029	mg/L		07/22/22 08:51	07/23/22 01:01	1
Potassium	42		6.0	2.6	mg/L		07/22/22 08:51	07/22/22 22:02	50
Beryllium	ND		0.0010	0.000080	mg/L		07/22/22 08:51	07/23/22 01:01	1
Cadmium	0.0011		0.0010	0.00027	mg/L		07/22/22 08:51	07/23/22 01:01	1
Chromium	0.0013	J	0.0020	0.00050	mg/L		07/22/22 08:51	07/23/22 01:01	1
Cobalt	0.011		0.0010	0.000092	mg/L		07/22/22 08:51	07/23/22 01:01	1
Lead	0.00025	J	0.0010	0.00018	mg/L		07/22/22 08:51	07/23/22 01:01	1
Molybdenum	0.022		0.0020	0.00014	mg/L		07/22/22 08:51	07/23/22 01:01	1
Selenium	1.3		0.0050	0.00037	mg/L		07/22/22 08:51	07/23/22 01:01	1
Thallium	0.0025		0.0010	0.000089	mg/L		07/22/22 08:51	07/23/22 01:01	1
Calcium	430		10	1.9	mg/L		07/22/22 08:51	07/22/22 22:02	50

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

Client Sample ID: W-10B
Date Collected: 07/14/22 10:00
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-5
Matrix: Ground Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		07/22/22 08:40	07/22/22 23:13	1
Arsenic	0.00082	J	0.0050	0.00033	mg/L		07/22/22 08:40	07/22/22 23:13	1
Barium	0.020	^6+	0.0010	0.00029	mg/L		07/22/22 08:40	07/22/22 23:13	1
Beryllium	0.00020	J	0.0010	0.000080	mg/L		07/22/22 08:40	07/22/22 23:13	1
Cadmium	0.00034	J	0.0010	0.00027	mg/L		07/22/22 08:40	07/22/22 23:13	1
Chromium	0.0024		0.0020	0.00050	mg/L		07/22/22 08:40	07/22/22 23:13	1
Cobalt	0.0022		0.0010	0.000092	mg/L		07/22/22 08:40	07/22/22 23:13	1
Lead	0.00093	J	0.0010	0.00018	mg/L		07/22/22 08:40	07/22/22 23:13	1
Calcium	490000		10000	1900	ug/L		07/22/22 08:40	07/22/22 22:20	50
Molybdenum	0.0034		0.0020	0.00014	mg/L		07/22/22 08:40	07/22/22 23:13	1
Selenium	4.8		0.25	0.019	mg/L		07/22/22 08:40	07/22/22 22:20	50
Thallium	0.0073		0.0010	0.000089	mg/L		07/22/22 08:40	07/22/22 23:13	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: W-2A
Date Collected: 07/13/22 10:40
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		07/19/22 18:07	07/20/22 17:02	1

Client Sample ID: W-2A-FD
Date Collected: 07/13/22 10:40
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		07/19/22 18:07	07/20/22 17:04	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

Method: 7470A - Mercury (CVAA)

Client Sample ID: W-2C
Date Collected: 07/13/22 13:00
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		07/19/22 18:07	07/20/22 17:07	1

Client Sample ID: W-10B-EB
Date Collected: 07/14/22 09:30
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-4
Matrix: Ground Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		07/19/22 18:07	07/20/22 17:14	1

Client Sample ID: W-10B
Date Collected: 07/14/22 10:00
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-5
Matrix: Ground Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		07/19/22 18:07	07/20/22 17:18	1

Client Sample ID: W-3B
Date Collected: 07/14/22 13:00
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		07/19/22 18:07	07/20/22 17:20	1

Client Sample ID: W-5B
Date Collected: 07/14/22 14:30
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		07/19/22 18:07	07/20/22 17:23	1

Client Sample ID: MW-7
Date Collected: 07/14/22 17:30
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		07/19/22 18:07	07/20/22 17:26	1

Client Sample ID: W-16
Date Collected: 07/15/22 11:15
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		07/19/22 18:07	07/20/22 17:28	1

Client Sample ID: W-14
Date Collected: 07/15/22 13:30
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		07/21/22 20:05	07/22/22 01:11	1

Method: 7470A - Mercury (CVAA) - Dissolved

Client Sample ID: W-10B
Date Collected: 07/14/22 10:00
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-5
Matrix: Ground Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.061	ug/L		07/21/22 20:05	07/22/22 00:25	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

General Chemistry

Client Sample ID: W-2A
Date Collected: 07/13/22 10:40
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	6.9	HF	0.1	0.1	SU			07/20/22 12:11	1
Temperature	20.3	HF	1.0	1.0	Degrees C			07/20/22 12:11	1
Chloride	790		60	20	mg/L			07/19/22 15:06	20
Fluoride	88		10	3.3	mg/L			07/23/22 20:25	20
Sulfate	49000		2500	520	mg/L			07/20/22 19:03	500
Alkalinity	680	B	10	3.1	mg/L			07/19/22 13:07	1
Bicarbonate Alkalinity as CaCO3	680	B	10	3.1	mg/L			07/19/22 13:07	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			07/19/22 13:07	1
Total Dissolved Solids (TDS)	64000		1000	470	mg/L			07/19/22 10:32	1
Total Suspended Solids	3.2	J	4.0	1.1	mg/L			07/19/22 14:25	1

Client Sample ID: W-2A-FD
Date Collected: 07/13/22 10:40
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU			07/20/22 12:20	1
Temperature	21.0	HF	1.0	1.0	Degrees C			07/20/22 12:20	1
Chloride	800		60	20	mg/L			07/19/22 15:38	20
Fluoride	87		10	3.3	mg/L			07/23/22 20:40	20
Sulfate	46000		2500	520	mg/L			07/20/22 19:35	500
Alkalinity	670	B	10	3.1	mg/L			07/19/22 13:17	1
Bicarbonate Alkalinity as CaCO3	670	B	10	3.1	mg/L			07/19/22 13:17	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			07/19/22 13:17	1
Total Dissolved Solids (TDS)	63000		1000	470	mg/L			07/19/22 10:32	1
Total Suspended Solids	2.4	J	4.0	1.1	mg/L			07/19/22 14:25	1

Client Sample ID: W-2C
Date Collected: 07/13/22 13:00
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU			07/20/22 12:27	1
Temperature	20.7	HF	1.0	1.0	Degrees C			07/20/22 12:27	1
Chloride	640		60	20	mg/L			07/19/22 16:10	20
Fluoride	49		2.5	0.83	mg/L			07/22/22 18:03	5
Sulfate	20000		1000	210	mg/L			07/20/22 20:39	200
Alkalinity	340	B	10	3.1	mg/L			07/19/22 13:25	1
Bicarbonate Alkalinity as CaCO3	340	B	10	3.1	mg/L			07/19/22 13:25	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			07/19/22 13:25	1
Total Dissolved Solids (TDS)	28000		1000	470	mg/L			07/19/22 10:32	1
Total Suspended Solids	2.4	J	4.0	1.1	mg/L			07/19/22 14:25	1

Client Sample ID: W-10B-EB
Date Collected: 07/14/22 09:30
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-4
Matrix: Ground Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.4	HF	0.1	0.1	SU			07/21/22 10:36	1
Temperature	19.3	HF	1.0	1.0	Degrees C			07/21/22 10:36	1
Chloride	ND		3.0	1.0	mg/L			07/20/22 20:55	1
Fluoride	ND		0.50	0.17	mg/L			07/23/22 20:56	1
Sulfate	ND		5.0	1.0	mg/L			07/20/22 20:55	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

General Chemistry (Continued)

Client Sample ID: W-10B-EB
Date Collected: 07/14/22 09:30
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-4
Matrix: Ground Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	ND		10	3.1	mg/L			07/19/22 13:31	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			07/19/22 13:31	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			07/19/22 13:31	1
Total Dissolved Solids (TDS)	ND		1000	470	mg/L			07/20/22 12:19	1
Total Suspended Solids	ND		4.0	1.1	mg/L			07/19/22 14:25	1

Client Sample ID: W-10B
Date Collected: 07/14/22 10:00
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-5
Matrix: Ground Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.1	HF	0.1	0.1	SU			07/20/22 12:37	1
Temperature	20.3	HF	1.0	1.0	Degrees C			07/20/22 12:37	1
Chloride	1000		60	20	mg/L			07/19/22 17:29	20
Fluoride	110		10	3.3	mg/L			07/23/22 21:12	20
Sulfate	57000		2500	520	mg/L			07/20/22 21:27	500
Alkalinity	1000	B	10	3.1	mg/L			07/19/22 13:44	1
Bicarbonate Alkalinity as CaCO3	1000	B	10	3.1	mg/L			07/19/22 13:44	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			07/19/22 13:44	1
Total Dissolved Solids (TDS)	75000		1000	470	mg/L			07/20/22 12:19	1
Total Suspended Solids	24		4.0	1.1	mg/L			07/19/22 14:25	1

Client Sample ID: W-3B
Date Collected: 07/14/22 13:00
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	6.9	HF	0.1	0.1	SU			07/20/22 12:41	1
Temperature	20.8	HF	1.0	1.0	Degrees C			07/20/22 12:41	1
Chloride	1100		60	20	mg/L			07/19/22 18:01	20
Fluoride	82		10	3.3	mg/L			07/23/22 21:28	20
Sulfate	50000		2500	520	mg/L			07/20/22 21:59	500
Alkalinity	910	B	10	3.1	mg/L			07/19/22 14:08	1
Bicarbonate Alkalinity as CaCO3	910	B	10	3.1	mg/L			07/19/22 14:08	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			07/19/22 14:08	1
Total Dissolved Solids (TDS)	65000		1000	470	mg/L			07/20/22 12:19	1
Total Suspended Solids	8.0		4.0	1.1	mg/L			07/19/22 14:25	1

Client Sample ID: W-5B
Date Collected: 07/14/22 14:30
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.4	HF	0.1	0.1	SU			07/20/22 12:45	1
Temperature	21.0	HF	1.0	1.0	Degrees C			07/20/22 12:45	1
Chloride	110		60	20	mg/L			07/20/22 22:15	20
Fluoride	6.8		1.0	0.33	mg/L			07/23/22 21:44	2
Sulfate	4100		2500	520	mg/L			07/20/22 22:31	500
Alkalinity	200	B	10	3.1	mg/L			07/19/22 14:15	1
Bicarbonate Alkalinity as CaCO3	200	B	10	3.1	mg/L			07/19/22 14:15	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			07/19/22 14:15	1
Total Dissolved Solids (TDS)	5200		40	19	mg/L			07/20/22 12:19	1
Total Suspended Solids	ND		4.0	1.1	mg/L			07/19/22 14:25	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

General Chemistry

Client Sample ID: MW-7
Date Collected: 07/14/22 17:30
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU			07/20/22 12:49	1
Temperature	21.3	HF	1.0	1.0	Degrees C			07/20/22 12:49	1
Chloride	310		60	20	mg/L			07/20/22 23:51	20
Fluoride	18		2.5	0.83	mg/L			07/23/22 22:31	5
Sulfate	10000		1000	210	mg/L			07/21/22 00:07	200
Alkalinity	800	B	10	3.1	mg/L			07/19/22 14:26	1
Bicarbonate Alkalinity as CaCO3	800	B	10	3.1	mg/L			07/19/22 14:26	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			07/19/22 14:26	1
Total Dissolved Solids (TDS)	13000	H	1000	470	mg/L			07/25/22 10:34	1
Total Suspended Solids	4.0		4.0	1.1	mg/L			07/19/22 14:25	1

Client Sample ID: W-16
Date Collected: 07/15/22 11:15
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.1	HF	0.1	0.1	SU			07/20/22 12:51	1
Temperature	21.5	HF	1.0	1.0	Degrees C			07/20/22 12:51	1
Chloride	240		60	20	mg/L			07/20/22 22:47	20
Sulfate	12000		1000	210	mg/L			07/20/22 23:35	200
Alkalinity	910	B	10	3.1	mg/L			07/19/22 14:39	1
Bicarbonate Alkalinity as CaCO3	910	B	10	3.1	mg/L			07/19/22 14:39	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			07/19/22 14:39	1
Total Suspended Solids	5.2		4.0	1.1	mg/L			07/19/22 14:25	1

Client Sample ID: W-14
Date Collected: 07/15/22 13:30
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.5	HF	0.1	0.1	SU			07/20/22 12:55	1
Temperature	21.9	HF	1.0	1.0	Degrees C			07/20/22 12:55	1
Chloride	670		15	5.1	mg/L			07/21/22 22:20	5
Fluoride	37		2.5	0.83	mg/L			07/23/22 23:03	5
Sulfate	18000		1000	210	mg/L			07/22/22 17:41	200
Alkalinity	1100	B	10	3.1	mg/L			07/19/22 14:52	1
Bicarbonate Alkalinity as CaCO3	1100	B	10	3.1	mg/L			07/19/22 14:52	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			07/19/22 14:52	1
Total Dissolved Solids (TDS)	24000		1000	470	mg/L			07/20/22 12:23	1
Total Suspended Solids	ND		4.0	1.1	mg/L			07/19/22 14:25	1

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-581163/1-A

Matrix: Water

Analysis Batch: 581624

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 581163

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.0015	mg/L		07/21/22 08:31	07/21/22 16:57	1
Lithium	ND		20	9.1	ug/L		07/21/22 08:31	07/21/22 16:57	1

Lab Sample ID: LCS 280-581163/2-A

Matrix: Water

Analysis Batch: 581624

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 581163

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	1.88		mg/L		94	86 - 110
Lithium	1000	964		ug/L		96	90 - 112

Lab Sample ID: MB 280-581304/1-A

Matrix: Water

Analysis Batch: 581624

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 581304

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.00253	J	0.10	0.0015	mg/L		07/21/22 08:31	07/21/22 19:06	1
Lithium	ND		20	9.1	ug/L		07/21/22 08:31	07/21/22 19:06	1

Lab Sample ID: LCS 280-581304/2-A

Matrix: Water

Analysis Batch: 581624

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 581304

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	1.99		mg/L		100	86 - 110
Lithium	1000	1020		ug/L		102	90 - 112

Lab Sample ID: MB 280-581415/1-B

Matrix: Water

Analysis Batch: 581624

Client Sample ID: Method Blank

Prep Type: Dissolved

Prep Batch: 581490

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.00206	J	0.10	0.0015	mg/L		07/21/22 15:20	07/22/22 02:19	1
Lithium	ND		20	9.1	ug/L		07/21/22 15:20	07/22/22 02:19	1

Lab Sample ID: LCS 280-581415/2-B

Matrix: Water

Analysis Batch: 581624

Client Sample ID: Lab Control Sample

Prep Type: Dissolved

Prep Batch: 581490

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	1.88		mg/L		94	86 - 110
Lithium	1000	1010		ug/L		101	90 - 112

Lab Sample ID: 280-164515-5 MS

Matrix: Ground Water

Analysis Batch: 581624

Client Sample ID: W-10B

Prep Type: Dissolved

Prep Batch: 581490

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Lithium	5500		1000	6120	4	ug/L		59	89 - 114

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 280-164515-5 MS

Matrix: Ground Water

Analysis Batch: 581646

Client Sample ID: W-10B

Prep Type: Dissolved

Prep Batch: 581490

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	0.90	B	2.00	2.75		mg/L		93	87 - 113

Lab Sample ID: 280-164515-5 MSD

Matrix: Ground Water

Analysis Batch: 581624

Client Sample ID: W-10B

Prep Type: Dissolved

Prep Batch: 581490

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Lithium	5500		1000	6350	4	ug/L		83	89 - 114	4	20

Lab Sample ID: 280-164515-5 MSD

Matrix: Ground Water

Analysis Batch: 581646

Client Sample ID: W-10B

Prep Type: Dissolved

Prep Batch: 581490

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Boron	0.90	B	2.00	2.86		mg/L		98	87 - 113	4	20

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-581250/1-A

Matrix: Water

Analysis Batch: 581791

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 581250

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		07/22/22 08:51	07/22/22 21:28	1
Arsenic	ND		0.0050	0.00033	mg/L		07/22/22 08:51	07/22/22 21:28	1
Barium	ND	^6+	0.0010	0.00029	mg/L		07/22/22 08:51	07/22/22 21:28	1
Potassium	ND		120	52	ug/L		07/22/22 08:51	07/22/22 21:28	1
Beryllium	ND		0.0010	0.000080	mg/L		07/22/22 08:51	07/22/22 21:28	1
Cadmium	ND		0.0010	0.00027	mg/L		07/22/22 08:51	07/22/22 21:28	1
Chromium	ND		0.0020	0.00050	mg/L		07/22/22 08:51	07/22/22 21:28	1
Cobalt	ND		0.0010	0.000092	mg/L		07/22/22 08:51	07/22/22 21:28	1
Lead	ND		0.0010	0.00018	mg/L		07/22/22 08:51	07/22/22 21:28	1
Molybdenum	ND		0.0020	0.00014	mg/L		07/22/22 08:51	07/22/22 21:28	1
Selenium	ND		0.0050	0.00037	mg/L		07/22/22 08:51	07/22/22 21:28	1
Calcium	ND		0.20	0.038	mg/L		07/22/22 08:51	07/22/22 21:28	1
Thallium	ND		0.0010	0.000089	mg/L		07/22/22 08:51	07/22/22 21:28	1

Lab Sample ID: LCS 280-581250/2-A

Matrix: Water

Analysis Batch: 581791

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 581250

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0362		mg/L		91	85 - 115
Magnesium	800	721		ug/L		90	80 - 120
Arsenic	0.0400	0.0372		mg/L		93	85 - 117
Sodium	800	733		ug/L		92	80 - 120
Barium	0.0400	0.0387	^6+	mg/L		97	85 - 118
Potassium	800	697		ug/L		87	80 - 120
Beryllium	0.0400	0.0359		mg/L		90	80 - 125
Cadmium	0.0400	0.0361		mg/L		90	85 - 115

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

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

Lab Sample ID: LCS 280-581250/2-A

Matrix: Water

Analysis Batch: 581791

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 581250

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chromium	0.0400	0.0375		mg/L		94	84 - 121
Cobalt	0.0400	0.0373		mg/L		93	85 - 120
Lead	0.0400	0.0368		mg/L		92	85 - 118
Molybdenum	0.0400	0.0365		mg/L		91	85 - 119
Selenium	0.0400	0.0368		mg/L		92	77 - 122
Calcium	0.800	0.763		mg/L		95	80 - 120
Thallium	0.0400	0.0368		mg/L		92	85 - 118

Lab Sample ID: MB 280-581479/1-A

Matrix: Water

Analysis Batch: 581849

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 581479

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		07/22/22 12:42	07/25/22 11:37	1
Magnesium	ND		0.050	0.021	mg/L		07/22/22 12:42	07/25/22 11:37	1
Arsenic	ND		0.0050	0.00033	mg/L		07/22/22 12:42	07/25/22 11:37	1
Sodium	ND		0.15	0.065	mg/L		07/22/22 12:42	07/25/22 11:37	1
Barium	ND	^6+	0.0010	0.00029	mg/L		07/22/22 12:42	07/25/22 11:37	1
Potassium	ND		0.12	0.052	mg/L		07/22/22 12:42	07/25/22 11:37	1
Beryllium	0.000225	J	0.0010	0.000080	mg/L		07/22/22 12:42	07/25/22 11:37	1
Cadmium	ND		0.0010	0.00027	mg/L		07/22/22 12:42	07/25/22 11:37	1
Chromium	ND		0.0020	0.00050	mg/L		07/22/22 12:42	07/25/22 11:37	1
Cobalt	ND		0.0010	0.000092	mg/L		07/22/22 12:42	07/25/22 11:37	1
Lead	ND		0.0010	0.00018	mg/L		07/22/22 12:42	07/25/22 11:37	1
Molybdenum	0.000427	J	0.0020	0.00014	mg/L		07/22/22 12:42	07/25/22 11:37	1
Selenium	ND		0.0050	0.00037	mg/L		07/22/22 12:42	07/25/22 11:37	1
Calcium	ND		0.20	0.038	mg/L		07/22/22 12:42	07/25/22 11:37	1
Thallium	0.000114	J	0.0010	0.000089	mg/L		07/22/22 12:42	07/25/22 11:37	1

Lab Sample ID: LCS 280-581479/2-A

Matrix: Water

Analysis Batch: 581849

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 581479

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0411		mg/L		103	85 - 115
Magnesium	0.800	0.800		mg/L		100	80 - 120
Arsenic	0.0400	0.0409		mg/L		102	85 - 117
Sodium	0.800	0.793		mg/L		99	80 - 120
Barium	0.0400	0.0430	^6+	mg/L		107	85 - 118
Potassium	0.800	0.779		mg/L		97	80 - 120
Beryllium	0.0400	0.0417		mg/L		104	80 - 125
Cadmium	0.0400	0.0398		mg/L		100	85 - 115
Chromium	0.0400	0.0420		mg/L		105	84 - 121
Cobalt	0.0400	0.0416		mg/L		104	85 - 120
Lead	0.0400	0.0421		mg/L		105	85 - 118
Molybdenum	0.0400	0.0422		mg/L		106	85 - 119
Selenium	0.0400	0.0422		mg/L		106	77 - 122
Calcium	0.800	0.874		mg/L		109	80 - 120
Thallium	0.0400	0.0417		mg/L		104	85 - 118

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

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

Lab Sample ID: MB 280-581414/1-D

Matrix: Water

Analysis Batch: 581791

Client Sample ID: Method Blank

Prep Type: Dissolved

Prep Batch: 581562

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		07/22/22 08:40	07/22/22 22:13	1
Arsenic	ND		0.0050	0.00033	mg/L		07/22/22 08:40	07/22/22 22:13	1
Barium	ND	^6+	0.0010	0.00029	mg/L		07/22/22 08:40	07/22/22 22:13	1
Beryllium	ND		0.0010	0.000080	mg/L		07/22/22 08:40	07/22/22 22:13	1
Cadmium	ND		0.0010	0.00027	mg/L		07/22/22 08:40	07/22/22 22:13	1
Chromium	ND		0.0020	0.00050	mg/L		07/22/22 08:40	07/22/22 22:13	1
Cobalt	ND		0.0010	0.000092	mg/L		07/22/22 08:40	07/22/22 22:13	1
Lead	ND		0.0010	0.00018	mg/L		07/22/22 08:40	07/22/22 22:13	1
Molybdenum	ND		0.0020	0.00014	mg/L		07/22/22 08:40	07/22/22 22:13	1
Selenium	ND		0.0050	0.00037	mg/L		07/22/22 08:40	07/22/22 22:13	1
Calcium	ND		200	38	ug/L		07/22/22 08:40	07/22/22 22:13	1
Thallium	ND		0.0010	0.000089	mg/L		07/22/22 08:40	07/22/22 22:13	1

Lab Sample ID: LCS 280-581414/2-D

Matrix: Water

Analysis Batch: 581791

Client Sample ID: Lab Control Sample

Prep Type: Dissolved

Prep Batch: 581562

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0391		mg/L		98	85 - 115
Arsenic	0.0400	0.0402		mg/L		100	85 - 117
Barium	0.0400	0.0401	^6+	mg/L		100	85 - 118
Beryllium	0.0400	0.0406		mg/L		101	80 - 125
Cadmium	0.0400	0.0396		mg/L		99	85 - 115
Chromium	0.0400	0.0412		mg/L		103	84 - 121
Cobalt	0.0400	0.0408		mg/L		102	85 - 120
Lead	0.0400	0.0405		mg/L		101	85 - 118
Molybdenum	0.0400	0.0398		mg/L		99	85 - 119
Selenium	0.0400	0.0400		mg/L		100	77 - 122
Calcium	800	843		ug/L		105	80 - 120
Thallium	0.0400	0.0401		mg/L		100	85 - 118

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-581285/1-A

Matrix: Water

Analysis Batch: 581445

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 581285

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		07/19/22 18:07	07/20/22 16:13	1

Lab Sample ID: LCS 280-581285/2-A

Matrix: Water

Analysis Batch: 581445

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 581285

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00509		mg/L		102	84 - 120

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

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

Lab Sample ID: MB 280-581575/1-A
Matrix: Water
Analysis Batch: 581618

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 581575

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		07/21/22 20:05	07/22/22 00:33	1

Lab Sample ID: LCS 280-581575/2-A
Matrix: Water
Analysis Batch: 581618

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 581575

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00496		mg/L		99	84 - 120

Lab Sample ID: MB 280-581414/1-E
Matrix: Water
Analysis Batch: 581618

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 581576

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.061	ug/L		07/21/22 20:05	07/22/22 00:18	1

Lab Sample ID: LCS 280-581414/2-E
Matrix: Water
Analysis Batch: 581618

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 581576

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	5.00	4.94		ug/L		99	84 - 120

Lab Sample ID: LCSD 280-581414/3-B
Matrix: Water
Analysis Batch: 581618

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved
Prep Batch: 581576

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	5.00	4.94		ug/L		99	84 - 120	0	15

Method: 9040B - pH

Lab Sample ID: LCS 280-581396/27
Matrix: Water
Analysis Batch: 581396

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH adj. to 25 deg C	7.00	7.0		SU		100	99 - 101

Lab Sample ID: LCS 280-581396/50
Matrix: Water
Analysis Batch: 581396

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH adj. to 25 deg C	7.00	7.0		SU		101	99 - 101

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

Method: 9040B - pH (Continued)

Lab Sample ID: 280-164515-2 DU

Matrix: Water

Analysis Batch: 581396

Client Sample ID: W-2A-FD

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH adj. to 25 deg C	7.0	HF	7.0		SU		0.3	5
Temperature	21.0	HF	20.8		Degrees C		0.9	10

Lab Sample ID: LCS 280-581520/4

Matrix: Water

Analysis Batch: 581520

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH adj. to 25 deg C	7.00	7.0		SU		100	99 - 101

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-581222/6

Matrix: Water

Analysis Batch: 581222

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			07/19/22 11:46	1
Fluoride	ND	^+	0.50	0.17	mg/L			07/19/22 11:46	1
Sulfate	ND		5.0	1.0	mg/L			07/19/22 11:46	1

Lab Sample ID: LCS 280-581222/4

Matrix: Water

Analysis Batch: 581222

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	100		mg/L		100	90 - 110
Sulfate	100	104		mg/L		104	90 - 110

Lab Sample ID: LCSD 280-581222/5

Matrix: Water

Analysis Batch: 581222

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	100		mg/L		100	90 - 110	0	10
Sulfate	100	104		mg/L		104	90 - 110	0	10

Lab Sample ID: MRL 280-581222/3

Matrix: Water

Analysis Batch: 581222

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.00	3.31		mg/L		66	50 - 150
Fluoride	0.500	0.388	J	mg/L		78	50 - 150
Sulfate	5.00	3.65	J	mg/L		73	50 - 150

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

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

Lab Sample ID: MB 280-581368/6

Matrix: Water

Analysis Batch: 581368

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			07/20/22 12:40	1
Sulfate	ND		5.0	1.0	mg/L			07/20/22 12:40	1

Lab Sample ID: LCS 280-581368/4

Matrix: Water

Analysis Batch: 581368

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	98.3		mg/L		98	90 - 110
Sulfate	100	98.9		mg/L		99	90 - 110

Lab Sample ID: LCSD 280-581368/5

Matrix: Water

Analysis Batch: 581368

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	98.1		mg/L		98	90 - 110	0	10
Sulfate	100	98.7		mg/L		99	90 - 110	0	10

Lab Sample ID: MRL 280-581368/3

Matrix: Water

Analysis Batch: 581368

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.00	3.72		mg/L		74	50 - 150
Sulfate	5.00	3.52	J	mg/L		70	50 - 150

Lab Sample ID: MB 280-581494/6

Matrix: Water

Analysis Batch: 581494

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			07/21/22 12:00	1

Lab Sample ID: LCS 280-581494/4

Matrix: Water

Analysis Batch: 581494

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	102		mg/L		102	90 - 110

Lab Sample ID: LCSD 280-581494/5

Matrix: Water

Analysis Batch: 581494

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	101		mg/L		101	90 - 110	0	10

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

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

Lab Sample ID: MRL 280-581494/3

Matrix: Water

Analysis Batch: 581494

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.00	3.46		mg/L		69	50 - 150

Lab Sample ID: MB 280-581637/6

Matrix: Water

Analysis Batch: 581637

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		5.0	1.0	mg/L			07/22/22 10:58	1

Lab Sample ID: LCS 280-581637/4

Matrix: Water

Analysis Batch: 581637

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	100	104		mg/L		104	90 - 110

Lab Sample ID: LCSD 280-581637/5

Matrix: Water

Analysis Batch: 581637

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	100	104		mg/L		104	90 - 110	0	10

Lab Sample ID: MRL 280-581637/3

Matrix: Water

Analysis Batch: 581637

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	5.00	3.67	J	mg/L		73	50 - 150

Lab Sample ID: MB 280-581660/13

Matrix: Water

Analysis Batch: 581660

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.50	0.17	mg/L			07/22/22 15:19	1

Lab Sample ID: LCS 280-581660/11

Matrix: Water

Analysis Batch: 581660

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	5.00	4.95		mg/L		99	90 - 110

Lab Sample ID: LCSD 280-581660/12

Matrix: Water

Analysis Batch: 581660

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Fluoride	5.00	4.99		mg/L		100	90 - 110	1	10

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MRL 280-581660/10
Matrix: Water
Analysis Batch: 581660

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	0.500	0.553		mg/L		111	50 - 150

Lab Sample ID: MB 280-581758/13
Matrix: Water
Analysis Batch: 581758

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.50	0.17	mg/L			07/23/22 16:42	1

Lab Sample ID: LCS 280-581758/11
Matrix: Water
Analysis Batch: 581758

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	5.00	4.88		mg/L		98	90 - 110

Lab Sample ID: LCSD 280-581758/12
Matrix: Water
Analysis Batch: 581758

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Fluoride	5.00	4.92		mg/L		98	90 - 110	1	10

Lab Sample ID: MRL 280-581758/10
Matrix: Water
Analysis Batch: 581758

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	0.500	0.607		mg/L		121	50 - 150

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-581326/5
Matrix: Water
Analysis Batch: 581326

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	3.41	J	10	3.1	mg/L			07/19/22 11:57	1
Bicarbonate Alkalinity as CaCO3	3.38	J	10	3.1	mg/L			07/19/22 11:57	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			07/19/22 11:57	1

Lab Sample ID: LCS 280-581326/4
Matrix: Water
Analysis Batch: 581326

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	200	202		mg/L		101	89 - 109

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

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

Lab Sample ID: MB 280-581229/1
Matrix: Water
Analysis Batch: 581229

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 (TDS)	ND		10	4.7	mg/L			07/19/22 10:32	1

Lab Sample ID: LCS 280-581229/2
Matrix: Water
Analysis Batch: 581229

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 (TDS)	502	481		mg/L		96	88 - 114

Lab Sample ID: LCSD 280-581229/3
Matrix: Water
Analysis Batch: 581229

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids (TDS)	502	483		mg/L		96	88 - 114	0	20

Lab Sample ID: MB 280-581383/1
Matrix: Water
Analysis Batch: 581383

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 (TDS)	ND		10	4.7	mg/L			07/20/22 12:19	1

Lab Sample ID: LCS 280-581383/2
Matrix: Water
Analysis Batch: 581383

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 (TDS)	502	474		mg/L		94	88 - 114

Lab Sample ID: MB 280-581385/1
Matrix: Water
Analysis Batch: 581385

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 (TDS)	ND		10	4.7	mg/L			07/20/22 12:23	1

Lab Sample ID: LCS 280-581385/2
Matrix: Water
Analysis Batch: 581385

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 (TDS)	502	486		mg/L		97	88 - 114

Lab Sample ID: MB 280-581810/1
Matrix: Water
Analysis Batch: 581810

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 (TDS)	ND		10	4.7	mg/L			07/25/22 10:34	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

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

Lab Sample ID: LCS 280-581810/2

Matrix: Water

Analysis Batch: 581810

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 (TDS)	500	477		mg/L		95	88 - 114

Lab Sample ID: LCSD 280-581810/3

Matrix: Water

Analysis Batch: 581810

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids (TDS)	500	486		mg/L		97	88 - 114	2	20

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 280-581273/3

Matrix: Water

Analysis Batch: 581273

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			07/19/22 14:25	1

Lab Sample ID: LCS 280-581273/1

Matrix: Water

Analysis Batch: 581273

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	80.4		mg/L		80	79 - 114

Lab Sample ID: LCSD 280-581273/2

Matrix: Water

Analysis Batch: 581273

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	100	94.4		mg/L		94	79 - 114	16	20

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

Metals

Prep Batch: 581163

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-1	W-2A	Total Recoverable	Water	3005A	
280-164515-2	W-2A-FD	Total Recoverable	Water	3005A	
280-164515-3	W-2C	Total Recoverable	Water	3005A	
280-164515-4	W-10B-EB	Total Recoverable	Ground Water	3005A	
280-164515-5	W-10B	Total Recoverable	Ground Water	3005A	
280-164515-6	W-3B	Total Recoverable	Water	3005A	
280-164515-7	W-5B	Total Recoverable	Water	3005A	
MB 280-581163/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-581163/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 581250

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-8	MW-7	Total Recoverable	Water	3005A	
280-164515-9	W-16	Total Recoverable	Water	3005A	
280-164515-10	W-14	Total Recoverable	Water	3005A	
MB 280-581250/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-581250/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 581285

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-1	W-2A	Total/NA	Water	7470A	
280-164515-2	W-2A-FD	Total/NA	Water	7470A	
280-164515-3	W-2C	Total/NA	Water	7470A	
280-164515-4	W-10B-EB	Total/NA	Ground Water	7470A	
280-164515-5	W-10B	Total/NA	Ground Water	7470A	
280-164515-6	W-3B	Total/NA	Water	7470A	
280-164515-7	W-5B	Total/NA	Water	7470A	
280-164515-8	MW-7	Total/NA	Water	7470A	
280-164515-9	W-16	Total/NA	Water	7470A	
MB 280-581285/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-581285/2-A	Lab Control Sample	Total/NA	Water	7470A	

Prep Batch: 581304

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-8	MW-7	Total Recoverable	Water	3005A	
280-164515-9	W-16	Total Recoverable	Water	3005A	
280-164515-10	W-14	Total Recoverable	Water	3005A	
MB 280-581304/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-581304/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Filtration Batch: 581414

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-5	W-10B	Dissolved	Ground Water	FILTRATION	
MB 280-581414/1-D	Method Blank	Dissolved	Water	FILTRATION	
MB 280-581414/1-E	Method Blank	Dissolved	Water	FILTRATION	
LCS 280-581414/2-D	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 280-581414/2-E	Lab Control Sample	Dissolved	Water	FILTRATION	
LCSD 280-581414/3-B	Lab Control Sample Dup	Dissolved	Water	FILTRATION	
280-164515-5 MS	W-10B	Dissolved	Ground Water	FILTRATION	
280-164515-5 MSD	W-10B	Dissolved	Ground Water	FILTRATION	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

Metals

Filtration Batch: 581415

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-581415/1-B	Method Blank	Dissolved	Water	Poten_Diss_Met	
LCS 280-581415/2-B	Lab Control Sample	Dissolved	Water	Poten_Diss_Met	

Analysis Batch: 581445

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-1	W-2A	Total/NA	Water	7470A	581285
280-164515-2	W-2A-FD	Total/NA	Water	7470A	581285
280-164515-3	W-2C	Total/NA	Water	7470A	581285
280-164515-4	W-10B-EB	Total/NA	Ground Water	7470A	581285
280-164515-5	W-10B	Total/NA	Ground Water	7470A	581285
280-164515-6	W-3B	Total/NA	Water	7470A	581285
280-164515-7	W-5B	Total/NA	Water	7470A	581285
280-164515-8	MW-7	Total/NA	Water	7470A	581285
280-164515-9	W-16	Total/NA	Water	7470A	581285
MB 280-581285/1-A	Method Blank	Total/NA	Water	7470A	581285
LCS 280-581285/2-A	Lab Control Sample	Total/NA	Water	7470A	581285

Prep Batch: 581479

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-1	W-2A	Total Recoverable	Water	3005A	
280-164515-2	W-2A-FD	Total Recoverable	Water	3005A	
280-164515-3	W-2C	Total Recoverable	Water	3005A	
280-164515-4	W-10B-EB	Total Recoverable	Ground Water	3005A	
280-164515-5	W-10B	Total Recoverable	Ground Water	3005A	
280-164515-6	W-3B	Total Recoverable	Water	3005A	
280-164515-7	W-5B	Total Recoverable	Water	3005A	
MB 280-581479/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-581479/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 581490

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-5	W-10B	Dissolved	Ground Water	3005A	581414
MB 280-581415/1-B	Method Blank	Dissolved	Water	3005A	581415
LCS 280-581415/2-B	Lab Control Sample	Dissolved	Water	3005A	581415
280-164515-5 MS	W-10B	Dissolved	Ground Water	3005A	581414
280-164515-5 MSD	W-10B	Dissolved	Ground Water	3005A	581414

Prep Batch: 581562

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-5	W-10B	Dissolved	Ground Water	3005A	581414
MB 280-581414/1-D	Method Blank	Dissolved	Water	3005A	581414
LCS 280-581414/2-D	Lab Control Sample	Dissolved	Water	3005A	581414

Prep Batch: 581575

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-10	W-14	Total/NA	Water	7470A	
MB 280-581575/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-581575/2-A	Lab Control Sample	Total/NA	Water	7470A	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

Metals

Prep Batch: 581576

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-5	W-10B	Dissolved	Ground Water	7470A	581414
MB 280-581414/1-E	Method Blank	Dissolved	Water	7470A	581414
LCS 280-581414/2-E	Lab Control Sample	Dissolved	Water	7470A	581414
LCSD 280-581414/3-B	Lab Control Sample Dup	Dissolved	Water	7470A	581414

Analysis Batch: 581618

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-5	W-10B	Dissolved	Ground Water	7470A	581576
280-164515-10	W-14	Total/NA	Water	7470A	581575
MB 280-581414/1-E	Method Blank	Dissolved	Water	7470A	581576
MB 280-581575/1-A	Method Blank	Total/NA	Water	7470A	581575
LCS 280-581414/2-E	Lab Control Sample	Dissolved	Water	7470A	581576
LCS 280-581575/2-A	Lab Control Sample	Total/NA	Water	7470A	581575
LCSD 280-581414/3-B	Lab Control Sample Dup	Dissolved	Water	7470A	581576

Analysis Batch: 581624

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-1	W-2A	Total Recoverable	Water	6010C	581163
280-164515-2	W-2A-FD	Total Recoverable	Water	6010C	581163
280-164515-3	W-2C	Total Recoverable	Water	6010C	581163
280-164515-4	W-10B-EB	Total Recoverable	Ground Water	6010C	581163
280-164515-5	W-10B	Dissolved	Ground Water	6010C	581490
280-164515-5	W-10B	Total Recoverable	Ground Water	6010C	581163
280-164515-6	W-3B	Total Recoverable	Water	6010C	581163
280-164515-7	W-5B	Total Recoverable	Water	6010C	581163
280-164515-8	MW-7	Total Recoverable	Water	6010C	581304
280-164515-9	W-16	Total Recoverable	Water	6010C	581304
280-164515-10	W-14	Total Recoverable	Water	6010C	581304
MB 280-581163/1-A	Method Blank	Total Recoverable	Water	6010C	581163
MB 280-581304/1-A	Method Blank	Total Recoverable	Water	6010C	581304
MB 280-581415/1-B	Method Blank	Dissolved	Water	6010C	581490
LCS 280-581163/2-A	Lab Control Sample	Total Recoverable	Water	6010C	581163
LCS 280-581304/2-A	Lab Control Sample	Total Recoverable	Water	6010C	581304
LCS 280-581415/2-B	Lab Control Sample	Dissolved	Water	6010C	581490
280-164515-5 MS	W-10B	Dissolved	Ground Water	6010C	581490
280-164515-5 MSD	W-10B	Dissolved	Ground Water	6010C	581490

Analysis Batch: 581646

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-5	W-10B	Dissolved	Ground Water	6010C	581490
280-164515-5	W-10B	Total Recoverable	Ground Water	6010C	581163
280-164515-6	W-3B	Total Recoverable	Water	6010C	581163
280-164515-5 MS	W-10B	Dissolved	Ground Water	6010C	581490
280-164515-5 MSD	W-10B	Dissolved	Ground Water	6010C	581490

Analysis Batch: 581791

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-5	W-10B	Dissolved	Ground Water	6020B	581562
280-164515-5	W-10B	Dissolved	Ground Water	6020B	581562
280-164515-8	MW-7	Total Recoverable	Water	6020B	581250
280-164515-8	MW-7	Total Recoverable	Water	6020B	581250

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

Metals (Continued)

Analysis Batch: 581791 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-9	W-16	Total Recoverable	Water	6020B	581250
280-164515-9	W-16	Total Recoverable	Water	6020B	581250
280-164515-10	W-14	Total Recoverable	Water	6020B	581250
280-164515-10	W-14	Total Recoverable	Water	6020B	581250
MB 280-581250/1-A	Method Blank	Total Recoverable	Water	6020B	581250
MB 280-581414/1-D	Method Blank	Dissolved	Water	6020B	581562
LCS 280-581250/2-A	Lab Control Sample	Total Recoverable	Water	6020B	581250
LCS 280-581414/2-D	Lab Control Sample	Dissolved	Water	6020B	581562

Analysis Batch: 581849

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-1	W-2A	Total Recoverable	Water	6020B	581479
280-164515-1	W-2A	Total Recoverable	Water	6020B	581479
280-164515-2	W-2A-FD	Total Recoverable	Water	6020B	581479
280-164515-2	W-2A-FD	Total Recoverable	Water	6020B	581479
280-164515-3	W-2C	Total Recoverable	Water	6020B	581479
280-164515-3	W-2C	Total Recoverable	Water	6020B	581479
280-164515-4	W-10B-EB	Total Recoverable	Ground Water	6020B	581479
280-164515-5	W-10B	Total Recoverable	Ground Water	6020B	581479
280-164515-5	W-10B	Total Recoverable	Ground Water	6020B	581479
280-164515-6	W-3B	Total Recoverable	Water	6020B	581479
280-164515-6	W-3B	Total Recoverable	Water	6020B	581479
280-164515-7	W-5B	Total Recoverable	Water	6020B	581479
280-164515-7	W-5B	Total Recoverable	Water	6020B	581479
MB 280-581479/1-A	Method Blank	Total Recoverable	Water	6020B	581479
LCS 280-581479/2-A	Lab Control Sample	Total Recoverable	Water	6020B	581479

Analysis Batch: 581901

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-1	W-2A	Total Recoverable	Water	6020B	581479
280-164515-2	W-2A-FD	Total Recoverable	Water	6020B	581479
280-164515-4	W-10B-EB	Total Recoverable	Ground Water	6020B	581479
280-164515-5	W-10B	Total Recoverable	Ground Water	6020B	581479
280-164515-6	W-3B	Total Recoverable	Water	6020B	581479
280-164515-7	W-5B	Total Recoverable	Water	6020B	581479

Analysis Batch: 581963

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-4	W-10B-EB	Total Recoverable	Ground Water	6020B	581479

General Chemistry

Analysis Batch: 581222

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-1	W-2A	Total/NA	Water	9056A	
280-164515-2	W-2A-FD	Total/NA	Water	9056A	
280-164515-3	W-2C	Total/NA	Water	9056A	
280-164515-5	W-10B	Total/NA	Ground Water	9056A	
280-164515-6	W-3B	Total/NA	Water	9056A	
MB 280-581222/6	Method Blank	Total/NA	Water	9056A	
LCS 280-581222/4	Lab Control Sample	Total/NA	Water	9056A	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

General Chemistry (Continued)

Analysis Batch: 581222 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 280-581222/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-581222/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 581229

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-1	W-2A	Total/NA	Water	SM 2540C	
280-164515-2	W-2A-FD	Total/NA	Water	SM 2540C	
280-164515-3	W-2C	Total/NA	Water	SM 2540C	
MB 280-581229/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-581229/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-581229/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 581273

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-1	W-2A	Total/NA	Water	SM 2540D	
280-164515-2	W-2A-FD	Total/NA	Water	SM 2540D	
280-164515-3	W-2C	Total/NA	Water	SM 2540D	
280-164515-4	W-10B-EB	Total/NA	Ground Water	SM 2540D	
280-164515-5	W-10B	Total/NA	Ground Water	SM 2540D	
280-164515-6	W-3B	Total/NA	Water	SM 2540D	
280-164515-7	W-5B	Total/NA	Water	SM 2540D	
280-164515-8	MW-7	Total/NA	Water	SM 2540D	
280-164515-9	W-16	Total/NA	Water	SM 2540D	
280-164515-10	W-14	Total/NA	Water	SM 2540D	
MB 280-581273/3	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-581273/1	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-581273/2	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 581326

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-1	W-2A	Total/NA	Water	SM 2320B	
280-164515-2	W-2A-FD	Total/NA	Water	SM 2320B	
280-164515-3	W-2C	Total/NA	Water	SM 2320B	
280-164515-4	W-10B-EB	Total/NA	Ground Water	SM 2320B	
280-164515-5	W-10B	Total/NA	Ground Water	SM 2320B	
280-164515-6	W-3B	Total/NA	Water	SM 2320B	
280-164515-7	W-5B	Total/NA	Water	SM 2320B	
280-164515-8	MW-7	Total/NA	Water	SM 2320B	
280-164515-9	W-16	Total/NA	Water	SM 2320B	
280-164515-10	W-14	Total/NA	Water	SM 2320B	
MB 280-581326/5	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-581326/4	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 581368

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-1	W-2A	Total/NA	Water	9056A	
280-164515-2	W-2A-FD	Total/NA	Water	9056A	
280-164515-3	W-2C	Total/NA	Water	9056A	
280-164515-4	W-10B-EB	Total/NA	Ground Water	9056A	
280-164515-5	W-10B	Total/NA	Ground Water	9056A	
280-164515-6	W-3B	Total/NA	Water	9056A	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

General Chemistry (Continued)

Analysis Batch: 581368 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-7	W-5B	Total/NA	Water	9056A	
280-164515-7	W-5B	Total/NA	Water	9056A	
280-164515-8	MW-7	Total/NA	Water	9056A	
280-164515-8	MW-7	Total/NA	Water	9056A	
280-164515-9	W-16	Total/NA	Water	9056A	
280-164515-9	W-16	Total/NA	Water	9056A	
MB 280-581368/6	Method Blank	Total/NA	Water	9056A	
LCS 280-581368/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-581368/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-581368/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 581383

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-4	W-10B-EB	Total/NA	Ground Water	SM 2540C	
280-164515-5	W-10B	Total/NA	Ground Water	SM 2540C	
280-164515-6	W-3B	Total/NA	Water	SM 2540C	
280-164515-7	W-5B	Total/NA	Water	SM 2540C	
MB 280-581383/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-581383/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 581385

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-10	W-14	Total/NA	Water	SM 2540C	
MB 280-581385/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-581385/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 581396

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-1	W-2A	Total/NA	Water	9040B	
280-164515-2	W-2A-FD	Total/NA	Water	9040B	
280-164515-3	W-2C	Total/NA	Water	9040B	
280-164515-5	W-10B	Total/NA	Ground Water	9040B	
280-164515-6	W-3B	Total/NA	Water	9040B	
280-164515-7	W-5B	Total/NA	Water	9040B	
280-164515-8	MW-7	Total/NA	Water	9040B	
280-164515-9	W-16	Total/NA	Water	9040B	
280-164515-10	W-14	Total/NA	Water	9040B	
LCS 280-581396/27	Lab Control Sample	Total/NA	Water	9040B	
LCS 280-581396/50	Lab Control Sample	Total/NA	Water	9040B	
280-164515-2 DU	W-2A-FD	Total/NA	Water	9040B	

Analysis Batch: 581494

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-10	W-14	Total/NA	Water	9056A	
MB 280-581494/6	Method Blank	Total/NA	Water	9056A	
LCS 280-581494/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-581494/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-581494/3	Lab Control Sample	Total/NA	Water	9056A	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

General Chemistry

Analysis Batch: 581520

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-4	W-10B-EB	Total/NA	Ground Water	9040B	
LCS 280-581520/4	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 581637

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-10	W-14	Total/NA	Water	9056A	
MB 280-581637/6	Method Blank	Total/NA	Water	9056A	
LCS 280-581637/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-581637/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-581637/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 581660

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-3	W-2C	Total/NA	Water	9056A	
MB 280-581660/13	Method Blank	Total/NA	Water	9056A	
LCS 280-581660/11	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-581660/12	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-581660/10	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 581758

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-1	W-2A	Total/NA	Water	9056A	
280-164515-2	W-2A-FD	Total/NA	Water	9056A	
280-164515-4	W-10B-EB	Total/NA	Ground Water	9056A	
280-164515-5	W-10B	Total/NA	Ground Water	9056A	
280-164515-6	W-3B	Total/NA	Water	9056A	
280-164515-7	W-5B	Total/NA	Water	9056A	
280-164515-8	MW-7	Total/NA	Water	9056A	
280-164515-10	W-14	Total/NA	Water	9056A	
MB 280-581758/13	Method Blank	Total/NA	Water	9056A	
LCS 280-581758/11	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-581758/12	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-581758/10	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 581810

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-8	MW-7	Total/NA	Water	SM 2540C	
MB 280-581810/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-581810/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-581810/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

Client Sample ID: W-2A

Date Collected: 07/13/22 10:40

Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	581163	07/21/22 08:31	KMS	TAL DEN
Total Recoverable	Analysis	6010C		1			581624	07/21/22 18:22	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	581479	07/22/22 12:42	KMS	TAL DEN
Total Recoverable	Analysis	6020B		50			581849	07/25/22 12:56	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	581479	07/22/22 12:42	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			581849	07/25/22 13:29	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	581479	07/22/22 12:42	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			581901	07/25/22 16:45	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	581285	07/19/22 18:07	CEH	TAL DEN
Total/NA	Analysis	7470A		1			581445	07/20/22 17:02	CEH	TAL DEN
Total/NA	Analysis	9040B		1			581396	07/20/22 12:11	KEG	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	581222	07/19/22 15:06	MEC	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	581758	07/23/22 20:25	RAF	TAL DEN
Total/NA	Analysis	9056A		500	10 mL	10 mL	581368	07/20/22 19:03	MEC	TAL DEN
Total/NA	Analysis	SM 2320B		1			581326	07/19/22 13:07	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	581229	07/19/22 10:32	ASP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	581273	07/19/22 14:25	ASP	TAL DEN

Client Sample ID: W-2A-FD

Date Collected: 07/13/22 10:40

Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	581163	07/21/22 08:31	KMS	TAL DEN
Total Recoverable	Analysis	6010C		1			581624	07/21/22 18:26	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	581479	07/22/22 12:42	KMS	TAL DEN
Total Recoverable	Analysis	6020B		50			581849	07/25/22 12:59	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	581479	07/22/22 12:42	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			581849	07/25/22 13:33	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	581479	07/22/22 12:42	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			581901	07/25/22 16:49	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	581285	07/19/22 18:07	CEH	TAL DEN
Total/NA	Analysis	7470A		1			581445	07/20/22 17:04	CEH	TAL DEN
Total/NA	Analysis	9040B		1			581396	07/20/22 12:20	KEG	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	581222	07/19/22 15:38	MEC	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	581758	07/23/22 20:40	RAF	TAL DEN
Total/NA	Analysis	9056A		500	10 mL	10 mL	581368	07/20/22 19:35	MEC	TAL DEN
Total/NA	Analysis	SM 2320B		1			581326	07/19/22 13:17	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	581229	07/19/22 10:32	ASP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	581273	07/19/22 14:25	ASP	TAL DEN

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

Client Sample ID: W-2C

Date Collected: 07/13/22 13:00

Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	581163	07/21/22 08:31	KMS	TAL DEN
Total Recoverable	Analysis	6010C		1			581624	07/21/22 18:30	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	581479	07/22/22 12:42	KMS	TAL DEN
Total Recoverable	Analysis	6020B		50			581849	07/25/22 13:03	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	581479	07/22/22 12:42	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			581849	07/25/22 13:37	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	581285	07/19/22 18:07	CEH	TAL DEN
Total/NA	Analysis	7470A		1			581445	07/20/22 17:07	CEH	TAL DEN
Total/NA	Analysis	9040B		1			581396	07/20/22 12:27	KEG	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	581222	07/19/22 16:10	MEC	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	581660	07/22/22 18:03	RAF	TAL DEN
Total/NA	Analysis	9056A		200	10 mL	10 mL	581368	07/20/22 20:39	MEC	TAL DEN
Total/NA	Analysis	SM 2320B		1			581326	07/19/22 13:25	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	581229	07/19/22 10:32	ASP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	581273	07/19/22 14:25	ASP	TAL DEN

Client Sample ID: W-10B-EB

Date Collected: 07/14/22 09:30

Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-4

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	581163	07/21/22 08:31	KMS	TAL DEN
Total Recoverable	Analysis	6010C		1			581624	07/21/22 18:50	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	581479	07/22/22 12:42	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			581849	07/25/22 13:41	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	581479	07/22/22 12:42	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			581901	07/25/22 16:57	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	581479	07/22/22 12:42	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			581963	07/26/22 08:04	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	581285	07/19/22 18:07	CEH	TAL DEN
Total/NA	Analysis	7470A		1			581445	07/20/22 17:14	CEH	TAL DEN
Total/NA	Analysis	9040B		1			581520	07/21/22 10:36	KEG	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	581758	07/23/22 20:56	RAF	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	581368	07/20/22 20:55	MEC	TAL DEN
Total/NA	Analysis	SM 2320B		1			581326	07/19/22 13:31	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	581383	07/20/22 12:19	ASP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	581273	07/19/22 14:25	ASP	TAL DEN

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

Client Sample ID: W-10B

Date Collected: 07/14/22 10:00

Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-5

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			250 mL	250 mL	581414	07/20/22 16:31	KMS	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	581490	07/21/22 15:20	MCR	TAL DEN
Dissolved	Analysis	6010C		1			581624	07/22/22 02:31	MAB	TAL DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	581414	07/20/22 16:31	KMS	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	581490	07/21/22 15:20	MCR	TAL DEN
Dissolved	Analysis	6010C		5			581646	07/22/22 08:11	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	581163	07/21/22 08:31	KMS	TAL DEN
Total Recoverable	Analysis	6010C		1			581624	07/21/22 18:54	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	581163	07/21/22 08:31	KMS	TAL DEN
Total Recoverable	Analysis	6010C		5			581646	07/22/22 07:59	MAB	TAL DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	581414	07/20/22 16:31	KMS	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	581562	07/22/22 08:40	KMS	TAL DEN
Dissolved	Analysis	6020B		50			581791	07/22/22 22:20	LMT	TAL DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	581414	07/20/22 16:31	KMS	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	581562	07/22/22 08:40	KMS	TAL DEN
Dissolved	Analysis	6020B		1			581791	07/22/22 23:13	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	581479	07/22/22 12:42	KMS	TAL DEN
Total Recoverable	Analysis	6020B		50			581849	07/25/22 13:11	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	581479	07/22/22 12:42	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			581849	07/25/22 13:45	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	581479	07/22/22 12:42	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			581901	07/25/22 17:00	LMT	TAL DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	581414	07/20/22 16:31	KMS	TAL DEN
Dissolved	Prep	7470A			30 mL	50 mL	581576	07/21/22 20:05	CEH	TAL DEN
Dissolved	Analysis	7470A		1			581618	07/22/22 00:25	CEH	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	581285	07/19/22 18:07	CEH	TAL DEN
Total/NA	Analysis	7470A		1			581445	07/20/22 17:18	CEH	TAL DEN
Total/NA	Analysis	9040B		1			581396	07/20/22 12:37	KEG	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	581222	07/19/22 17:29	MEC	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	581758	07/23/22 21:12	RAF	TAL DEN
Total/NA	Analysis	9056A		500	10 mL	10 mL	581368	07/20/22 21:27	MEC	TAL DEN
Total/NA	Analysis	SM 2320B		1			581326	07/19/22 13:44	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	581383	07/20/22 12:19	ASP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	581273	07/19/22 14:25	ASP	TAL DEN

Client Sample ID: W-3B

Date Collected: 07/14/22 13:00

Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	581163	07/21/22 08:31	KMS	TAL DEN
Total Recoverable	Analysis	6010C		1			581624	07/21/22 18:58	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	581163	07/21/22 08:31	KMS	TAL DEN
Total Recoverable	Analysis	6010C		5			581646	07/22/22 08:03	MAB	TAL DEN

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

Client Sample ID: W-3B

Date Collected: 07/14/22 13:00

Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	581479	07/22/22 12:42	KMS	TAL DEN
Total Recoverable	Analysis	6020B		50			581849	07/25/22 13:14	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	581479	07/22/22 12:42	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			581849	07/25/22 13:49	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	581479	07/22/22 12:42	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			581901	07/25/22 17:04	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	581285	07/19/22 18:07	CEH	TAL DEN
Total/NA	Analysis	7470A		1			581445	07/20/22 17:20	CEH	TAL DEN
Total/NA	Analysis	9040B		1			581396	07/20/22 12:41	KEG	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	581222	07/19/22 18:01	MEC	TAL DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	581758	07/23/22 21:28	RAF	TAL DEN
Total/NA	Analysis	9056A		500	10 mL	10 mL	581368	07/20/22 21:59	MEC	TAL DEN
Total/NA	Analysis	SM 2320B		1			581326	07/19/22 14:08	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	581383	07/20/22 12:19	ASP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	581273	07/19/22 14:25	ASP	TAL DEN

Client Sample ID: W-5B

Date Collected: 07/14/22 14:30

Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	581163	07/21/22 08:31	KMS	TAL DEN
Total Recoverable	Analysis	6010C		1			581624	07/21/22 19:02	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	581479	07/22/22 12:42	KMS	TAL DEN
Total Recoverable	Analysis	6020B		50			581849	07/25/22 13:18	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	581479	07/22/22 12:42	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			581849	07/25/22 13:52	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	581479	07/22/22 12:42	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			581901	07/25/22 17:08	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	581285	07/19/22 18:07	CEH	TAL DEN
Total/NA	Analysis	7470A		1			581445	07/20/22 17:23	CEH	TAL DEN
Total/NA	Analysis	9040B		1			581396	07/20/22 12:45	KEG	TAL DEN
Total/NA	Analysis	9056A		2	5 mL	5 mL	581758	07/23/22 21:44	RAF	TAL DEN
Total/NA	Analysis	9056A		20	10 mL	10 mL	581368	07/20/22 22:15	MEC	TAL DEN
Total/NA	Analysis	9056A		500	10 mL	10 mL	581368	07/20/22 22:31	MEC	TAL DEN
Total/NA	Analysis	SM 2320B		1			581326	07/19/22 14:15	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	581383	07/20/22 12:19	ASP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	581273	07/19/22 14:25	ASP	TAL DEN

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

Client Sample ID: MW-7

Date Collected: 07/14/22 17:30

Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	581304	07/21/22 08:31	KMS	TAL DEN
Total Recoverable	Analysis	6010C		1			581624	07/21/22 20:56	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	581250	07/22/22 08:51	KMS	TAL DEN
Total Recoverable	Analysis	6020B		50			581791	07/22/22 21:54	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	581250	07/22/22 08:51	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			581791	07/23/22 00:54	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	581285	07/19/22 18:07	CEH	TAL DEN
Total/NA	Analysis	7470A		1			581445	07/20/22 17:26	CEH	TAL DEN
Total/NA	Analysis	9040B		1			581396	07/20/22 12:49	KEG	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	581758	07/23/22 22:31	RAF	TAL DEN
Total/NA	Analysis	9056A		20	10 mL	10 mL	581368	07/20/22 23:51	MEC	TAL DEN
Total/NA	Analysis	9056A		200	10 mL	10 mL	581368	07/21/22 00:07	MEC	TAL DEN
Total/NA	Analysis	SM 2320B		1			581326	07/19/22 14:26	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	581810	07/25/22 10:34	ASP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	581273	07/19/22 14:25	ASP	TAL DEN

Client Sample ID: W-16

Date Collected: 07/15/22 11:15

Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	581304	07/21/22 08:31	KMS	TAL DEN
Total Recoverable	Analysis	6010C		1			581624	07/21/22 21:00	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	581250	07/22/22 08:51	KMS	TAL DEN
Total Recoverable	Analysis	6020B		50			581791	07/22/22 21:58	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	581250	07/22/22 08:51	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			581791	07/23/22 00:58	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	581285	07/19/22 18:07	CEH	TAL DEN
Total/NA	Analysis	7470A		1			581445	07/20/22 17:28	CEH	TAL DEN
Total/NA	Analysis	9040B		1			581396	07/20/22 12:51	KEG	TAL DEN
Total/NA	Analysis	9056A		20	10 mL	10 mL	581368	07/20/22 22:47	MEC	TAL DEN
Total/NA	Analysis	9056A		200	10 mL	10 mL	581368	07/20/22 23:35	MEC	TAL DEN
Total/NA	Analysis	SM 2320B		1			581326	07/19/22 14:39	KEG	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	581273	07/19/22 14:25	ASP	TAL DEN

Client Sample ID: W-14

Date Collected: 07/15/22 13:30

Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	581304	07/21/22 08:31	KMS	TAL DEN
Total Recoverable	Analysis	6010C		1			581624	07/21/22 21:04	MAB	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	581250	07/22/22 08:51	KMS	TAL DEN
Total Recoverable	Analysis	6020B		50			581791	07/22/22 22:02	LMT	TAL DEN

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

Client Sample ID: W-14

Lab Sample ID: 280-164515-10

Date Collected: 07/15/22 13:30

Matrix: Water

Date Received: 07/18/22 08:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	581250	07/22/22 08:51	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			581791	07/23/22 01:01	LMT	TAL DEN
Total/NA	Prep	7470A			30 mL	50 mL	581575	07/21/22 20:05	CEH	TAL DEN
Total/NA	Analysis	7470A		1			581618	07/22/22 01:11	CEH	TAL DEN
Total/NA	Analysis	9040B		1			581396	07/20/22 12:55	KEG	TAL DEN
Total/NA	Analysis	9056A		200	10 mL	10 mL	581637	07/22/22 17:41	RAF	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	581494	07/21/22 22:20	RAF	TAL DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	581758	07/23/22 23:03	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			581326	07/19/22 14:52	KEG	TAL DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	581385	07/20/22 12:23	ASP	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	581273	07/19/22 14:25	ASP	TAL DEN

Laboratory References:

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

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-1

Laboratory: Eurofins Denver

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

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-23

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	Ground Water	Calcium
6020B	3005A	Ground Water	Magnesium
6020B	3005A	Ground Water	Potassium
6020B	3005A	Ground Water	Sodium
6020B	3005A	Water	Calcium
6020B	3005A	Water	Magnesium
6020B	3005A	Water	Potassium
6020B	3005A	Water	Sodium
9040B		Ground Water	Temperature
9040B		Water	Temperature

Chain of Custody Record

Client Information		Sampler:		Lab PM:		Carrier Tracking No(s):		COC No:	
Client Contact: Molly Reeves		Phone: (720) 298-3594		Harrington, Danielle M		280-110862-32017.2		280-110862-32017.2	
Company: HDR Inc		PWSID:		E-Mail: Danielle.Harrington@Eurofinset.com		State of Origin: CO		Page: of	
Address: 1670 Broadway Suite 3400		Due Date Requested:		Analysis Requested		Job #:		Preservation Codes:	
City: Denver		TAT Requested (days):		Field Filtered Sample (Yes or No)		Total Number of Containers		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:	
State, Zip: CO, 80202		Compliance Project: Δ Yes Δ No		Perform WMSMD (Yes or No)		2540D - TSS/2540C TDS		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 Z - other (specify)	
Phone: 734-263-7138(Tel)		RO #: DEN-021		Sample Date		9040B pH, 9056A, 28DChloride, Fluoride, Sulfate, Alk 2340B			
Email: Molly.Reeves@hdrinc.com		WO #:		Sample Time		Rad226Ra22228GFPc - ETA St. Louis			
Project Name: Xcel Energy GW CCR Monitoring - Comanche		Project #: 28014376		Sample Type (C=Comp, G=grab)		6010C, 6020B, 7470A Total Metals - APP III + IV metals + Mg			
Site: COLORADO		SSOW#:		Matrix (W=water, S=solid, O=wastefoil, BT=tissue, A=air)		280-164515 Chain of Custody			
APP III + IV - TSS, Additional Methods				Preservation Code:					
Sample Identification	W-2A	7/13/22	1040	G	W	X	X	X	
	W-2A-FU	7/13/22	1040	G	W	X	X	X	
	W-2C	7/13/22	1300	G	W	X	X	X	
	W-10B-EB	7/14/22	0930	G	W	X	X	X	
	W-10B	7/14/22	1000	G	W	X	X	X	
	W-3B	7/14/22	1300	G	W	X	X	X	
	W-5B	7/14/22	1430	G	W	X	X	X	
	MW-7	7/14/22	1730	G	W	X	X	X	
	W-16	7/15/22	1115	G	W	X	X	X	
	W-14	7/15/22	1330	G	W	X	X	X	
Possible Hazard Identification ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological									
Deliverable Requested: I, II, III, IV, Other (specify)									
Empty Kit Relinquished by: [Signature] Date: 7/18/22 0800									
Relinquished by: [Signature] Date/Time: 7/18/22 0800 Company: HDR									
Relinquished by: [Signature] Date/Time: Company: Company									
Relinquished by: [Signature] Date/Time: Company: Company									
Custody Seals Intact: Δ Yes Δ No (Custody Seal No.):									
Cooler Temperature(s) °C and Other Remarks:									

Special Instructions/Note:
500mL - wrap for DM
No Fluoride

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

Special Instructions/QC Requirements:

Method of Shipment:

Date/Time: 7/18/22 0800 Company: HDR

Date/Time: Company: Company

Date/Time: Company: Company

Cooler Temperature(s) °C and Other Remarks:

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-164515-1

Login Number: 164515

List Number: 1

Creator: Kazenga, Oliver M

List Source: Eurofins Denver

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

ANALYTICAL REPORT

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-164515-2

Client Project/Site: Xcel Energy GW CCR Monitoring -
Comanche

For:

HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Attn: Molly Reeves



Authorized for release by:

8/16/2022 2:22:38 PM

Matthew Gardner, Project Manager I

Matthew.Gardner@et.eurofinsus.com

Designee for

Danielle Harrington, Project Manager II

(303)736-0176

Danielle.Harrington@et.eurofinsus.com

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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-2

Qualifiers

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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-2

Job ID: 280-164515-2

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-164515-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

This report may include reporting limits (RLs) less than Eurofins TestAmerica's standard reporting limit. The reported sample results and associated reporting limits are being used specifically to meet the needs of this project. Note that data are not normally reported to these levels without qualification because they are inherently less reliable and potentially less defensible than required by the latest industry standards.

This submission may contain field data obtained by the sampler. The methods referenced in this submission for the field data results may not be the methods used to obtain the field data by the sampler.

RECEIPT

The samples were received on 7/18/2022 8:25 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 0.2° C, 0.2° C and 1.6° C.

RADIOCHEMISTRY

The following samples were prepared at a reduced aliquot due to Matrix: W-2A (280-164515-1), W-2A-FD (280-164515-2), W-2C (280-164515-3), W-10B (280-164515-5), W-3B (280-164515-6), W-5B (280-164515-7), MW-7 (280-164515-8), W-16 (280-164515-9) and W-14 (280-164515-10).

The method 9315 MS/MSD could not be performed for this batch, due to insufficient sample volume. Method precision and accuracy have been verified by the acceptable LCS/LCSD analysis data.

The method 9320 MS/MSD could not be performed for this batch, due to insufficient sample volume. Method precision and accuracy have been verified by the acceptable LCS/LCSD analysis data.

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

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-2

Client Sample ID: W-2A

Lab Sample ID: 280-164515-1

☐ No Detections.

Client Sample ID: W-2A-FD

Lab Sample ID: 280-164515-2

☐ No Detections.

Client Sample ID: W-2C

Lab Sample ID: 280-164515-3

☐ No Detections.

Client Sample ID: W-10B-EB

Lab Sample ID: 280-164515-4

☐ No Detections.

Client Sample ID: W-10B

Lab Sample ID: 280-164515-5

☐ No Detections.

Client Sample ID: W-3B

Lab Sample ID: 280-164515-6

☐ No Detections.

Client Sample ID: W-5B

Lab Sample ID: 280-164515-7

☐ No Detections.

Client Sample ID: MW-7

Lab Sample ID: 280-164515-8

☐ No Detections.

Client Sample ID: W-16

Lab Sample ID: 280-164515-9

☐ No Detections.

Client Sample ID: W-14

Lab Sample ID: 280-164515-10

☐ No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Method Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-2

Method	Method Description	Protocol	Laboratory
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
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL

Protocol References:

None = None

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

Sample Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-164515-1	W-2A	Water	07/13/22 10:40	07/18/22 08:25
280-164515-2	W-2A-FD	Water	07/13/22 10:40	07/18/22 08:25
280-164515-3	W-2C	Water	07/13/22 13:00	07/18/22 08:25
280-164515-4	W-10B-EB	Ground Water	07/14/22 09:30	07/18/22 08:25
280-164515-5	W-10B	Ground Water	07/14/22 10:00	07/18/22 08:25
280-164515-6	W-3B	Water	07/14/22 13:00	07/18/22 08:25
280-164515-7	W-5B	Water	07/14/22 14:30	07/18/22 08:25
280-164515-8	MW-7	Water	07/14/22 17:30	07/18/22 08:25
280-164515-9	W-16	Water	07/15/22 11:15	07/18/22 08:25
280-164515-10	W-14	Water	07/15/22 13:30	07/18/22 08:25

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-2

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: W-2A
Date Collected: 07/13/22 10:40
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.05		0.252	0.269	1.00	0.188	pCi/L	07/21/22 11:20	08/12/22 17:11	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	106		40 - 110					07/21/22 11:20	08/12/22 17:11	1

Client Sample ID: W-2A-FD
Date Collected: 07/13/22 10:40
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.53		0.306	0.336	1.00	0.193	pCi/L	07/21/22 11:20	08/12/22 17:11	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					07/21/22 11:20	08/12/22 17:11	1

Client Sample ID: W-2C
Date Collected: 07/13/22 13:00
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.51		0.304	0.333	1.00	0.207	pCi/L	07/21/22 11:20	08/12/22 17:12	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	106		40 - 110					07/21/22 11:20	08/12/22 17:12	1

Client Sample ID: W-10B-EB
Date Collected: 07/14/22 09:30
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-4
Matrix: Ground Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0106	U	0.0414	0.0414	1.00	0.0830	pCi/L	07/21/22 11:20	08/12/22 17:12	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					07/21/22 11:20	08/12/22 17:12	1

Client Sample ID: W-10B
Date Collected: 07/14/22 10:00
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-5
Matrix: Ground Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.999		0.256	0.272	1.00	0.213	pCi/L	07/21/22 11:20	08/12/22 17:13	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	107		40 - 110					07/21/22 11:20	08/12/22 17:13	1

Eurofins Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-2

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: W-3B
Date Collected: 07/14/22 13:00
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	3.95		0.484	0.600	1.00	0.229	pCi/L	07/21/22 11:20	08/12/22 17:13	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					07/21/22 11:20	08/12/22 17:13	1

Client Sample ID: W-5B
Date Collected: 07/14/22 14:30
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.631		0.227	0.234	1.00	0.238	pCi/L	07/21/22 11:20	08/12/22 17:14	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					07/21/22 11:20	08/12/22 17:14	1

Client Sample ID: MW-7
Date Collected: 07/14/22 17:30
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.324		0.161	0.164	1.00	0.187	pCi/L	07/21/22 11:20	08/12/22 17:14	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					07/21/22 11:20	08/12/22 17:14	1

Client Sample ID: W-16
Date Collected: 07/15/22 11:15
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.618		0.216	0.223	1.00	0.230	pCi/L	07/21/22 11:20	08/12/22 17:14	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	107		40 - 110					07/21/22 11:20	08/12/22 17:14	1

Client Sample ID: W-14
Date Collected: 07/15/22 13:30
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-10
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.24		0.302	0.322	1.00	0.276	pCi/L	07/21/22 11:20	08/12/22 17:14	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	107		40 - 110					07/21/22 11:20	08/12/22 17:14	1

Eurofins Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-2

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: W-2A
Date Collected: 07/13/22 10:40
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	3.03		0.782	0.830	1.00	0.804	pCi/L	07/21/22 12:11	08/04/22 11:34	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	106		40 - 110					07/21/22 12:11	08/04/22 11:34	1
Y Carrier	85.2		40 - 110					07/21/22 12:11	08/04/22 11:34	1

Client Sample ID: W-2A-FD
Date Collected: 07/13/22 10:40
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	4.32		0.965	1.04	1.00	0.998	pCi/L	07/21/22 12:11	08/04/22 11:34	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					07/21/22 12:11	08/04/22 11:34	1
Y Carrier	85.6		40 - 110					07/21/22 12:11	08/04/22 11:34	1

Client Sample ID: W-2C
Date Collected: 07/13/22 13:00
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.61		0.753	0.790	1.00	0.821	pCi/L	07/21/22 12:11	08/04/22 11:34	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	106		40 - 110					07/21/22 12:11	08/04/22 11:34	1
Y Carrier	84.9		40 - 110					07/21/22 12:11	08/04/22 11:34	1

Client Sample ID: W-10B-EB
Date Collected: 07/14/22 09:30
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-4
Matrix: Ground Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.502		0.277	0.280	1.00	0.385	pCi/L	07/21/22 12:11	08/04/22 11:34	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					07/21/22 12:11	08/04/22 11:34	1
Y Carrier	86.0		40 - 110					07/21/22 12:11	08/04/22 11:34	1

Client Sample ID: W-10B
Date Collected: 07/14/22 10:00
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-5
Matrix: Ground Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.99		0.781	0.828	1.00	0.842	pCi/L	07/21/22 12:11	08/04/22 11:34	1

Eurofins Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-2

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

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	107		40 - 110	07/21/22 12:11	08/04/22 11:34	1
Y Carrier	87.5		40 - 110	07/21/22 12:11	08/04/22 11:34	1

Client Sample ID: W-3B
Date Collected: 07/14/22 13:00
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	7.59		1.15	1.34	1.00	0.851	pCi/L	07/21/22 12:11	08/04/22 11:34	1
Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac				
Ba Carrier	105		40 - 110	07/21/22 12:11	08/04/22 11:34	1				
Y Carrier	85.6		40 - 110	07/21/22 12:11	08/04/22 11:34	1				

Client Sample ID: W-5B
Date Collected: 07/14/22 14:30
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.925		0.586	0.592	1.00	0.867	pCi/L	07/21/22 12:11	08/04/22 11:34	1
Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac				
Ba Carrier	104		40 - 110	07/21/22 12:11	08/04/22 11:34	1				
Y Carrier	86.7		40 - 110	07/21/22 12:11	08/04/22 11:34	1				

Client Sample ID: MW-7
Date Collected: 07/14/22 17:30
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.32		0.743	0.773	1.00	0.869	pCi/L	07/21/22 12:11	08/04/22 11:34	1
Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac				
Ba Carrier	104		40 - 110	07/21/22 12:11	08/04/22 11:34	1				
Y Carrier	84.9		40 - 110	07/21/22 12:11	08/04/22 11:34	1				

Client Sample ID: W-16
Date Collected: 07/15/22 11:15
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.08		0.685	0.711	1.00	0.810	pCi/L	07/21/22 12:11	08/04/22 11:35	1
Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac				
Ba Carrier	107		40 - 110	07/21/22 12:11	08/04/22 11:35	1				
Y Carrier	87.5		40 - 110	07/21/22 12:11	08/04/22 11:35	1				

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-2

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: W-14
Date Collected: 07/15/22 13:30
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-10
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.40		0.736	0.769	1.00	0.871	pCi/L	07/21/22 12:11	08/04/22 11:35	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	107		40 - 110					07/21/22 12:11	08/04/22 11:35	1
Y Carrier	89.3		40 - 110					07/21/22 12:11	08/04/22 11:35	1

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

Client Sample ID: W-2A
Date Collected: 07/13/22 10:40
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	4.08		0.822	0.873	5.00	0.804	pCi/L		08/15/22 18:15	1

Client Sample ID: W-2A-FD
Date Collected: 07/13/22 10:40
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	5.85		1.01	1.09	5.00	0.998	pCi/L		08/15/22 18:15	1

Client Sample ID: W-2C
Date Collected: 07/13/22 13:00
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	4.12		0.812	0.857	5.00	0.821	pCi/L		08/15/22 18:15	1

Client Sample ID: W-10B-EB
Date Collected: 07/14/22 09:30
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-4
Matrix: Ground Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.513		0.280	0.283	5.00	0.385	pCi/L		08/15/22 18:15	1

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-2

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

Client Sample ID: W-10B
Date Collected: 07/14/22 10:00
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-5
Matrix: Ground Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	3.98		0.822	0.872	5.00	0.842	pCi/L		08/15/22 18:15	1

Client Sample ID: W-3B
Date Collected: 07/14/22 13:00
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	11.5		1.25	1.47	5.00	0.851	pCi/L		08/15/22 18:15	1

Client Sample ID: W-5B
Date Collected: 07/14/22 14:30
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.56		0.628	0.637	5.00	0.867	pCi/L		08/15/22 18:15	1

Client Sample ID: MW-7
Date Collected: 07/14/22 17:30
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.64		0.760	0.790	5.00	0.869	pCi/L		08/15/22 18:15	1

Client Sample ID: W-16
Date Collected: 07/15/22 11:15
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.70		0.718	0.745	5.00	0.810	pCi/L		08/15/22 18:15	1

Client Sample ID: W-14
Date Collected: 07/15/22 13:30
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-10
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	3.64		0.796	0.834	5.00	0.871	pCi/L		08/15/22 18:15	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-2

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-574777/1-A

Matrix: Water

Analysis Batch: 577734

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 574777

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.002056	U	0.0381	0.0381	1.00	0.0844	pCi/L	07/21/22 11:20	08/12/22 17:10	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					07/21/22 11:20	08/12/22 17:10	1

Lab Sample ID: LCS 160-574777/2-A

Matrix: Water

Analysis Batch: 577734

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 574777

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226		11.3	9.512		0.996	1.00	0.131	pCi/L	84	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits							
Ba Carrier	108		40 - 110							

Lab Sample ID: LCSD 160-574777/3-A

Matrix: Water

Analysis Batch: 577734

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 574777

Analyte		Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-226		11.3	9.781		1.02	1.00	0.114	pCi/L	86	75 - 125	0.13	1
Carrier	LCSD %Yield	LCSD Qualifier	Limits									
Ba Carrier	105		40 - 110									

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-574785/1-A

Matrix: Water

Analysis Batch: 576481

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 574785

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.2706	U	0.273	0.275	1.00	0.441	pCi/L	07/21/22 12:11	08/04/22 11:33	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					07/21/22 12:11	08/04/22 11:33	1
Y Carrier	85.2		40 - 110					07/21/22 12:11	08/04/22 11:33	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-2

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

Lab Sample ID: LCS 160-574785/2-A

Matrix: Water

Analysis Batch: 576481

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 574785

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-228		8.39	8.355		1.11	1.00	0.420	pCi/L	100	75 - 125

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	108		40 - 110
Y Carrier	86.0		40 - 110

Lab Sample ID: LCSD 160-574785/3-A

Matrix: Water

Analysis Batch: 576481

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 574785

Analyte		Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-228		8.39	9.085		1.18	1.00	0.397	pCi/L	108	75 - 125	0.32	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	105		40 - 110
Y Carrier	83.7		40 - 110

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-2

Rad

Prep Batch: 574777

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-1	W-2A	Total/NA	Water	PrecSep-21	
280-164515-2	W-2A-FD	Total/NA	Water	PrecSep-21	
280-164515-3	W-2C	Total/NA	Water	PrecSep-21	
280-164515-4	W-10B-EB	Total/NA	Ground Water	PrecSep-21	
280-164515-5	W-10B	Total/NA	Ground Water	PrecSep-21	
280-164515-6	W-3B	Total/NA	Water	PrecSep-21	
280-164515-7	W-5B	Total/NA	Water	PrecSep-21	
280-164515-8	MW-7	Total/NA	Water	PrecSep-21	
280-164515-9	W-16	Total/NA	Water	PrecSep-21	
280-164515-10	W-14	Total/NA	Water	PrecSep-21	
MB 160-574777/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-574777/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-574777/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 574785

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-1	W-2A	Total/NA	Water	PrecSep_0	
280-164515-2	W-2A-FD	Total/NA	Water	PrecSep_0	
280-164515-3	W-2C	Total/NA	Water	PrecSep_0	
280-164515-4	W-10B-EB	Total/NA	Ground Water	PrecSep_0	
280-164515-5	W-10B	Total/NA	Ground Water	PrecSep_0	
280-164515-6	W-3B	Total/NA	Water	PrecSep_0	
280-164515-7	W-5B	Total/NA	Water	PrecSep_0	
280-164515-8	MW-7	Total/NA	Water	PrecSep_0	
280-164515-9	W-16	Total/NA	Water	PrecSep_0	
280-164515-10	W-14	Total/NA	Water	PrecSep_0	
MB 160-574785/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-574785/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-574785/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-2

Client Sample ID: W-2A

Date Collected: 07/13/22 10:40

Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			508.28 mL	1.0 g	574777	07/21/22 11:20	MS	EET SL
Total/NA	Analysis	9315		1			577734	08/12/22 17:11	SCB	EET SL
Total/NA	Prep	PrecSep_0			508.28 mL	1.0 g	574785	07/21/22 12:11	MS	EET SL
Total/NA	Analysis	9320		1			576481	08/04/22 11:34	CLP	EET SL
Total/NA	Analysis	Ra226_Ra228		1			578122	08/15/22 18:15	EMH	EET SL

Client Sample ID: W-2A-FD

Date Collected: 07/13/22 10:40

Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			493.67 mL	1.0 g	574777	07/21/22 11:20	MS	EET SL
Total/NA	Analysis	9315		1	1.0 mL	1.0 mL	577734	08/12/22 17:11	SCB	EET SL
Total/NA	Prep	PrecSep_0			493.67 mL	1.0 g	574785	07/21/22 12:11	MS	EET SL
Total/NA	Analysis	9320		1			576481	08/04/22 11:34	CLP	EET SL
Total/NA	Analysis	Ra226_Ra228		1			578122	08/15/22 18:15	EMH	EET SL

Client Sample ID: W-2C

Date Collected: 07/13/22 13:00

Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			494.63 mL	1.0 g	574777	07/21/22 11:20	MS	EET SL
Total/NA	Analysis	9315		1			577734	08/12/22 17:12	SCB	EET SL
Total/NA	Prep	PrecSep_0			494.63 mL	1.0 g	574785	07/21/22 12:11	MS	EET SL
Total/NA	Analysis	9320		1			576481	08/04/22 11:34	CLP	EET SL
Total/NA	Analysis	Ra226_Ra228		1			578122	08/15/22 18:15	EMH	EET SL

Client Sample ID: W-10B-EB

Date Collected: 07/14/22 09:30

Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-4

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			993.44 mL	1.0 g	574777	07/21/22 11:20	MS	EET SL
Total/NA	Analysis	9315		1			577734	08/12/22 17:12	SCB	EET SL
Total/NA	Prep	PrecSep_0			993.44 mL	1.0 g	574785	07/21/22 12:11	MS	EET SL
Total/NA	Analysis	9320		1			576481	08/04/22 11:34	CLP	EET SL
Total/NA	Analysis	Ra226_Ra228		1			578122	08/15/22 18:15	EMH	EET SL

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-2

Client Sample ID: W-10B

Date Collected: 07/14/22 10:00

Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-5

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			497.41 mL	1.0 g	574777	07/21/22 11:20	MS	EET SL
Total/NA	Analysis	9315		1			577735	08/12/22 17:13	SCB	EET SL
Total/NA	Prep	PrecSep_0			497.41 mL	1.0 g	574785	07/21/22 12:11	MS	EET SL
Total/NA	Analysis	9320		1			576481	08/04/22 11:34	CLP	EET SL
Total/NA	Analysis	Ra226_Ra228		1			578122	08/15/22 18:15	EMH	EET SL

Client Sample ID: W-3B

Date Collected: 07/14/22 13:00

Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			493.97 mL	1.0 g	574777	07/21/22 11:20	MS	EET SL
Total/NA	Analysis	9315		1			577735	08/12/22 17:13	SCB	EET SL
Total/NA	Prep	PrecSep_0			493.97 mL	1.0 g	574785	07/21/22 12:11	MS	EET SL
Total/NA	Analysis	9320		1			576481	08/04/22 11:34	CLP	EET SL
Total/NA	Analysis	Ra226_Ra228		1			578122	08/15/22 18:15	EMH	EET SL

Client Sample ID: W-5B

Date Collected: 07/14/22 14:30

Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			507.11 mL	1.0 g	574777	07/21/22 11:20	MS	EET SL
Total/NA	Analysis	9315		1			577735	08/12/22 17:14	SCB	EET SL
Total/NA	Prep	PrecSep_0			507.11 mL	1.0 g	574785	07/21/22 12:11	MS	EET SL
Total/NA	Analysis	9320		1			576481	08/04/22 11:34	CLP	EET SL
Total/NA	Analysis	Ra226_Ra228		1			578122	08/15/22 18:15	EMH	EET SL

Client Sample ID: MW-7

Date Collected: 07/14/22 17:30

Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			494.84 mL	1.0 g	574777	07/21/22 11:20	MS	EET SL
Total/NA	Analysis	9315		1			577735	08/12/22 17:14	SCB	EET SL
Total/NA	Prep	PrecSep_0			494.84 mL	1.0 g	574785	07/21/22 12:11	MS	EET SL
Total/NA	Analysis	9320		1			576481	08/04/22 11:34	CLP	EET SL
Total/NA	Analysis	Ra226_Ra228		1			578122	08/15/22 18:15	EMH	EET SL

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-2

Client Sample ID: W-16

Date Collected: 07/15/22 11:15

Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			498.40 mL	1.0 g	574777	07/21/22 11:20	MS	EET SL
Total/NA	Analysis	9315		1			577735	08/12/22 17:14	SCB	EET SL
Total/NA	Prep	PrecSep_0			498.40 mL	1.0 g	574785	07/21/22 12:11	MS	EET SL
Total/NA	Analysis	9320		1			576481	08/04/22 11:35	CLP	EET SL
Total/NA	Analysis	Ra226_Ra228		1			578122	08/15/22 18:15	EMH	EET SL

Client Sample ID: W-14

Date Collected: 07/15/22 13:30

Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			503.69 mL	1.0 g	574777	07/21/22 11:20	MS	EET SL
Total/NA	Analysis	9315		1			577735	08/12/22 17:14	SCB	EET SL
Total/NA	Prep	PrecSep_0			503.69 mL	1.0 g	574785	07/21/22 12:11	MS	EET SL
Total/NA	Analysis	9320		1			576481	08/04/22 11:35	CLP	EET SL
Total/NA	Analysis	Ra226_Ra228		1			578122	08/15/22 18:15	EMH	EET SL

Laboratory References:

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

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-2

Laboratory: Eurofins St. Louis

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

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-22
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	07-01-22 *
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-22
Iowa	State	373	12-01-22
Kansas	NELAP	E-10236	10-31-22
Kentucky (DW)	State	KY90125	12-31-22
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-22
Louisiana	NELAP	04080	06-30-22 *
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-22
Maryland	State	310	09-30-22
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	04-01-23
North Dakota	State	R-207	06-30-23
NRC	NRC	24-24817-01	12-31-22
Oklahoma	NELAP	9997	08-31-22
Oregon	NELAP	4157	09-01-22
Pennsylvania	NELAP	68-00540	02-28-23
South Carolina	State	85002001	06-30-22 *
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	08-01-22 *
Virginia	NELAP	10310	06-14-23
Washington	State	C592	08-30-22
West Virginia DEP	State	381	10-31-22

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

Eurofins Denver

Chain of Custody Record

Client Information		Sampler: F. Ray		Lab PM: Harrington, Danielle M		Carrier Tracking No(s): 280-110862-32017.2	
Client Contact: Molly Reeves		Phone: (720) 298-3594		E-Mail: Danielle.Harrington@Eurofinset.com		State of Origin: CO	
Company: HDR Inc		PWSID: _____		Job #: _____		Page: _____ of _____	
Address: 1670 Broadway Suite 3400		Due Date Requested: _____		Analysis Requested		Preservation Codes:	
City: Denver		TAT Requested (days): _____		Field Filtered Sample (Yes or No)		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: _____	
State, Zip: CO, 80202		Compliance Project: ☐ Yes ☒ No		Perform WMSMD (Yes or No)		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 Z - other (specify)	
Phone: 734-263-7138(Tel)		RO #: DEN-021		9040B pH, 9056A, 28DChloride, Fluoride, Sulfate, Alk 2340B		Total Number of Containers	
Email: Molly.Reeves@hdrinc.com		WO #: _____		Rad226Ra22228GFPc - ETA St. Louis		Special Instructions/Note:	
Project Name: Xcel Energy GW CCR Monitoring - Comanche		Project #: 28014376		2540D - TSS/2540C TDS		500mL - wrap for DM	
Site: COLORADO		SSOW#: _____		Rad226Ra22228GFPc - ETA St. Louis		No Fluoride	
APP III + IV - TSS, Additional Methods				6010C, 6020B, 7470A Total Metals - APP III + IV metals + Mg & K			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=soil, BT=tissue, A=air)	Field Filtered Sample (Yes or No)	Perform WMSMD (Yes or No)	9040B pH, 9056A, 28DChloride, Fluoride, Sulfate, Alk 2340B	Rad226Ra22228GFPc - ETA St. Louis	2540D - TSS/2540C TDS	Analysis Requested	Preservation Codes	Special Instructions/Note
W-2A	7/13/22	1040	G	W	X	X	X	X	X			
W-2A-FU	7/13/22	1040	G	W	X	X	X	X	X			
W-2C	7/13/22	1300	G	W	X	X	X	X	X			
W-10B-EB	7/14/22	0930	G	W	X	X	X	X	X			
W-10B	7/14/22	1000	G	W	X	X	X	X	X			
W-3B	7/14/22	1300	G	W	X	X	X	X	X			
W-5B	7/14/22	1430	G	W	X	X	X	X	X			
MW-7	7/14/22	1730	G	W	X	X	X	X	X			
W-16	7/15/22	1115	G	W	X	X	X	X	X			
W-14	7/15/22	1330	G	W	X	X	X	X	X			

Possible Hazard Identification		☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological	
Deliverable Requested: I, II, III, IV, Other (specify)		Special Instructions/QC Requirements:	
Empty Kit Relinquished by: _____ Date: _____		Time: _____	
Relinquished by: _____ Date/Time: 7/18/22 0800		Method of Shipment: _____	
Relinquished by: _____ Date/Time: _____		Received by: _____ Date/Time: 7/18/22 0800	
Relinquished by: _____ Date/Time: _____		Received by: _____ Date/Time: _____	
Custody Seals Intact: ☐ Yes ☒ No		Cooler Temperature(s) °C and Other Remarks: _____	

[illegible]

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-164515-2

Login Number: 164515

List Source: Eurofins Denver

List Number: 1

Creator: Kazenga, Oliver M

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

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-164515-2

Login Number: 164515

List Number: 2

Creator: Booker, Autumn R

List Source: Eurofins St. Louis

List Creation: 07/20/22 11:55 AM

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

Tracer/Carrier Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-2

Method: 9315 - Radium-226 (GFPC)

Matrix: Ground Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	
280-164515-4	W-10B-EB	105	
280-164515-5	W-10B	107	
Tracer/Carrier Legend			
Ba = Ba Carrier			

Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	
280-164515-1	W-2A	106	
280-164515-2	W-2A-FD	104	
280-164515-3	W-2C	106	
280-164515-6	W-3B	105	
280-164515-7	W-5B	104	
280-164515-8	MW-7	104	
280-164515-9	W-16	107	
280-164515-10	W-14	107	
LCS 160-574777/2-A	Lab Control Sample	108	
LCSD 160-574777/3-A	Lab Control Sample Dup	105	
MB 160-574777/1-A	Method Blank	104	
Tracer/Carrier Legend			
Ba = Ba Carrier			

Method: 9320 - Radium-228 (GFPC)

Matrix: Ground Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)
280-164515-4	W-10B-EB	105	86.0
280-164515-5	W-10B	107	87.5
Tracer/Carrier Legend			
Ba = Ba Carrier			
Y = Y Carrier			

Method: 9320 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)
280-164515-1	W-2A	106	85.2
280-164515-2	W-2A-FD	104	85.6
280-164515-3	W-2C	106	84.9
280-164515-6	W-3B	105	85.6
280-164515-7	W-5B	104	86.7
280-164515-8	MW-7	104	84.9

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Tracer/Carrier Summary

Client: HDR Inc

Job ID: 280-164515-2

Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)
280-164515-9	W-16	107	87.5
280-164515-10	W-14	107	89.3
LCS 160-574785/2-A	Lab Control Sample	108	86.0
LCSD 160-574785/3-A	Lab Control Sample Dup	105	83.7
MB 160-574785/1-A	Method Blank	104	85.2

Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier

ANALYTICAL REPORT

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-164515-3

Client Project/Site: Xcel Energy GW CCR Monitoring -
Comanche

For:
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Attn: Molly Reeves



Authorized for release by:

8/2/2022 11:39:37 AM

Matthew Gardner, Project Manager I
Matthew.Gardner@et.eurofinsus.com

Designee for

Danielle Harrington, Project Manager II
(303)736-0176
Danielle.Harrington@et.eurofinsus.com

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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-3

Qualifiers

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-3

Job ID: 280-164515-3

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-164515-3

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

This report may include reporting limits (RLs) less than Eurofins TestAmerica's standard reporting limit. The reported sample results and associated reporting limits are being used specifically to meet the needs of this project. Note that data are not normally reported to these levels without qualification because they are inherently less reliable and potentially less defensible than required by the latest industry standards.

This submission may contain field data obtained by the sampler. The methods referenced in this submission for the field data results may not be the methods used to obtain the field data by the sampler.

RECEIPT

The samples were received on 7/18/2022 8:25 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 0.2° C, 0.2° C and 1.6° C.

TOTAL RECOVERABLE METALS (ICP/MS) - Method 6020B

Sample W-16 required dilution prior to analysis for method 6020B. The reporting limits have been adjusted accordingly.

The accuracy and precision of the Calcium, Magnesium, and Sodium MS/MSD performed on a laboratory generated sample could not be reliably evaluated, as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

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

GENERAL CHEMISTRY - VARIOUS

Sample W-16 required dilution prior to analysis for method 9056A. The reporting limits have been adjusted accordingly.

Laboratory generated MS/MSD analysis data have been provided. The MS/MSD for Chloride method 9056A exhibited spike compound recoveries outside the QC limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The accuracy and precision of the Sulfate MS/MSD performed on a laboratory generated sample could not be reliably evaluated, as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

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

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-3

Client Sample ID: W-16

Lab Sample ID: 280-164515-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Magnesium	2000		2.5	1.1	mg/L	50		6020B	Total
									Recoverable
Sodium	1500		7.5	3.2	mg/L	50		6020B	Total
									Recoverable
Potassium	28		6.0	2.6	mg/L	50		6020B	Total
									Recoverable
Calcium	410		10	1.9	mg/L	50		6020B	Total
									Recoverable
Cobalt	0.013		0.0010	0.000092	mg/L	1		6020B	Total
									Recoverable
pH adj. to 25 deg C	7.1	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.5	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	260		60	20	mg/L	20		9056A	Total/NA
Sulfate	13000		1000	210	mg/L	200		9056A	Total/NA
Bicarbonate Alkalinity as CaCO3	910		10	3.1	mg/L	1		SM 2320B	Total/NA

This Detection Summary does not include radiochemical test results.

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Method Summary

Client: HDR Inc

Job ID: 280-164515-3

Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Method	Method Description	Protocol	Laboratory
6020B	Metals (ICP/MS)	SW846	TAL DEN
9040B	pH	SW846	TAL DEN
9056A	Anions, Ion Chromatography	SW846	TAL DEN
SM 2320B	Alkalinity	SM	TAL DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL DEN

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:

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

Sample Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-164515-9	W-16	Water	07/15/22 11:15	07/18/22 08:25

1

2

3

4

5

6

7

8

9

10

11

12

13

14

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-3

Method: 6020B - Metals (ICP/MS) - Total Recoverable

Client Sample ID: W-16
Date Collected: 07/15/22 11:15
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	2000		2.5	1.1	mg/L		07/22/22 08:51	07/22/22 21:58	50
Sodium	1500		7.5	3.2	mg/L		07/22/22 08:51	07/22/22 21:58	50
Potassium	28		6.0	2.6	mg/L		07/22/22 08:51	07/22/22 21:58	50
Calcium	410		10	1.9	mg/L		07/22/22 08:51	07/22/22 21:58	50
Cobalt	0.013		0.0010	0.000092	mg/L		07/22/22 08:51	07/23/22 00:58	1

General Chemistry

Client Sample ID: W-16
Date Collected: 07/15/22 11:15
Date Received: 07/18/22 08:25

Lab Sample ID: 280-164515-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.1	HF	0.1	0.1	SU			07/20/22 12:51	1
Temperature	21.5	HF	1.0	1.0	Degrees C			07/20/22 12:51	1
Chloride	260		60	20	mg/L			07/29/22 17:15	20
Sulfate	13000		1000	210	mg/L			07/29/22 17:30	200
Bicarbonate Alkalinity as CaCO3	910		10	3.1	mg/L			07/19/22 02:39	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			07/19/22 02:39	1

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-3

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-581250/1-A

Matrix: Water

Analysis Batch: 581791

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 581250

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	ND		0.050	0.021	mg/L		07/22/22 08:51	07/22/22 21:28	1
Sodium	ND		0.15	0.065	mg/L		07/22/22 08:51	07/22/22 21:28	1
Potassium	ND		0.12	0.052	mg/L		07/22/22 08:51	07/22/22 21:28	1
Calcium	ND		0.20	0.038	mg/L		07/22/22 08:51	07/22/22 21:28	1
Cobalt	ND		0.0010	0.000092	mg/L		07/22/22 08:51	07/22/22 21:28	1

Lab Sample ID: LCS 280-581250/2-A

Matrix: Water

Analysis Batch: 581791

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 581250

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Magnesium	0.800	0.721		mg/L		90	80 - 120
Sodium	0.800	0.733		mg/L		92	80 - 120
Potassium	0.800	0.697		mg/L		87	80 - 120
Calcium	0.800	0.763		mg/L		95	80 - 120
Cobalt	0.0400	0.0373		mg/L		93	94 - 115

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-582367/6

Matrix: Water

Analysis Batch: 582367

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			07/29/22 11:01	1
Sulfate	ND		5.0	1.0	mg/L			07/29/22 11:01	1

Lab Sample ID: LCS 280-582367/4

Matrix: Water

Analysis Batch: 582367

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	103		mg/L		103	90 - 110
Sulfate	100	103		mg/L		103	90 - 110

Lab Sample ID: LCSD 280-582367/5

Matrix: Water

Analysis Batch: 582367

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	103		mg/L		103	90 - 110	0	10
Sulfate	100	103		mg/L		103	90 - 110	0	10

Lab Sample ID: MRL 280-582367/3

Matrix: Water

Analysis Batch: 582367

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.00	4.80		mg/L		96	50 - 150
Sulfate	5.00	4.42	J	mg/L		88	50 - 150

Eurofins Denver

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-3

Metals

Prep Batch: 581250

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-9	W-16	Total Recoverable	Water	3005A	
MB 280-581250/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-581250/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 581791

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-9	W-16	Total Recoverable	Water	6020B	581250
280-164515-9	W-16	Total Recoverable	Water	6020B	581250
MB 280-581250/1-A	Method Blank	Total Recoverable	Water	6020B	581250
LCS 280-581250/2-A	Lab Control Sample	Total Recoverable	Water	6020B	581250

General Chemistry

Analysis Batch: 582367

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-9	W-16	Total/NA	Water	9056A	
280-164515-9	W-16	Total/NA	Water	9056A	
MB 280-582367/6	Method Blank	Total/NA	Water	9056A	
LCS 280-582367/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-582367/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-582367/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 582523

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-9	W-16	Total/NA	Water	SM 2320B	

Analysis Batch: 582562

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-164515-9	W-16	Total/NA	Water	9040B	

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-3

Client Sample ID: W-16

Lab Sample ID: 280-164515-9

Date Collected: 07/15/22 11:15

Matrix: Water

Date Received: 07/18/22 08:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	581250	07/22/22 08:51	KMS	TAL DEN
Total Recoverable	Analysis	6020B		50			581791	07/22/22 21:58	LMT	TAL DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	581250	07/22/22 08:51	KMS	TAL DEN
Total Recoverable	Analysis	6020B		1			581791	07/23/22 00:58	LMT	TAL DEN
Total/NA	Analysis	9040B		1			582562	07/20/22 12:51	KEG	TAL DEN
Total/NA	Analysis	9056A		20	10 mL	10 mL	582367	07/29/22 17:15	RAF	TAL DEN
Total/NA	Analysis	9056A		200	10 mL	10 mL	582367	07/29/22 17:30	RAF	TAL DEN
Total/NA	Analysis	SM 2320B		1			582523	07/19/22 02:39	KEG	TAL DEN

Laboratory References:

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

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-164515-3

Laboratory: Eurofins Denver

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

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-23

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	Calcium
6020B	3005A	Water	Magnesium
6020B	3005A	Water	Potassium
6020B	3005A	Water	Sodium
9040B		Water	Temperature

Chain of Custody Record

Client Information		Sampler: F. Ray		Lab PM: Harrington, Danielle M		Carrier Tracking No(s): 280-110862-32017.2	
Client Contact: Molly Reeves		Phone: (720) 298-3594		E-Mail: Danielle.Harrington@Eurofinset.com		State of Origin: CO	
Company: HDR Inc		PWSID: _____		Job #: _____		Page: _____ of _____	
Address: 1670 Broadway Suite 3400		Due Date Requested: _____		Analysis Requested		Preservation Codes:	
City: Denver		TAT Requested (days): _____		Compliance Project: Δ Yes Δ No		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: _____	
State, Zip: CO, 80202		RO #: DEN-021		Project #: 28014376		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 Z - other (specify)	
Phone: 734-263-7138(Tel)		WO #: _____		SSOW#: _____		Total Number of Containers	
Email: Molly.Reeves@hdrinc.com		Project Name: Xcel Energy GW CCR Monitoring - Comanche		Site: COLORADO		Special Instructions/Note:	
APP III + IV - TSS, Additional Methods		Sample Identification		Sample Date		Sample Time	
Sample Type (C=Comp, G=grab)		Sample Matrix (W=water, S=solid, O=soil, BT=tissue, A=air)		Field Filtered Sample (Yes or No)		Perform WMSD (Yes or No)	
Preservation Code		Sample Date		Sample Time		Sample Matrix	
W-2A		7/13/22		1040		G W	
W-2A-FU		7/13/22		1040		G W	
W-2C		7/13/22		1300		G W	
W-10B-EB		7/14/22		0930		G W	
W-10B		7/14/22		1000		G W	
W-3B		7/14/22		1300		G W	
W-5B		7/14/22		1430		G W	
MW-7		7/14/22		1730		G W	
W-16		7/15/22		1115		G W	
W-14		7/15/22		1330		G W	
Possible Hazard Identification		Deliverable Requested: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months	
Empty Kit Relinquished by: _____		Date: _____		Time: _____		Method of Shipment: _____	
Relinquished by: _____		Date/Time: 7/18/22 0800		Company: HDR		Date/Time: _____	
Relinquished by: _____		Date/Time: _____		Company: _____		Date/Time: _____	
Relinquished by: _____		Date/Time: _____		Company: _____		Date/Time: _____	
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.: _____		Cooler Temperature(s) °C and Other Remarks: _____		Company: _____	

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-164515-3

Login Number: 164515

List Source: Eurofins Denver

List Number: 1

Creator: Kazenga, Oliver M

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

ANALYTICAL REPORT

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-165864-1

Client Project/Site: Xcel Energy GW CCR Monitoring -
Comanche

For:
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Attn: Molly Reeves



Authorized for release by:
9/9/2022 2:18:59 PM

Nicole Ryan, Project Manager I
(303)736-0100
Nicole.Ryan@ET.eurofinsus.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165864-1

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	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165864-1

Job ID: 280-165864-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-165864-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

The presence of the '4' qualifier indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount.

Receipt

The sample was received on 8/25/2022 2:13 PM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.8° C.

TOTAL RECOVERABLE METALS

Sample W-16 (280-165864-1) was analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 08/28/2022 and analyzed on 08/29/2022.

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

TOTAL RECOVERABLE METALS (ICP/MS)

Sample W-16 (280-165864-1) was analyzed for Total Recoverable Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 08/28/2022 and analyzed on 08/29/2022 and 08/31/2022.

Calcium, Magnesium and Sodium failed the recovery criteria low for the MS of sample W-16MS (280-165864-1) in batch 280-585720. Calcium, Magnesium, Potassium and Sodium failed the recovery criteria high for the MSD of sample W-16MSD (280-165864-1) in batch 280-585720. Refer to the QC report for details.

Sample W-16 (280-165864-1)[50X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

ALKALINITY

Sample W-16 (280-165864-1) was analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 08/26/2022.

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

TOTAL DISSOLVED SOLIDS

Sample W-16 (280-165864-1) was analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165864-1

Job ID: 280-165864-1 (Continued)

Laboratory: Eurofins Denver (Continued)

08/30/2022.

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

TOTAL SUSPENDED SOLIDS

Sample W-16 (280-165864-1) was analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 08/29/2022.

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

CORROSIVITY (PH)

Sample W-16 (280-165864-1) was analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 08/29/2022.

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

ANIONS (28 DAYS)

Sample W-16 (280-165864-1) was analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days). The samples were analyzed on 08/30/2022.

Samples W-16 (280-165864-1)[100X] and W-16 (280-165864-1)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165864-1

Client Sample ID: W-16

Lab Sample ID: 280-165864-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Boron	0.73		0.10	0.0015	mg/L	1			6010C	Total
Calcium	430000		10000	1900	ug/L	50			6020B	Total
Cobalt	16		1.0	0.092	ug/L	1			6020B	Total
Magnesium	1900		2.5	1.1	mg/L	50			6020B	Total
Sodium	1500		7.5	3.2	mg/L	50			6020B	Total
Potassium	27		6.0	2.6	mg/L	50			6020B	Total
pH adj. to 25 deg C	6.9	HF	0.1	0.1	SU	1			9040B	Total/NA
Temperature	18.9	HF	1.0	1.0	Degrees C	1			9040B	Total/NA
Chloride	230		15	5.1	mg/L	5			9056A	Total/NA
Sulfate	12000		500	100	mg/L	100			9056A	Total/NA
Alkalinity	910		10	3.1	mg/L	1			SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	910		10	3.1	mg/L	1			SM 2320B	Total/NA
Total Dissolved Solids (TDS)	17000		1000	470	mg/L	1			SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Method Summary

Client: HDR Inc

Job ID: 280-165864-1

Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	EET DEN
6020B	Metals (ICP/MS)	SW846	EET DEN
9040B	pH	SW846	EET DEN
9056A	Anions, Ion Chromatography	SW846	EET DEN
SM 2320B	Alkalinity	SM	EET DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET DEN
SM 2540D	Solids, Total Suspended (TSS)	SM	EET DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET DEN

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

Sample Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165864-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-165864-1	W-16	Water	08/25/22 10:20	08/25/22 14:13

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

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165864-1

Method: 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: W-16
Date Collected: 08/25/22 10:20
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165864-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.73		0.10	0.0015	mg/L		08/28/22 23:40	08/29/22 23:03	1

Method: 6020B - Metals (ICP/MS) - Total Recoverable

Client Sample ID: W-16
Date Collected: 08/25/22 10:20
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165864-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	430000		10000	1900	ug/L		08/28/22 14:43	08/31/22 23:11	50
Cobalt	16		1.0	0.092	ug/L		08/28/22 14:43	08/29/22 19:59	1
Magnesium	1900		2.5	1.1	mg/L		08/28/22 14:43	08/31/22 23:11	50
Sodium	1500		7.5	3.2	mg/L		08/28/22 14:43	08/31/22 23:11	50
Potassium	27		6.0	2.6	mg/L		08/28/22 14:43	08/31/22 23:11	50

General Chemistry

Client Sample ID: W-16
Date Collected: 08/25/22 10:20
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165864-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	6.9	HF	0.1	0.1	SU			08/29/22 14:13	1
Temperature	18.9	HF	1.0	1.0	Degrees C			08/29/22 14:13	1
Chloride	230		15	5.1	mg/L			08/30/22 23:38	5
Sulfate	12000		500	100	mg/L			08/30/22 23:54	100
Alkalinity	910		10	3.1	mg/L			08/26/22 20:05	1
Bicarbonate Alkalinity as CaCO3	910		10	3.1	mg/L			08/26/22 20:05	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			08/26/22 20:05	1
Total Dissolved Solids (TDS)	17000		1000	470	mg/L			08/30/22 10:46	1
Total Suspended Solids	ND		4.0	1.1	mg/L			08/29/22 10:45	1

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165864-1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-585160/1-A
Matrix: Water
Analysis Batch: 585437

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 585160

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.0015	mg/L		08/28/22 23:40	08/29/22 21:10	1

Lab Sample ID: LCS 280-585160/2-A
Matrix: Water
Analysis Batch: 585437

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 585160

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	2.01		mg/L		101	86 - 110

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-585201/1-A
Matrix: Water
Analysis Batch: 585452

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 585201

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	ND		1.0	0.092	ug/L		08/28/22 14:43	08/29/22 19:51	1

Lab Sample ID: MB 280-585201/1-A
Matrix: Water
Analysis Batch: 585720

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 585201

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		200	38	ug/L		08/28/22 14:43	08/31/22 23:04	1
Magnesium	ND		0.050	0.021	mg/L		08/28/22 14:43	08/31/22 23:04	1
Sodium	ND		0.15	0.065	mg/L		08/28/22 14:43	08/31/22 23:04	1
Potassium	ND		0.12	0.052	mg/L		08/28/22 14:43	08/31/22 23:04	1

Lab Sample ID: LCS 280-585201/2-A
Matrix: Water
Analysis Batch: 585452

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 585201

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cobalt	40.0	42.5		ug/L		106	85 - 120

Lab Sample ID: LCS 280-585201/2-A
Matrix: Water
Analysis Batch: 585720

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 585201

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	800	810		ug/L		101	80 - 120
Magnesium	0.800	0.723		mg/L		90	80 - 120
Sodium	0.800	0.711		mg/L		89	80 - 120
Potassium	0.800	0.719		mg/L		90	80 - 120

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165864-1

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

Lab Sample ID: 280-165864-1 MS

Matrix: Water

Analysis Batch: 585452

Client Sample ID: W-16
Prep Type: Total Recoverable
Prep Batch: 585201

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cobalt	16		40.0	54.5		ug/L		96	94 - 115

Lab Sample ID: 280-165864-1 MS

Matrix: Water

Analysis Batch: 585720

Client Sample ID: W-16
Prep Type: Total Recoverable
Prep Batch: 585201

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	430000		800	431000	4	ug/L		-445	80 - 120
Magnesium	1900		0.800	1890	4	mg/L		-3983	80 - 120
Sodium	1500		0.800	1470	4	mg/L		-1370	80 - 120
Potassium	27		0.800	27.9	4	mg/L		105	80 - 120

Lab Sample ID: 280-165864-1 MSD

Matrix: Water

Analysis Batch: 585452

Client Sample ID: W-16
Prep Type: Total Recoverable
Prep Batch: 585201

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cobalt	16		40.0	54.5		ug/L		96	94 - 115	0	20

Lab Sample ID: 280-165864-1 MSD

Matrix: Water

Analysis Batch: 585720

Client Sample ID: W-16
Prep Type: Total Recoverable
Prep Batch: 585201

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	430000		800	448000	4	ug/L		1719	80 - 120	4	20
Magnesium	1900		0.800	2020	4	mg/L		12353	80 - 120	7	20
Sodium	1500		0.800	1540	4	mg/L		8270	80 - 120	5	20
Potassium	27		0.800	30.4	4	mg/L		421	80 - 120	9	20

Method: 9040B - pH

Lab Sample ID: LCS 280-585450/4

Matrix: Water

Analysis Batch: 585450

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH adj. to 25 deg C	7.00	7.1		SU		101	99 - 101

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-585460/6

Matrix: Water

Analysis Batch: 585460

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			08/30/22 10:57	1
Sulfate	ND		5.0	1.0	mg/L			08/30/22 10:57	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165864-1

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

Lab Sample ID: LCS 280-585460/4

Matrix: Water

Analysis Batch: 585460

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	100		mg/L		100	90 - 110
Sulfate	100	98.1		mg/L		98	90 - 110

Lab Sample ID: LCSD 280-585460/5

Matrix: Water

Analysis Batch: 585460

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	100		mg/L		100	90 - 110	0	10
Sulfate	100	98.6		mg/L		99	90 - 110	1	10

Lab Sample ID: MRL 280-585460/3

Matrix: Water

Analysis Batch: 585460

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.00	4.03		mg/L		81	50 - 150
Sulfate	5.00	4.15	J	mg/L		83	50 - 150

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-585314/58

Matrix: Water

Analysis Batch: 585314

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	ND		10	3.1	mg/L			08/26/22 19:18	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			08/26/22 19:18	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			08/26/22 19:18	1

Lab Sample ID: LCS 280-585314/57

Matrix: Water

Analysis Batch: 585314

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	200	199		mg/L		100	89 - 109

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

Lab Sample ID: MB 280-585476/1

Matrix: Water

Analysis Batch: 585476

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 (TDS)	ND		10	4.7	mg/L			08/30/22 10:46	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165864-1

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

Lab Sample ID: LCS 280-585476/2

Matrix: Water

Analysis Batch: 585476

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 (TDS)	502	495		mg/L		99	88 - 114

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 280-585351/3

Matrix: Water

Analysis Batch: 585351

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			08/29/22 10:45	1

Lab Sample ID: LCS 280-585351/1

Matrix: Water

Analysis Batch: 585351

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	501	484		mg/L		97	79 - 114

Lab Sample ID: LCSD 280-585351/2

Matrix: Water

Analysis Batch: 585351

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	501	443		mg/L		88	79 - 114	9	20

Lab Sample ID: 280-165864-1 DU

Matrix: Water

Analysis Batch: 585351

Client Sample ID: W-16

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	ND		ND		mg/L		NC	10

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165864-1

Metals

Prep Batch: 585160

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-165864-1	W-16	Total Recoverable	Water	3005A	
MB 280-585160/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-585160/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 585201

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-165864-1	W-16	Total Recoverable	Water	3005A	
MB 280-585201/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-585201/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-165864-1 MS	W-16	Total Recoverable	Water	3005A	
280-165864-1 MSD	W-16	Total Recoverable	Water	3005A	

Analysis Batch: 585437

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-165864-1	W-16	Total Recoverable	Water	6010C	585160
MB 280-585160/1-A	Method Blank	Total Recoverable	Water	6010C	585160
LCS 280-585160/2-A	Lab Control Sample	Total Recoverable	Water	6010C	585160

Analysis Batch: 585452

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-165864-1	W-16	Total Recoverable	Water	6020B	585201
MB 280-585201/1-A	Method Blank	Total Recoverable	Water	6020B	585201
LCS 280-585201/2-A	Lab Control Sample	Total Recoverable	Water	6020B	585201
280-165864-1 MS	W-16	Total Recoverable	Water	6020B	585201
280-165864-1 MSD	W-16	Total Recoverable	Water	6020B	585201

Analysis Batch: 585720

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-165864-1	W-16	Total Recoverable	Water	6020B	585201
MB 280-585201/1-A	Method Blank	Total Recoverable	Water	6020B	585201
LCS 280-585201/2-A	Lab Control Sample	Total Recoverable	Water	6020B	585201
280-165864-1 MS	W-16	Total Recoverable	Water	6020B	585201
280-165864-1 MSD	W-16	Total Recoverable	Water	6020B	585201

General Chemistry

Analysis Batch: 585314

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-165864-1	W-16	Total/NA	Water	SM 2320B	
MB 280-585314/58	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-585314/57	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 585351

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-165864-1	W-16	Total/NA	Water	SM 2540D	
MB 280-585351/3	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-585351/1	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-585351/2	Lab Control Sample Dup	Total/NA	Water	SM 2540D	
280-165864-1 DU	W-16	Total/NA	Water	SM 2540D	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165864-1

General Chemistry

Analysis Batch: 585450

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-165864-1	W-16	Total/NA	Water	9040B	
LCS 280-585450/4	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 585460

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-165864-1	W-16	Total/NA	Water	9056A	
280-165864-1	W-16	Total/NA	Water	9056A	
MB 280-585460/6	Method Blank	Total/NA	Water	9056A	
LCS 280-585460/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-585460/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-585460/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 585476

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-165864-1	W-16	Total/NA	Water	SM 2540C	
MB 280-585476/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-585476/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165864-1

Client Sample ID: W-16

Lab Sample ID: 280-165864-1

Date Collected: 08/25/22 10:20

Matrix: Water

Date Received: 08/25/22 14:13

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	585160	08/28/22 23:40	KMS	EET DEN
Total Recoverable	Analysis	6010C		1			585437	08/29/22 23:03	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585201	08/28/22 14:43	MCR	EET DEN
Total Recoverable	Analysis	6020B		1			585452	08/29/22 19:59	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585201	08/28/22 14:43	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			585720	08/31/22 23:11	LMT	EET DEN
Total/NA	Analysis	9040B		1			585450	08/29/22 14:13	KEG	EET DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	585460	08/30/22 23:38	MEC	EET DEN
Total/NA	Analysis	9056A		100	5 mL	5 mL	585460	08/30/22 23:54	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			585314	08/26/22 20:05	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	585476	08/30/22 10:46	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	585351	08/29/22 10:45	ASP	EET DEN

Laboratory References:

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

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165864-1

Laboratory: Eurofins Denver

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

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-23

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	Calcium
6020B	3005A	Water	Magnesium
6020B	3005A	Water	Potassium
6020B	3005A	Water	Sodium
9040B		Water	Temperature

Chain of Custody Record

Client Information		Sampler: <u>F. Davis Ray</u>		Lab PM: <u>Harrington, Danielle M</u>	Carrier Tracking No(s):	COC No: <u>280-110862-32017.2</u>
Client Contact: <u>Molly Reeves</u>		Phone: <u>(720) 248-3544</u>		E-Mail: <u>Danielle.Harrington@Eurofins.com</u>	State of Origin: <u>CO</u>	Page: <u>1</u> of <u>1</u>
Company: <u>HDR Inc</u>		PWSID:		Job #:		
Address: <u>1670 Broadway Suite 3400</u>		Due Date Requested:		Analysis Requested		
City: <u>Denver</u>		TAT Requested (days):				
State, Zip: <u>CO, 80202</u>		Compliance Project: <u>Δ Yes Δ No</u>				
Phone: <u>734-263-7138(Tel)</u>		PO #: <u>DEN-021</u>				
Email: <u>Molly.Reeves@hdrinc.com</u>		WO #: <u>28014376</u>				
Project Name: <u>Xcel Energy GW CCR Monitoring - Comanche</u>		Project #: <u>28014376</u>				
Site/COLORADO		SSOW#: <u>Additional Tests</u>				
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=oil, BT=Tissue, A=air)	Field Filtered Sample (Yes or No)
<u>W-16</u>	<u>8/25/22</u>	<u>1020</u>	<u>5:16</u>	<u>W</u>	<u>W</u>	<u>Yes</u>
Special Instructions/Note: <u>See PM for testing</u>		Total Number of containers: <u>7</u>				
Preservation Codes:		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Anchor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Z - other (specify) Other:				
Preservation Codes:		M - Hexane N - None O - AsNaO2 P - Na2OAS Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 L - EDA				
Barcode		280-165864 Chain of Custody				
Possible Hazard Identification ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological						
Deliverable Requested: I, II, III, IV, Other (specify)						
Empty Kit Relinquished by:						
Relinquished by: <u>Davis Ray</u>		Date: <u>8/25/22</u>		Time: <u>1413</u>		Company: <u>HDR</u>
Relinquished by:		Date/Time:		Date/Time:		Company:
Relinquished by:		Date/Time:		Date/Time:		Company:
Custody Seals Intact: <u>Δ Yes Δ No</u>		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: <u>D.R. CF + 0.0 1K#12</u>		

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-165864-1

Login Number: 165864

List Number: 1

Creator: Roehsner, Karen P

List Source: Eurofins Denver

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

ANALYTICAL REPORT

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-165874-1

Client Project/Site: Xcel Energy GW CCR Monitoring -
Comanche
Revision: 2

For:

HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Attn: Molly Reeves



Authorized for release by:
9/30/2022 11:14:25 AM

Nicole Ryan, Project Manager I
(303)736-0100
Nicole.Ryan@ET.eurofinsus.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

Qualifiers

Metals

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

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

Job ID: 280-165874-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-165874-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

The presence of the '4' qualifier indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount.

Revision 1, September 21, 2022

The client requested to have sodium reported for all samples in job 280-165874-1.

Revision 2, September 30, 2022

The client has requested that sample ID for 280-165874-6 is updated from W-6B to W-6B1.

Receipt

The samples were received on 8/25/2022 2:13 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 0.3° C, 0.4° C and 0.5° C.

TOTAL RECOVERABLE METALS

Samples W-2A (280-165874-1), W-2C (280-165874-2), W-3B (280-165874-3), W-5B (280-165874-4), W-5B-FD (280-165874-5), W-6B (280-165874-6), W-10B-EB (280-165874-7), W-10B (280-165874-8), MW-7 (280-165874-9) and W-14 (280-165874-10) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 08/28/2022 and analyzed on 08/29/2022 and 08/30/2022.

Boron was detected in method blank MB 280-585210/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Lithium failed the recovery criteria high for the MS of sample W-14MS (280-165874-10) in batch 280-585587. Refer to the QC report for details.

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

TOTAL RECOVERABLE METALS (ICP/MS)

Samples W-2A (280-165874-1), W-2C (280-165874-2), W-3B (280-165874-3), W-5B (280-165874-4), W-5B-FD (280-165874-5), W-6B (280-165874-6), W-10B-EB (280-165874-7), W-10B (280-165874-8), MW-7 (280-165874-9) and W-14 (280-165874-10) were analyzed for Total Recoverable Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 08/28/2022 and analyzed on

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

Job ID: 280-165874-1 (Continued)

Laboratory: Eurofins Denver (Continued)

08/29/2022, 09/01/2022, 09/06/2022 and 09/07/2022.

The instrument blank for analytical batch 280-586091 contained 75.6 ppb Na which is greater than one-half the reporting limit (RL) of 150 ppb, and were not re-analyzed because the samples are >10x the blank. The data have been qualified and reported.

Calcium failed the recovery criteria low for the MS of sample 280-165864-1 in batch 280-585720. Beryllium failed the recovery criteria high. Lead failed the recovery criteria low for the MSD of sample 280-165864-1 in batch 280-585720. Beryllium, Selenium and Calcium failed the recovery criteria high. Refer to the QC report for details.

Samples W-2A (280-165874-1)[50X], W-2C (280-165874-2)[50X], W-3B (280-165874-3)[50X], W-5B (280-165874-4)[50X], W-5B-FD (280-165874-5)[50X], W-6B (280-165874-6)[50X], W-10B (280-165874-8)[50X], MW-7 (280-165874-9)[50X] and W-14 (280-165874-10)[50X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

TOTAL MERCURY

Samples W-2A (280-165874-1), W-2C (280-165874-2), W-3B (280-165874-3), W-5B (280-165874-4), W-5B-FD (280-165874-5), W-6B (280-165874-6), W-10B-EB (280-165874-7), W-10B (280-165874-8), MW-7 (280-165874-9) and W-14 (280-165874-10) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared on 08/29/2022 and analyzed on 08/29/2022 and 08/30/2022.

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

ALKALINITY

Samples W-2A (280-165874-1), W-2C (280-165874-2), W-3B (280-165874-3), W-5B (280-165874-4), W-5B-FD (280-165874-5), W-6B (280-165874-6), W-10B-EB (280-165874-7), W-10B (280-165874-8), MW-7 (280-165874-9) and W-14 (280-165874-10) were analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 08/26/2022 and 08/29/2022.

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

TOTAL DISSOLVED SOLIDS

Samples W-2A (280-165874-1), W-2C (280-165874-2), W-3B (280-165874-3), W-5B (280-165874-4), W-5B-FD (280-165874-5), W-6B (280-165874-6), W-10B-EB (280-165874-7), W-10B (280-165874-8), MW-7 (280-165874-9) and W-14 (280-165874-10) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 08/26/2022 and 08/29/2022.

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

TOTAL SUSPENDED SOLIDS

Samples W-2A (280-165874-1), W-2C (280-165874-2), W-3B (280-165874-3), W-5B (280-165874-4), W-5B-FD (280-165874-5), W-6B (280-165874-6), W-10B-EB (280-165874-7), W-10B (280-165874-8), MW-7 (280-165874-9) and W-14 (280-165874-10) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 08/26/2022.

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

CORROSIVITY (PH)

Samples W-2A (280-165874-1), W-2C (280-165874-2), W-3B (280-165874-3), W-5B (280-165874-4), W-5B-FD (280-165874-5), W-6B (280-165874-6), W-10B-EB (280-165874-7), W-10B (280-165874-8), MW-7 (280-165874-9) and W-14 (280-165874-10) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 08/29/2022 and 09/08/2022.

Sample did not equilibrate to within 0.05 pH units after three measurements. This was observed in a previous analysis thus the sample was not rerun.

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

ANIONS (28 DAYS)

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

Job ID: 280-165874-1 (Continued)

Laboratory: Eurofins Denver (Continued)

Samples W-2A (280-165874-1), W-2C (280-165874-2), W-3B (280-165874-3), W-5B (280-165874-4), W-5B-FD (280-165874-5), W-6B (280-165874-6), W-10B-EB (280-165874-7), W-10B (280-165874-8), MW-7 (280-165874-9) and W-14 (280-165874-10) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days). The samples were analyzed on 08/30/2022, 08/31/2022 and 09/02/2022.

Samples W-2A (280-165874-1)[20X], W-2A (280-165874-1)[500X], W-2C (280-165874-2)[10X], W-2C (280-165874-2)[200X], W-3B (280-165874-3)[20X], W-3B (280-165874-3)[3000X], W-5B (280-165874-4)[50X], W-5B-FD (280-165874-5)[50X], W-6B (280-165874-6)[10X], W-6B (280-165874-6)[500X], W-10B (280-165874-8)[20X], W-10B (280-165874-8)[500X], MW-7 (280-165874-9)[100X], MW-7 (280-165874-9)[5X], W-14 (280-165874-10)[100X] and W-14 (280-165874-10)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

Client Sample ID: W-2A

Lab Sample ID: 280-165874-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Boron	1.4	B	0.10	0.0015	mg/L	1			6010C	Total Recoverable
Lithium	5.2		0.020	0.0091	mg/L	1			6010C	Total Recoverable
Antimony	0.0018	J	0.0020	0.00040	mg/L	1			6020B	Total Recoverable
Magnesium	8200		2.5	1.1	mg/L	50			6020B	Total Recoverable
Arsenic	0.0012	J	0.0050	0.00033	mg/L	1			6020B	Total Recoverable
Sodium	6200		7.5	3.2	mg/L	50			6020B	Total Recoverable
Barium	0.017		0.0010	0.00029	mg/L	1			6020B	Total Recoverable
Potassium	57		6.0	2.6	mg/L	50			6020B	Total Recoverable
Beryllium	0.00035	J	0.0010	0.000080	mg/L	1			6020B	Total Recoverable
Cadmium	0.0041		0.0010	0.00027	mg/L	1			6020B	Total Recoverable
Chromium	0.0012	J	0.0020	0.00050	mg/L	1			6020B	Total Recoverable
Cobalt	0.013		0.0010	0.000092	mg/L	1			6020B	Total Recoverable
Lead	0.0011		0.0010	0.00018	mg/L	1			6020B	Total Recoverable
Molybdenum	0.0048		0.0020	0.00014	mg/L	1			6020B	Total Recoverable
Selenium	2.9		0.0050	0.00037	mg/L	1			6020B	Total Recoverable
Thallium	0.0046		0.0010	0.000089	mg/L	1			6020B	Total Recoverable
Calcium	460		10	1.9	mg/L	50			6020B	Total Recoverable
pH adj. to 25 deg C	6.7	HF	0.1	0.1	SU	1			9040B	Total/NA
Temperature	19.5	HF	1.0	1.0	Degrees C	1			9040B	Total/NA
Chloride	780		60	20	mg/L	20			9056A	Total/NA
Fluoride	53		10	3.3	mg/L	20			9056A	Total/NA
Sulfate	59000		2500	520	mg/L	500			9056A	Total/NA
Alkalinity	710		10	3.1	mg/L	1			SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	710		10	3.1	mg/L	1			SM 2320B	Total/NA
Total Dissolved Solids (TDS)	66000		1000	470	mg/L	1			SM 2540C	Total/NA
Total Suspended Solids	43		4.0	1.1	mg/L	1			SM 2540D	Total/NA

Client Sample ID: W-2C

Lab Sample ID: 280-165874-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Boron	1.9	B	0.10	0.0015	mg/L	1			6010C	Total Recoverable
Lithium	2.4		0.020	0.0091	mg/L	1			6010C	Total Recoverable
Antimony	0.00052	J	0.0020	0.00040	mg/L	1			6020B	Total Recoverable
Magnesium	3700		2.5	1.1	mg/L	50			6020B	Total Recoverable
Arsenic	0.00093	J	0.0050	0.00033	mg/L	1			6020B	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

Client Sample ID: W-2C (Continued)

Lab Sample ID: 280-165874-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	3500		7.5	3.2	mg/L	50		6020B	Total
									Recoverable
Barium	0.017		0.0010	0.00029	mg/L	1		6020B	Total
									Recoverable
Potassium	30		6.0	2.6	mg/L	50		6020B	Total
									Recoverable
Beryllium	0.00014	J	0.0010	0.000080	mg/L	1		6020B	Total
									Recoverable
Cadmium	0.0030		0.0010	0.00027	mg/L	1		6020B	Total
									Recoverable
Chromium	0.0013	J	0.0020	0.00050	mg/L	1		6020B	Total
									Recoverable
Cobalt	0.0018		0.0010	0.000092	mg/L	1		6020B	Total
									Recoverable
Lead	0.00063	J	0.0010	0.00018	mg/L	1		6020B	Total
									Recoverable
Molybdenum	0.0033		0.0020	0.00014	mg/L	1		6020B	Total
									Recoverable
Selenium	2.3		0.0050	0.00037	mg/L	1		6020B	Total
									Recoverable
Thallium	0.0021		0.0010	0.000089	mg/L	1		6020B	Total
									Recoverable
Calcium	460		10	1.9	mg/L	50		6020B	Total
									Recoverable
pH adj. to 25 deg C	6.9	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	670		30	10	mg/L	10		9056A	Total/NA
Fluoride	34		5.0	1.7	mg/L	10		9056A	Total/NA
Sulfate	25000		1000	210	mg/L	200		9056A	Total/NA
Alkalinity	420		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	420		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	31000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	19		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-3B

Lab Sample ID: 280-165874-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.96	B	0.10	0.0015	mg/L	1		6010C	Total
									Recoverable
Lithium	3.2		0.020	0.0091	mg/L	1		6010C	Total
									Recoverable
Antimony	0.00051	J	0.0020	0.00040	mg/L	1		6020B	Total
									Recoverable
Magnesium	4800		2.5	1.1	mg/L	50		6020B	Total
									Recoverable
Arsenic	0.00082	J	0.0050	0.00033	mg/L	1		6020B	Total
									Recoverable
Sodium	12000		7.5	3.2	mg/L	50		6020B	Total
									Recoverable
Barium	0.016		0.0010	0.00029	mg/L	1		6020B	Total
									Recoverable
Potassium	36		6.0	2.6	mg/L	50		6020B	Total
									Recoverable
Beryllium	0.00026	J	0.0010	0.000080	mg/L	1		6020B	Total
									Recoverable
Cadmium	0.017		0.0010	0.00027	mg/L	1		6020B	Total
									Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

Client Sample ID: W-3B (Continued)

Lab Sample ID: 280-165874-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	0.00085	J	0.0020	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.11		0.0010	0.000092	mg/L	1		6020B	Total Recoverable
Lead	0.00079	J	0.0010	0.00018	mg/L	1		6020B	Total Recoverable
Molybdenum	0.0027		0.0020	0.00014	mg/L	1		6020B	Total Recoverable
Selenium	0.0074		0.0050	0.00037	mg/L	1		6020B	Total Recoverable
Thallium	0.0031		0.0010	0.000089	mg/L	1		6020B	Total Recoverable
Calcium	440		10	1.9	mg/L	50		6020B	Total Recoverable
pH adj. to 25 deg C	6.7	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.5	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1000		60	20	mg/L	20		9056A	Total/NA
Fluoride	100		10	3.3	mg/L	20		9056A	Total/NA
Sulfate	43000		15000	3100	mg/L	3000		9056A	Total/NA
Alkalinity	880		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	880		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	60000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	9.6		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-5B

Lab Sample ID: 280-165874-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.1	B	0.10	0.0015	mg/L	1		6010C	Total Recoverable
Lithium	0.30		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Magnesium	270		2.5	1.1	mg/L	50		6020B	Total Recoverable
Arsenic	0.00036	J	0.0050	0.00033	mg/L	1		6020B	Total Recoverable
Sodium	830		7.5	3.2	mg/L	50		6020B	Total Recoverable
Barium	0.020		0.0010	0.00029	mg/L	1		6020B	Total Recoverable
Potassium	13		6.0	2.6	mg/L	50		6020B	Total Recoverable
Beryllium	0.000094	J	0.0010	0.000080	mg/L	1		6020B	Total Recoverable
Cadmium	0.00088	J	0.0010	0.00027	mg/L	1		6020B	Total Recoverable
Cobalt	0.0027		0.0010	0.000092	mg/L	1		6020B	Total Recoverable
Lead	0.00023	J	0.0010	0.00018	mg/L	1		6020B	Total Recoverable
Molybdenum	0.0041		0.0020	0.00014	mg/L	1		6020B	Total Recoverable
Selenium	0.0012	J	0.0050	0.00037	mg/L	1		6020B	Total Recoverable
Thallium	0.00087	J	0.0010	0.000089	mg/L	1		6020B	Total Recoverable
Calcium	500		10	1.9	mg/L	50		6020B	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

Client Sample ID: W-5B (Continued)

Lab Sample ID: 280-165874-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	19.9	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	110		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	9.0		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	3600		250	52	mg/L	50		9056A	Total/NA
Alkalinity	200		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	200		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	5100		40	19	mg/L	1		SM 2540C	Total/NA

Client Sample ID: W-5B-FD

Lab Sample ID: 280-165874-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.1	B	0.10	0.0015	mg/L	1		6010C	Total Recoverable
Lithium	0.30		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Magnesium	260		2.5	1.1	mg/L	50		6020B	Total Recoverable
Arsenic	0.00034	J	0.0050	0.00033	mg/L	1		6020B	Total Recoverable
Sodium	800		7.5	3.2	mg/L	50		6020B	Total Recoverable
Barium	0.019		0.0010	0.00029	mg/L	1		6020B	Total Recoverable
Potassium	13		6.0	2.6	mg/L	50		6020B	Total Recoverable
Cadmium	0.00091	J	0.0010	0.00027	mg/L	1		6020B	Total Recoverable
Cobalt	0.0028		0.0010	0.000092	mg/L	1		6020B	Total Recoverable
Lead	0.00019	J	0.0010	0.00018	mg/L	1		6020B	Total Recoverable
Molybdenum	0.0036		0.0020	0.00014	mg/L	1		6020B	Total Recoverable
Selenium	0.00049	J	0.0050	0.00037	mg/L	1		6020B	Total Recoverable
Thallium	0.00081	J	0.0010	0.000089	mg/L	1		6020B	Total Recoverable
Calcium	480		10	1.9	mg/L	50		6020B	Total Recoverable
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	19.3	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	110		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	9.0		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	3400		250	52	mg/L	50		9056A	Total/NA
Alkalinity	200		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	200		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	4900		40	19	mg/L	1		SM 2540C	Total/NA

Client Sample ID: W-6B1

Lab Sample ID: 280-165874-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.98	B	0.10	0.0015	mg/L	1		6010C	Total Recoverable
Lithium	3.6		0.020	0.0091	mg/L	1		6010C	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

Client Sample ID: W-6B1 (Continued)

Lab Sample ID: 280-165874-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	0.00099	J	0.0020	0.00040	mg/L	1		6020B	Total
									Recoverable
Magnesium	5100		2.5	1.1	mg/L	50		6020B	Total
									Recoverable
Arsenic	0.0016	J	0.0050	0.00033	mg/L	1		6020B	Total
									Recoverable
Sodium	13000		7.5	3.2	mg/L	50		6020B	Total
									Recoverable
Barium	0.024		0.0010	0.00029	mg/L	1		6020B	Total
									Recoverable
Potassium	46		6.0	2.6	mg/L	50		6020B	Total
									Recoverable
Beryllium	0.00030	J	0.0010	0.000080	mg/L	1		6020B	Total
									Recoverable
Cadmium	0.024		0.0010	0.00027	mg/L	1		6020B	Total
									Recoverable
Chromium	0.0015	J	0.0020	0.00050	mg/L	1		6020B	Total
									Recoverable
Cobalt	0.11		0.0010	0.000092	mg/L	1		6020B	Total
									Recoverable
Lead	0.00066	J	0.0010	0.00018	mg/L	1		6020B	Total
									Recoverable
Molybdenum	0.0077		0.0020	0.00014	mg/L	1		6020B	Total
									Recoverable
Selenium	0.0062		0.0050	0.00037	mg/L	1		6020B	Total
									Recoverable
Thallium	0.0042		0.0010	0.000089	mg/L	1		6020B	Total
									Recoverable
Calcium	410		10	1.9	mg/L	50		6020B	Total
									Recoverable
pH adj. to 25 deg C	6.8	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	19.3	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1100		30	10	mg/L	10		9056A	Total/NA
Fluoride	71		5.0	1.7	mg/L	10		9056A	Total/NA
Sulfate	50000		2500	520	mg/L	500		9056A	Total/NA
Alkalinity	880		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	880		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	55000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	27		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-10B-EB

Lab Sample ID: 280-165874-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.0043	J B	0.10	0.0015	mg/L	1		6010C	Total
									Recoverable
Magnesium	0.075		0.050	0.021	mg/L	1		6020B	Total
									Recoverable
Sodium	0.077	J	0.15	0.065	mg/L	1		6020B	Total
									Recoverable
Barium	0.0011		0.0010	0.00029	mg/L	1		6020B	Total
									Recoverable
Beryllium	0.00010	J	0.0010	0.000080	mg/L	1		6020B	Total
									Recoverable
Chromium	0.00073	J	0.0020	0.00050	mg/L	1		6020B	Total
									Recoverable
Molybdenum	0.00038	J	0.0020	0.00014	mg/L	1		6020B	Total
									Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

Client Sample ID: W-10B-EB (Continued)

Lab Sample ID: 280-165874-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Selenium	0.00055	J	0.0050	0.00037	mg/L	1		6020B	Total
									Recoverable
Calcium	0.55		0.20	0.038	mg/L	1		6020B	Total
									Recoverable
pH adj. to 25 deg C	6.4	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.3	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Sulfate	1.4	J	5.0	1.0	mg/L	1		9056A	Total/NA

Client Sample ID: W-10B

Lab Sample ID: 280-165874-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.0	B	0.10	0.0015	mg/L	1		6010C	Total
									Recoverable
Lithium	6.2		0.020	0.0091	mg/L	1		6010C	Total
									Recoverable
Magnesium	9700		2.5	1.1	mg/L	50		6020B	Total
									Recoverable
Arsenic	0.00067	J	0.0050	0.00033	mg/L	1		6020B	Total
									Recoverable
Sodium	6900		7.5	3.2	mg/L	50		6020B	Total
									Recoverable
Barium	0.022		0.0010	0.00029	mg/L	1		6020B	Total
									Recoverable
Potassium	70		6.0	2.6	mg/L	50		6020B	Total
									Recoverable
Beryllium	0.00029	J	0.0010	0.000080	mg/L	1		6020B	Total
									Recoverable
Cadmium	0.00027	J	0.0010	0.00027	mg/L	1		6020B	Total
									Recoverable
Chromium	0.0025		0.0020	0.00050	mg/L	1		6020B	Total
									Recoverable
Cobalt	0.0022		0.0010	0.000092	mg/L	1		6020B	Total
									Recoverable
Lead	0.00022	J	0.0010	0.00018	mg/L	1		6020B	Total
									Recoverable
Molybdenum	0.0042		0.0020	0.00014	mg/L	1		6020B	Total
									Recoverable
Selenium	5.3		0.25	0.019	mg/L	50		6020B	Total
									Recoverable
Thallium	0.0075		0.0010	0.000089	mg/L	1		6020B	Total
									Recoverable
Calcium	280		0.20	0.038	mg/L	1		6020B	Total
									Recoverable
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.8	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1100		60	20	mg/L	20		9056A	Total/NA
Fluoride	140		10	3.3	mg/L	20		9056A	Total/NA
Sulfate	66000		2500	520	mg/L	500		9056A	Total/NA
Alkalinity	970		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	970		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	80000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	23		4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

Client Sample ID: MW-7

Lab Sample ID: 280-165874-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Boron	0.68	B	0.10	0.0015	mg/L	1			6010C	Total
Lithium	2.1		0.020	0.0091	mg/L	1			6010C	Recoverable Total
Magnesium	960		2.5	1.1	mg/L	50			6020B	Recoverable Total
Sodium	2800		7.5	3.2	mg/L	50			6020B	Recoverable Total
Barium	0.0092		0.0010	0.00029	mg/L	1			6020B	Recoverable Total
Potassium	29		6.0	2.6	mg/L	50			6020B	Recoverable Total
Beryllium	0.00014	J	0.0010	0.000080	mg/L	1			6020B	Recoverable Total
Cadmium	0.00096	J	0.0010	0.00027	mg/L	1			6020B	Recoverable Total
Cobalt	0.0076		0.0010	0.000092	mg/L	1			6020B	Recoverable Total
Molybdenum	0.0042		0.0020	0.00014	mg/L	1			6020B	Recoverable Total
Selenium	0.42		0.0050	0.00037	mg/L	1			6020B	Recoverable Total
Thallium	0.0017		0.0010	0.000089	mg/L	1			6020B	Recoverable Total
Calcium	420		0.20	0.038	mg/L	1			6020B	Recoverable Total
pH adj. to 25 deg C	7.1	HF	0.1	0.1	SU	1			9040B	Total/NA
Temperature	19.9	HF	1.0	1.0	Degrees C	1			9040B	Total/NA
Chloride	300		15	5.1	mg/L	5			9056A	Total/NA
Fluoride	21		2.5	0.83	mg/L	5			9056A	Total/NA
Sulfate	9200		500	100	mg/L	100			9056A	Total/NA
Alkalinity	780		10	3.1	mg/L	1			SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	780		10	3.1	mg/L	1			SM 2320B	Total/NA
Total Dissolved Solids (TDS)	12000		1000	470	mg/L	1			SM 2540C	Total/NA

Client Sample ID: W-14

Lab Sample ID: 280-165874-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Boron	0.59	B	0.10	0.0015	mg/L	1			6010C	Total
Lithium	3.3	F1	0.020	0.0091	mg/L	1			6010C	Recoverable Total
Antimony	0.00046	J	0.0020	0.00040	mg/L	1			6020B	Recoverable Total
Magnesium	1500		2.5	1.1	mg/L	50			6020B	Recoverable Total
Arsenic	0.00044	J	0.0050	0.00033	mg/L	1			6020B	Recoverable Total
Sodium	5300		7.5	3.2	mg/L	50			6020B	Recoverable Total
Barium	0.017		0.0010	0.00029	mg/L	1			6020B	Recoverable Total
Potassium	37		6.0	2.6	mg/L	50			6020B	Recoverable Total
Beryllium	0.00013	J	0.0010	0.000080	mg/L	1			6020B	Recoverable Total

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

Client Sample ID: W-14 (Continued)

Lab Sample ID: 280-165874-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cadmium	0.0015		0.0010	0.00027	mg/L	1		6020B	Total
									Recoverable
Chromium	0.0014	J	0.0020	0.00050	mg/L	1		6020B	Total
									Recoverable
Cobalt	0.012		0.0010	0.000092	mg/L	1		6020B	Total
									Recoverable
Molybdenum	0.017		0.0020	0.00014	mg/L	1		6020B	Total
									Recoverable
Selenium	1.3		0.0050	0.00037	mg/L	1		6020B	Total
									Recoverable
Thallium	0.0024		0.0010	0.000089	mg/L	1		6020B	Total
									Recoverable
Calcium	420		0.20	0.038	mg/L	1		6020B	Total
									Recoverable
pH adj. to 25 deg C	7.3	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	19.9	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	630		15	5.1	mg/L	5		9056A	Total/NA
Fluoride	38		2.5	0.83	mg/L	5		9056A	Total/NA
Sulfate	19000		500	100	mg/L	100		9056A	Total/NA
Alkalinity	1100		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	1100		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	24000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	2.8	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Method Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	EET DEN
6020B	Metals (ICP/MS)	SW846	EET DEN
7470A	Mercury (CVAA)	SW846	EET DEN
9040B	pH	SW846	EET DEN
9056A	Anions, Ion Chromatography	SW846	EET DEN
SM 2320B	Alkalinity	SM	EET DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET DEN
SM 2540D	Solids, Total Suspended (TSS)	SM	EET DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET DEN
7470A	Preparation, Mercury	SW846	EET DEN

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

Sample Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-165874-1	W-2A	Water	08/22/22 15:30	08/25/22 14:13
280-165874-2	W-2C	Water	08/23/22 10:45	08/25/22 14:13
280-165874-3	W-3B	Water	08/23/22 12:15	08/25/22 14:13
280-165874-4	W-5B	Water	08/23/22 14:10	08/25/22 14:13
280-165874-5	W-5B-FD	Water	08/23/22 14:30	08/25/22 14:13
280-165874-6	W-6B1	Water	08/23/22 17:50	08/25/22 14:13
280-165874-7	W-10B-EB	Water	08/24/22 09:30	08/25/22 14:13
280-165874-8	W-10B	Water	08/24/22 10:00	08/25/22 14:13
280-165874-9	MW-7	Water	08/24/22 13:05	08/25/22 14:13
280-165874-10	W-14	Water	08/24/22 15:00	08/25/22 14:13

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

Method: 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: W-2A
Date Collected: 08/22/22 15:30
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.4	B	0.10	0.0015	mg/L		08/28/22 23:40	08/29/22 19:55	1
Lithium	5.2		0.020	0.0091	mg/L		08/28/22 23:40	08/30/22 16:07	1

Client Sample ID: W-2C
Date Collected: 08/23/22 10:45
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.9	B	0.10	0.0015	mg/L		08/28/22 23:40	08/29/22 20:17	1
Lithium	2.4		0.020	0.0091	mg/L		08/28/22 23:40	08/30/22 16:11	1

Client Sample ID: W-3B
Date Collected: 08/23/22 12:15
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.96	B	0.10	0.0015	mg/L		08/28/22 23:40	08/29/22 20:21	1
Lithium	3.2		0.020	0.0091	mg/L		08/28/22 23:40	08/30/22 16:15	1

Client Sample ID: W-5B
Date Collected: 08/23/22 14:10
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.1	B	0.10	0.0015	mg/L		08/28/22 23:40	08/29/22 20:26	1
Lithium	0.30		0.020	0.0091	mg/L		08/28/22 23:40	08/30/22 16:19	1

Client Sample ID: W-5B-FD
Date Collected: 08/23/22 14:30
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.1	B	0.10	0.0015	mg/L		08/28/22 23:40	08/29/22 20:30	1
Lithium	0.30		0.020	0.0091	mg/L		08/28/22 23:40	08/30/22 16:23	1

Client Sample ID: W-6B1
Date Collected: 08/23/22 17:50
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.98	B	0.10	0.0015	mg/L		08/28/22 23:40	08/29/22 20:34	1
Lithium	3.6		0.020	0.0091	mg/L		08/28/22 23:40	08/30/22 16:27	1

Client Sample ID: W-10B-EB
Date Collected: 08/24/22 09:30
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.0043	J B	0.10	0.0015	mg/L		08/28/22 23:40	08/29/22 20:39	1
Lithium	ND		0.020	0.0091	mg/L		08/28/22 23:40	08/30/22 16:32	1

Client Sample ID: W-10B
Date Collected: 08/24/22 10:00
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.0	B	0.10	0.0015	mg/L		08/28/22 23:40	08/29/22 20:43	1
Lithium	6.2		0.020	0.0091	mg/L		08/28/22 23:40	08/30/22 16:36	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

Method: 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: MW-7
Date Collected: 08/24/22 13:05
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.68	B	0.10	0.0015	mg/L		08/28/22 23:40	08/29/22 20:47	1
Lithium	2.1		0.020	0.0091	mg/L		08/28/22 23:40	08/30/22 16:56	1

Client Sample ID: W-14
Date Collected: 08/24/22 15:00
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.59	B	0.10	0.0015	mg/L		08/28/22 23:40	08/29/22 20:52	1
Lithium	3.3	F1	0.020	0.0091	mg/L		08/28/22 23:40	08/30/22 17:00	1

Method: 6020B - Metals (ICP/MS) - Total Recoverable

Client Sample ID: W-2A
Date Collected: 08/22/22 15:30
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0018	J	0.0020	0.00040	mg/L		08/28/22 14:43	08/29/22 20:18	1
Magnesium	8200		2.5	1.1	mg/L		08/28/22 14:43	09/01/22 20:55	50
Arsenic	0.0012	J	0.0050	0.00033	mg/L		08/28/22 14:43	08/29/22 20:18	1
Sodium	6200		7.5	3.2	mg/L		08/28/22 14:43	09/06/22 17:54	50
Barium	0.017		0.0010	0.00029	mg/L		08/28/22 14:43	08/29/22 20:18	1
Potassium	57		6.0	2.6	mg/L		08/28/22 14:43	09/01/22 20:55	50
Beryllium	0.00035	J	0.0010	0.000080	mg/L		08/28/22 14:43	08/29/22 20:18	1
Cadmium	0.0041		0.0010	0.00027	mg/L		08/28/22 14:43	08/29/22 20:18	1
Chromium	0.0012	J	0.0020	0.00050	mg/L		08/28/22 14:43	08/29/22 20:18	1
Cobalt	0.013		0.0010	0.000092	mg/L		08/28/22 14:43	08/29/22 20:18	1
Lead	0.0011		0.0010	0.00018	mg/L		08/28/22 14:43	08/29/22 20:18	1
Molybdenum	0.0048		0.0020	0.00014	mg/L		08/28/22 14:43	08/29/22 20:18	1
Selenium	2.9		0.0050	0.00037	mg/L		08/28/22 14:43	08/29/22 20:18	1
Thallium	0.0046		0.0010	0.000089	mg/L		08/28/22 14:43	08/29/22 20:18	1
Calcium	460		10	1.9	mg/L		08/28/22 14:43	09/01/22 20:55	50

Client Sample ID: W-2C
Date Collected: 08/23/22 10:45
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00052	J	0.0020	0.00040	mg/L		08/28/22 14:43	08/29/22 20:22	1
Magnesium	3700		2.5	1.1	mg/L		08/28/22 14:43	09/01/22 20:59	50
Arsenic	0.00093	J	0.0050	0.00033	mg/L		08/28/22 14:43	08/29/22 20:22	1
Sodium	3500		7.5	3.2	mg/L		08/28/22 14:43	09/06/22 17:58	50
Barium	0.017		0.0010	0.00029	mg/L		08/28/22 14:43	08/29/22 20:22	1
Potassium	30		6.0	2.6	mg/L		08/28/22 14:43	09/01/22 20:59	50
Beryllium	0.00014	J	0.0010	0.000080	mg/L		08/28/22 14:43	08/29/22 20:22	1
Cadmium	0.0030		0.0010	0.00027	mg/L		08/28/22 14:43	08/29/22 20:22	1
Chromium	0.0013	J	0.0020	0.00050	mg/L		08/28/22 14:43	08/29/22 20:22	1
Cobalt	0.0018		0.0010	0.000092	mg/L		08/28/22 14:43	08/29/22 20:22	1
Lead	0.00063	J	0.0010	0.00018	mg/L		08/28/22 14:43	08/29/22 20:22	1
Molybdenum	0.0033		0.0020	0.00014	mg/L		08/28/22 14:43	08/29/22 20:22	1
Selenium	2.3		0.0050	0.00037	mg/L		08/28/22 14:43	08/29/22 20:22	1
Thallium	0.0021		0.0010	0.000089	mg/L		08/28/22 14:43	08/29/22 20:22	1

Eurofins Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

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

Client Sample ID: W-2C
Date Collected: 08/23/22 10:45
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	460		10	1.9	mg/L		08/28/22 14:43	09/06/22 17:58	50

Client Sample ID: W-3B
Date Collected: 08/23/22 12:15
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00051	J	0.0020	0.00040	mg/L		08/28/22 14:43	08/29/22 20:33	1
Magnesium	4800		2.5	1.1	mg/L		08/28/22 14:43	09/01/22 21:03	50
Arsenic	0.00082	J	0.0050	0.00033	mg/L		08/28/22 14:43	08/29/22 20:33	1
Sodium	12000		7.5	3.2	mg/L		08/28/22 14:43	09/06/22 18:02	50
Barium	0.016		0.0010	0.00029	mg/L		08/28/22 14:43	08/29/22 20:33	1
Potassium	36		6.0	2.6	mg/L		08/28/22 14:43	09/01/22 21:03	50
Beryllium	0.00026	J	0.0010	0.000080	mg/L		08/28/22 14:43	08/29/22 20:33	1
Cadmium	0.017		0.0010	0.00027	mg/L		08/28/22 14:43	08/29/22 20:33	1
Chromium	0.00085	J	0.0020	0.00050	mg/L		08/28/22 14:43	08/29/22 20:33	1
Cobalt	0.11		0.0010	0.000092	mg/L		08/28/22 14:43	08/29/22 20:33	1
Lead	0.00079	J	0.0010	0.00018	mg/L		08/28/22 14:43	08/29/22 20:33	1
Molybdenum	0.0027		0.0020	0.00014	mg/L		08/28/22 14:43	08/29/22 20:33	1
Selenium	0.0074		0.0050	0.00037	mg/L		08/28/22 14:43	08/29/22 20:33	1
Thallium	0.0031		0.0010	0.000089	mg/L		08/28/22 14:43	08/29/22 20:33	1
Calcium	440		10	1.9	mg/L		08/28/22 14:43	09/01/22 21:03	50

Client Sample ID: W-5B
Date Collected: 08/23/22 14:10
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		08/28/22 14:43	08/29/22 20:37	1
Magnesium	270		2.5	1.1	mg/L		08/28/22 14:43	09/01/22 21:07	50
Arsenic	0.00036	J	0.0050	0.00033	mg/L		08/28/22 14:43	08/29/22 20:37	1
Sodium	830		7.5	3.2	mg/L		08/28/22 14:43	09/06/22 18:05	50
Barium	0.020		0.0010	0.00029	mg/L		08/28/22 14:43	08/29/22 20:37	1
Potassium	13		6.0	2.6	mg/L		08/28/22 14:43	09/01/22 21:07	50
Beryllium	0.000094	J	0.0010	0.000080	mg/L		08/28/22 14:43	08/29/22 20:37	1
Cadmium	0.00088	J	0.0010	0.00027	mg/L		08/28/22 14:43	08/29/22 20:37	1
Chromium	ND		0.0020	0.00050	mg/L		08/28/22 14:43	08/29/22 20:37	1
Cobalt	0.0027		0.0010	0.000092	mg/L		08/28/22 14:43	08/29/22 20:37	1
Lead	0.00023	J	0.0010	0.00018	mg/L		08/28/22 14:43	08/29/22 20:37	1
Molybdenum	0.0041		0.0020	0.00014	mg/L		08/28/22 14:43	08/29/22 20:37	1
Selenium	0.0012	J	0.0050	0.00037	mg/L		08/28/22 14:43	08/29/22 20:37	1
Thallium	0.00087	J	0.0010	0.000089	mg/L		08/28/22 14:43	08/29/22 20:37	1
Calcium	500		10	1.9	mg/L		08/28/22 14:43	09/01/22 21:07	50

Client Sample ID: W-5B-FD
Date Collected: 08/23/22 14:30
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		08/28/22 14:43	08/29/22 20:40	1
Magnesium	260		2.5	1.1	mg/L		08/28/22 14:43	09/01/22 21:10	50
Arsenic	0.00034	J	0.0050	0.00033	mg/L		08/28/22 14:43	08/29/22 20:40	1
Sodium	800		7.5	3.2	mg/L		08/28/22 14:43	09/06/22 18:09	50

Eurofins Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

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

Client Sample ID: W-5B-FD
Date Collected: 08/23/22 14:30
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.019		0.0010	0.00029	mg/L		08/28/22 14:43	08/29/22 20:40	1
Potassium	13		6.0	2.6	mg/L		08/28/22 14:43	09/01/22 21:10	50
Beryllium	ND		0.0010	0.000080	mg/L		08/28/22 14:43	08/29/22 20:40	1
Cadmium	0.00091	J	0.0010	0.00027	mg/L		08/28/22 14:43	08/29/22 20:40	1
Chromium	ND		0.0020	0.00050	mg/L		08/28/22 14:43	08/29/22 20:40	1
Cobalt	0.0028		0.0010	0.000092	mg/L		08/28/22 14:43	08/29/22 20:40	1
Lead	0.00019	J	0.0010	0.00018	mg/L		08/28/22 14:43	08/29/22 20:40	1
Molybdenum	0.0036		0.0020	0.00014	mg/L		08/28/22 14:43	08/29/22 20:40	1
Selenium	0.00049	J	0.0050	0.00037	mg/L		08/28/22 14:43	08/29/22 20:40	1
Thallium	0.00081	J	0.0010	0.000089	mg/L		08/28/22 14:43	08/29/22 20:40	1
Calcium	480		10	1.9	mg/L		08/28/22 14:43	09/01/22 21:10	50

Client Sample ID: W-6B1
Date Collected: 08/23/22 17:50
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00099	J	0.0020	0.00040	mg/L		08/28/22 14:43	08/29/22 20:44	1
Magnesium	5100		2.5	1.1	mg/L		08/28/22 14:43	09/01/22 21:14	50
Arsenic	0.0016	J	0.0050	0.00033	mg/L		08/28/22 14:43	08/29/22 20:44	1
Sodium	13000		7.5	3.2	mg/L		08/28/22 14:43	09/06/22 18:13	50
Barium	0.024		0.0010	0.00029	mg/L		08/28/22 14:43	08/29/22 20:44	1
Potassium	46		6.0	2.6	mg/L		08/28/22 14:43	09/01/22 21:14	50
Beryllium	0.00030	J	0.0010	0.000080	mg/L		08/28/22 14:43	08/29/22 20:44	1
Cadmium	0.024		0.0010	0.00027	mg/L		08/28/22 14:43	08/29/22 20:44	1
Chromium	0.0015	J	0.0020	0.00050	mg/L		08/28/22 14:43	08/29/22 20:44	1
Cobalt	0.11		0.0010	0.000092	mg/L		08/28/22 14:43	08/29/22 20:44	1
Lead	0.00066	J	0.0010	0.00018	mg/L		08/28/22 14:43	08/29/22 20:44	1
Molybdenum	0.0077		0.0020	0.00014	mg/L		08/28/22 14:43	08/29/22 20:44	1
Selenium	0.0062		0.0050	0.00037	mg/L		08/28/22 14:43	08/29/22 20:44	1
Thallium	0.0042		0.0010	0.000089	mg/L		08/28/22 14:43	08/29/22 20:44	1
Calcium	410		10	1.9	mg/L		08/28/22 14:43	09/01/22 21:14	50

Client Sample ID: W-10B-EB
Date Collected: 08/24/22 09:30
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		08/28/22 14:43	08/29/22 20:48	1
Magnesium	0.075		0.050	0.021	mg/L		08/28/22 14:43	09/07/22 13:21	1
Arsenic	ND		0.0050	0.00033	mg/L		08/28/22 14:43	08/29/22 20:48	1
Sodium	0.077	J	0.15	0.065	mg/L		08/28/22 14:43	09/07/22 13:21	1
Barium	0.0011		0.0010	0.00029	mg/L		08/28/22 14:43	08/29/22 20:48	1
Potassium	ND		0.12	0.052	mg/L		08/28/22 14:43	09/07/22 13:21	1
Beryllium	0.00010	J	0.0010	0.000080	mg/L		08/28/22 14:43	08/29/22 20:48	1
Cadmium	ND		0.0010	0.00027	mg/L		08/28/22 14:43	08/29/22 20:48	1
Chromium	0.00073	J	0.0020	0.00050	mg/L		08/28/22 14:43	08/29/22 20:48	1
Cobalt	ND		0.0010	0.000092	mg/L		08/28/22 14:43	08/29/22 20:48	1
Lead	ND		0.0010	0.00018	mg/L		08/28/22 14:43	08/29/22 20:48	1
Molybdenum	0.00038	J	0.0020	0.00014	mg/L		08/28/22 14:43	08/29/22 20:48	1
Selenium	0.00055	J	0.0050	0.00037	mg/L		08/28/22 14:43	08/29/22 20:48	1
Thallium	ND		0.0010	0.000089	mg/L		08/28/22 14:43	08/29/22 20:48	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

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

Client Sample ID: W-10B-EB
Date Collected: 08/24/22 09:30
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	0.55		0.20	0.038	mg/L		08/28/22 14:43	08/29/22 20:48	1

Client Sample ID: W-10B
Date Collected: 08/24/22 10:00
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		08/28/22 14:43	08/29/22 20:52	1
Magnesium	9700		2.5	1.1	mg/L		08/28/22 14:43	09/01/22 21:22	50
Arsenic	0.00067	J	0.0050	0.00033	mg/L		08/28/22 14:43	08/29/22 20:52	1
Sodium	6900		7.5	3.2	mg/L		08/28/22 14:43	09/06/22 18:28	50
Barium	0.022		0.0010	0.00029	mg/L		08/28/22 14:43	08/29/22 20:52	1
Potassium	70		6.0	2.6	mg/L		08/28/22 14:43	09/01/22 21:22	50
Beryllium	0.00029	J	0.0010	0.000080	mg/L		08/28/22 14:43	08/29/22 20:52	1
Cadmium	0.00027	J	0.0010	0.00027	mg/L		08/28/22 14:43	08/29/22 20:52	1
Chromium	0.0025		0.0020	0.00050	mg/L		08/28/22 14:43	08/29/22 20:52	1
Cobalt	0.0022		0.0010	0.000092	mg/L		08/28/22 14:43	08/29/22 20:52	1
Lead	0.00022	J	0.0010	0.00018	mg/L		08/28/22 14:43	08/29/22 20:52	1
Molybdenum	0.0042		0.0020	0.00014	mg/L		08/28/22 14:43	08/29/22 20:52	1
Selenium	5.3		0.25	0.019	mg/L		08/28/22 14:43	09/01/22 21:22	50
Thallium	0.0075		0.0010	0.000089	mg/L		08/28/22 14:43	08/29/22 20:52	1
Calcium	280		0.20	0.038	mg/L		08/28/22 14:43	08/29/22 20:52	1

Client Sample ID: MW-7
Date Collected: 08/24/22 13:05
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		08/28/22 14:43	08/29/22 20:56	1
Magnesium	960		2.5	1.1	mg/L		08/28/22 14:43	09/01/22 21:25	50
Arsenic	ND		0.0050	0.00033	mg/L		08/28/22 14:43	08/29/22 20:56	1
Sodium	2800		7.5	3.2	mg/L		08/28/22 14:43	09/06/22 18:32	50
Barium	0.0092		0.0010	0.00029	mg/L		08/28/22 14:43	08/29/22 20:56	1
Potassium	29		6.0	2.6	mg/L		08/28/22 14:43	09/01/22 21:25	50
Beryllium	0.00014	J	0.0010	0.000080	mg/L		08/28/22 14:43	08/29/22 20:56	1
Cadmium	0.00096	J	0.0010	0.00027	mg/L		08/28/22 14:43	08/29/22 20:56	1
Chromium	ND		0.0020	0.00050	mg/L		08/28/22 14:43	08/29/22 20:56	1
Cobalt	0.0076		0.0010	0.000092	mg/L		08/28/22 14:43	08/29/22 20:56	1
Lead	ND		0.0010	0.00018	mg/L		08/28/22 14:43	08/29/22 20:56	1
Molybdenum	0.0042		0.0020	0.00014	mg/L		08/28/22 14:43	08/29/22 20:56	1
Selenium	0.42		0.0050	0.00037	mg/L		08/28/22 14:43	08/29/22 20:56	1
Thallium	0.0017		0.0010	0.000089	mg/L		08/28/22 14:43	08/29/22 20:56	1
Calcium	420		0.20	0.038	mg/L		08/28/22 14:43	08/29/22 20:56	1

Client Sample ID: W-14
Date Collected: 08/24/22 15:00
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00046	J	0.0020	0.00040	mg/L		08/28/22 14:43	08/29/22 20:59	1
Magnesium	1500		2.5	1.1	mg/L		08/28/22 14:43	09/01/22 21:29	50
Arsenic	0.00044	J	0.0050	0.00033	mg/L		08/28/22 14:43	08/29/22 20:59	1
Sodium	5300		7.5	3.2	mg/L		08/28/22 14:43	09/06/22 18:35	50

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

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

Client Sample ID: W-14
Date Collected: 08/24/22 15:00
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.017		0.0010	0.00029	mg/L		08/28/22 14:43	08/29/22 20:59	1
Potassium	37		6.0	2.6	mg/L		08/28/22 14:43	09/01/22 21:29	50
Beryllium	0.00013	J	0.0010	0.000080	mg/L		08/28/22 14:43	08/29/22 20:59	1
Cadmium	0.0015		0.0010	0.00027	mg/L		08/28/22 14:43	08/29/22 20:59	1
Chromium	0.0014	J	0.0020	0.00050	mg/L		08/28/22 14:43	08/29/22 20:59	1
Cobalt	0.012		0.0010	0.000092	mg/L		08/28/22 14:43	08/29/22 20:59	1
Lead	ND		0.0010	0.00018	mg/L		08/28/22 14:43	08/29/22 20:59	1
Molybdenum	0.017		0.0020	0.00014	mg/L		08/28/22 14:43	08/29/22 20:59	1
Selenium	1.3		0.0050	0.00037	mg/L		08/28/22 14:43	08/29/22 20:59	1
Thallium	0.0024		0.0010	0.000089	mg/L		08/28/22 14:43	08/29/22 20:59	1
Calcium	420		0.20	0.038	mg/L		08/28/22 14:43	08/29/22 20:59	1

Method: 7470A - Mercury (CVAA)

Client Sample ID: W-2A
Date Collected: 08/22/22 15:30
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		08/29/22 10:29	08/29/22 18:01	1

Client Sample ID: W-2C
Date Collected: 08/23/22 10:45
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		08/29/22 10:29	08/29/22 18:08	1

Client Sample ID: W-3B
Date Collected: 08/23/22 12:15
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		08/29/22 10:29	08/29/22 18:11	1

Client Sample ID: W-5B
Date Collected: 08/23/22 14:10
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		08/29/22 10:29	08/29/22 18:13	1

Client Sample ID: W-5B-FD
Date Collected: 08/23/22 14:30
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		08/29/22 10:29	08/30/22 07:33	1

Client Sample ID: W-6B1
Date Collected: 08/23/22 17:50
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		08/29/22 10:29	08/30/22 07:35	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

Method: 7470A - Mercury (CVAA)

Client Sample ID: W-10B-EB
Date Collected: 08/24/22 09:30
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		08/29/22 10:29	08/29/22 18:26	1

Client Sample ID: W-10B
Date Collected: 08/24/22 10:00
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		08/29/22 10:29	08/29/22 18:29	1

Client Sample ID: MW-7
Date Collected: 08/24/22 13:05
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		08/29/22 10:29	08/29/22 18:31	1

Client Sample ID: W-14
Date Collected: 08/24/22 15:00
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		08/29/22 10:29	08/29/22 18:34	1

General Chemistry

Client Sample ID: W-2A
Date Collected: 08/22/22 15:30
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	6.7	HF	0.1	0.1	SU			08/29/22 14:17	1
Temperature	19.5	HF	1.0	1.0	Degrees C			08/29/22 14:17	1
Chloride	780		60	20	mg/L			08/30/22 16:30	20
Fluoride	53		10	3.3	mg/L			08/30/22 16:30	20
Sulfate	59000		2500	520	mg/L			08/31/22 18:26	500
Alkalinity	710		10	3.1	mg/L			08/29/22 23:05	1
Bicarbonate Alkalinity as CaCO3	710		10	3.1	mg/L			08/29/22 23:05	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			08/29/22 23:05	1
Total Dissolved Solids (TDS)	66000		1000	470	mg/L			08/26/22 10:35	1
Total Suspended Solids	43		4.0	1.1	mg/L			08/26/22 10:54	1

Client Sample ID: W-2C
Date Collected: 08/23/22 10:45
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	6.9	HF	0.1	0.1	SU			08/29/22 14:21	1
Temperature	20.6	HF	1.0	1.0	Degrees C			08/29/22 14:21	1
Chloride	670		30	10	mg/L			08/30/22 17:02	10
Fluoride	34		5.0	1.7	mg/L			08/30/22 17:02	10
Sulfate	25000		1000	210	mg/L			08/31/22 18:42	200
Alkalinity	420		10	3.1	mg/L			08/26/22 20:51	1
Bicarbonate Alkalinity as CaCO3	420		10	3.1	mg/L			08/26/22 20:51	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			08/26/22 20:51	1
Total Dissolved Solids (TDS)	31000		1000	470	mg/L			08/26/22 10:35	1
Total Suspended Solids	19		4.0	1.1	mg/L			08/26/22 10:54	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

General Chemistry

Client Sample ID: W-3B
Date Collected: 08/23/22 12:15
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	6.7	HF	0.1	0.1	SU			08/29/22 14:24	1
Temperature	20.5	HF	1.0	1.0	Degrees C			08/29/22 14:24	1
Chloride	1000		60	20	mg/L			08/30/22 17:34	20
Fluoride	100		10	3.3	mg/L			08/30/22 17:34	20
Sulfate	43000		15000	3100	mg/L			09/02/22 03:44	3000
Alkalinity	880		10	3.1	mg/L			08/26/22 21:03	1
Bicarbonate Alkalinity as CaCO3	880		10	3.1	mg/L			08/26/22 21:03	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			08/26/22 21:03	1
Total Dissolved Solids (TDS)	60000		1000	470	mg/L			08/26/22 10:35	1
Total Suspended Solids	9.6		4.0	1.1	mg/L			08/26/22 10:54	1

Client Sample ID: W-5B
Date Collected: 08/23/22 14:10
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU			08/29/22 14:28	1
Temperature	19.9	HF	1.0	1.0	Degrees C			08/29/22 14:28	1
Chloride	110		3.0	1.0	mg/L			08/30/22 17:49	1
Fluoride	9.0		0.50	0.17	mg/L			08/30/22 17:49	1
Sulfate	3600		250	52	mg/L			08/31/22 20:49	50
Alkalinity	200		10	3.1	mg/L			08/26/22 21:10	1
Bicarbonate Alkalinity as CaCO3	200		10	3.1	mg/L			08/26/22 21:10	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			08/26/22 21:10	1
Total Dissolved Solids (TDS)	5100		40	19	mg/L			08/26/22 10:35	1
Total Suspended Solids	ND		4.0	1.1	mg/L			08/26/22 10:54	1

Client Sample ID: W-5B-FD
Date Collected: 08/23/22 14:30
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU			08/29/22 14:38	1
Temperature	19.3	HF	1.0	1.0	Degrees C			08/29/22 14:38	1
Chloride	110		3.0	1.0	mg/L			08/30/22 18:21	1
Fluoride	9.0		0.50	0.17	mg/L			08/30/22 18:21	1
Sulfate	3400		250	52	mg/L			08/31/22 21:05	50
Alkalinity	200		10	3.1	mg/L			08/26/22 21:16	1
Bicarbonate Alkalinity as CaCO3	200		10	3.1	mg/L			08/26/22 21:16	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			08/26/22 21:16	1
Total Dissolved Solids (TDS)	4900		40	19	mg/L			08/26/22 10:35	1
Total Suspended Solids	ND		4.0	1.1	mg/L			08/26/22 10:54	1

Client Sample ID: W-6B1
Date Collected: 08/23/22 17:50
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	6.8	HF	0.1	0.1	SU			08/29/22 14:45	1
Temperature	19.3	HF	1.0	1.0	Degrees C			08/29/22 14:45	1
Chloride	1100		30	10	mg/L			08/31/22 21:21	10
Fluoride	71		5.0	1.7	mg/L			08/31/22 21:21	10
Sulfate	50000		2500	520	mg/L			08/30/22 19:40	500

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

General Chemistry (Continued)

Client Sample ID: W-6B1
Date Collected: 08/23/22 17:50
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	880		10	3.1	mg/L			08/26/22 21:28	1
Bicarbonate Alkalinity as CaCO3	880		10	3.1	mg/L			08/26/22 21:28	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			08/26/22 21:28	1
Total Dissolved Solids (TDS)	55000		1000	470	mg/L			08/26/22 10:35	1
Total Suspended Solids	27		4.0	1.1	mg/L			08/26/22 10:54	1

Client Sample ID: W-10B-EB
Date Collected: 08/24/22 09:30
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	6.4	HF	0.1	0.1	SU			09/08/22 13:01	1
Temperature	20.3	HF	1.0	1.0	Degrees C			09/08/22 13:01	1
Chloride	ND		3.0	1.0	mg/L			08/30/22 19:56	1
Fluoride	ND		0.50	0.17	mg/L			08/30/22 19:56	1
Sulfate	1.4	J	5.0	1.0	mg/L			08/30/22 19:56	1
Alkalinity	ND		10	3.1	mg/L			08/26/22 21:34	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			08/26/22 21:34	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			08/26/22 21:34	1
Total Dissolved Solids (TDS)	ND		10	4.7	mg/L			08/26/22 10:35	1
Total Suspended Solids	ND		4.0	1.1	mg/L			08/26/22 10:54	1

Client Sample ID: W-10B
Date Collected: 08/24/22 10:00
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU			08/29/22 14:56	1
Temperature	20.8	HF	1.0	1.0	Degrees C			08/29/22 14:56	1
Chloride	1100		60	20	mg/L			08/30/22 21:15	20
Fluoride	140		10	3.3	mg/L			08/30/22 21:15	20
Sulfate	66000		2500	520	mg/L			08/31/22 21:37	500
Alkalinity	970		10	3.1	mg/L			08/26/22 21:46	1
Bicarbonate Alkalinity as CaCO3	970		10	3.1	mg/L			08/26/22 21:46	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			08/26/22 21:46	1
Total Dissolved Solids (TDS)	80000		1000	470	mg/L			08/29/22 10:41	1
Total Suspended Solids	23		4.0	1.1	mg/L			08/26/22 10:54	1

Client Sample ID: MW-7
Date Collected: 08/24/22 13:05
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.1	HF	0.1	0.1	SU			08/29/22 14:59	1
Temperature	19.9	HF	1.0	1.0	Degrees C			08/29/22 14:59	1
Chloride	300		15	5.1	mg/L			08/30/22 21:47	5
Fluoride	21		2.5	0.83	mg/L			08/30/22 21:47	5
Sulfate	9200		500	100	mg/L			08/31/22 21:52	100
Alkalinity	780		10	3.1	mg/L			08/26/22 21:57	1
Bicarbonate Alkalinity as CaCO3	780		10	3.1	mg/L			08/26/22 21:57	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			08/26/22 21:57	1
Total Dissolved Solids (TDS)	12000		1000	470	mg/L			08/26/22 10:35	1
Total Suspended Solids	ND		4.0	1.1	mg/L			08/26/22 10:54	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

General Chemistry

Client Sample ID: W-14
Date Collected: 08/24/22 15:00
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-10
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.3	HF	0.1	0.1	SU			08/29/22 15:03	1
Temperature	19.9	HF	1.0	1.0	Degrees C			08/29/22 15:03	1
Chloride	630		15	5.1	mg/L			08/30/22 22:50	5
Fluoride	38		2.5	0.83	mg/L			08/30/22 22:50	5
Sulfate	19000		500	100	mg/L			08/31/22 22:08	100
Alkalinity	1100		10	3.1	mg/L			08/26/22 22:10	1
Bicarbonate Alkalinity as CaCO3	1100		10	3.1	mg/L			08/26/22 22:10	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			08/26/22 22:10	1
Total Dissolved Solids (TDS)	24000		1000	470	mg/L			08/29/22 10:41	1
Total Suspended Solids	2.8	J	4.0	1.1	mg/L			08/26/22 10:54	1

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-585210/1-A
Matrix: Water
Analysis Batch: 585436

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 585210

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.00650	J	0.10	0.0015	mg/L		08/28/22 23:40	08/29/22 19:46	1

Lab Sample ID: MB 280-585210/1-A
Matrix: Water
Analysis Batch: 585587

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 585210

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.020	0.0091	mg/L		08/28/22 23:40	08/30/22 15:59	1

Lab Sample ID: LCS 280-585210/2-A
Matrix: Water
Analysis Batch: 585436

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 585210

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	1.91		mg/L		95	86 - 110

Lab Sample ID: LCS 280-585210/2-A
Matrix: Water
Analysis Batch: 585587

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 585210

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Lithium	1.00	0.964		mg/L		96	90 - 112

Lab Sample ID: 280-165874-10 MS
Matrix: Water
Analysis Batch: 585436

Client Sample ID: W-14
Prep Type: Total Recoverable
Prep Batch: 585210

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	0.819		2.00	2.64		mg/L		91	87 - 113

Lab Sample ID: 280-165874-10 MS
Matrix: Water
Analysis Batch: 585587

Client Sample ID: W-14
Prep Type: Total Recoverable
Prep Batch: 585210

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Lithium	3.3	F1	1.00	4.42	F1	mg/L		115	89 - 114

Lab Sample ID: 280-165874-10 MSD
Matrix: Water
Analysis Batch: 585436

Client Sample ID: W-14
Prep Type: Total Recoverable
Prep Batch: 585210

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	0.819		2.00	2.63		mg/L		91	87 - 113	0	20

Lab Sample ID: 280-165874-10 MSD
Matrix: Water
Analysis Batch: 585587

Client Sample ID: W-14
Prep Type: Total Recoverable
Prep Batch: 585210

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Lithium	3.3	F1	1.00	4.37		mg/L		110	89 - 114	1	20

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-585201/1-A

Matrix: Water

Analysis Batch: 585452

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 585201

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		08/28/22 14:43	08/29/22 19:51	1
Arsenic	ND		0.0050	0.00033	mg/L		08/28/22 14:43	08/29/22 19:51	1
Barium	ND		0.0010	0.00029	mg/L		08/28/22 14:43	08/29/22 19:51	1
Beryllium	ND		0.0010	0.000080	mg/L		08/28/22 14:43	08/29/22 19:51	1
Cadmium	ND		0.0010	0.00027	mg/L		08/28/22 14:43	08/29/22 19:51	1
Chromium	ND		0.0020	0.00050	mg/L		08/28/22 14:43	08/29/22 19:51	1
Cobalt	ND		0.0010	0.000092	mg/L		08/28/22 14:43	08/29/22 19:51	1
Lead	ND		0.0010	0.00018	mg/L		08/28/22 14:43	08/29/22 19:51	1
Molybdenum	ND		0.0020	0.00014	mg/L		08/28/22 14:43	08/29/22 19:51	1
Selenium	ND		0.0050	0.00037	mg/L		08/28/22 14:43	08/29/22 19:51	1
Thallium	ND		0.0010	0.000089	mg/L		08/28/22 14:43	08/29/22 19:51	1
Calcium	ND		0.20	0.038	mg/L		08/28/22 14:43	08/29/22 19:51	1

Lab Sample ID: LCS 280-585201/2-A

Matrix: Water

Analysis Batch: 585452

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 585201

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0419		mg/L		105	85 - 115
Arsenic	0.0400	0.0422		mg/L		105	85 - 117
Barium	0.0400	0.0421		mg/L		105	85 - 118
Beryllium	0.0400	0.0434		mg/L		109	80 - 125
Cadmium	0.0400	0.0409		mg/L		102	85 - 115
Chromium	0.0400	0.0428		mg/L		107	84 - 121
Cobalt	0.0400	0.0425		mg/L		106	85 - 120
Lead	0.0400	0.0411		mg/L		103	85 - 118
Molybdenum	0.0400	0.0429		mg/L		107	85 - 119
Selenium	0.0400	0.0417		mg/L		104	77 - 122
Thallium	0.0400	0.0409		mg/L		102	85 - 118
Calcium	0.800	0.844		mg/L		105	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-585266/1-A

Matrix: Water

Analysis Batch: 585451

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 585266

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		08/29/22 10:29	08/29/22 17:56	1

Lab Sample ID: LCS 280-585266/2-A

Matrix: Water

Analysis Batch: 585451

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 585266

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00483		mg/L		97	84 - 120

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

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

Lab Sample ID: 280-165874-1 MS

Matrix: Water

Analysis Batch: 585451

Client Sample ID: W-2A

Prep Type: Total/NA

Prep Batch: 585266

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	
Mercury	ND		0.00500	0.00466		mg/L		93	75 - 125	

Lab Sample ID: 280-165874-1 MSD

Matrix: Water

Analysis Batch: 585451

Client Sample ID: W-2A

Prep Type: Total/NA

Prep Batch: 585266

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		0.00500	0.00456		mg/L		91	75 - 125	2	20

Method: 9040B - pH

Lab Sample ID: LCS 280-585450/27

Matrix: Water

Analysis Batch: 585450

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
pH adj. to 25 deg C	7.00	7.1		SU		101	99 - 101	

Lab Sample ID: LCS 280-585450/4

Matrix: Water

Analysis Batch: 585450

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
pH adj. to 25 deg C	7.00	7.1		SU		101	99 - 101	

Lab Sample ID: 280-165874-5 DU

Matrix: Water

Analysis Batch: 585450

Client Sample ID: W-5B-FD

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH adj. to 25 deg C	7.2	HF	7.3		SU		0.3	5
Temperature	19.3	HF	19.1		Degrees C		0.8	10

Lab Sample ID: LCS 280-586265/4

Matrix: Water

Analysis Batch: 586265

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
pH adj. to 25 deg C	7.00	7.1		SU		101	99 - 101	

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-585460/6

Matrix: Water

Analysis Batch: 585460

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			08/30/22 10:57	1
Fluoride	ND		0.50	0.17	mg/L			08/30/22 10:57	1
Sulfate	ND		5.0	1.0	mg/L			08/30/22 10:57	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

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

Lab Sample ID: LCS 280-585460/4

Matrix: Water

Analysis Batch: 585460

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	100		mg/L		100	90 - 110
Fluoride	5.00	4.52		mg/L		90	90 - 110
Sulfate	100	98.1		mg/L		98	90 - 110

Lab Sample ID: LCSD 280-585460/5

Matrix: Water

Analysis Batch: 585460

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	100		mg/L		100	90 - 110	0	10
Fluoride	5.00	4.54		mg/L		91	90 - 110	1	10
Sulfate	100	98.6		mg/L		99	90 - 110	1	10

Lab Sample ID: MRL 280-585460/3

Matrix: Water

Analysis Batch: 585460

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.00	4.03		mg/L		81	50 - 150
Fluoride	0.500	0.471	J	mg/L		94	50 - 150
Sulfate	5.00	4.15	J	mg/L		83	50 - 150

Lab Sample ID: 280-165874-7 MS

Matrix: Water

Analysis Batch: 585460

Client Sample ID: W-10B-EB

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	ND		50.0	51.4		mg/L		103	80 - 120
Fluoride	ND		5.00	5.10		mg/L		102	80 - 120
Sulfate	1.4	J	50.0	49.5		mg/L		96	80 - 120

Lab Sample ID: 280-165874-7 MSD

Matrix: Water

Analysis Batch: 585460

Client Sample ID: W-10B-EB

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	ND		50.0	51.6		mg/L		103	80 - 120	0	20
Fluoride	ND		5.00	5.09		mg/L		102	80 - 120	0	20
Sulfate	1.4	J	50.0	49.7		mg/L		97	80 - 120	0	20

Lab Sample ID: 280-165874-7 DU

Matrix: Water

Analysis Batch: 585460

Client Sample ID: W-10B-EB

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	ND		ND		mg/L		NC	15
Fluoride	ND		ND		mg/L		NC	15
Sulfate	1.4	J	1.26	J	mg/L		7	15

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

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

Lab Sample ID: MB 280-585598/45

Matrix: Water

Analysis Batch: 585598

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			09/01/22 00:31	1
Fluoride	ND		0.50	0.17	mg/L			09/01/22 00:31	1
Sulfate	ND		5.0	1.0	mg/L			09/01/22 00:31	1

Lab Sample ID: MB 280-585598/6

Matrix: Water

Analysis Batch: 585598

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			08/31/22 10:48	1
Fluoride	ND		0.50	0.17	mg/L			08/31/22 10:48	1
Sulfate	ND		5.0	1.0	mg/L			08/31/22 10:48	1

Lab Sample ID: LCS 280-585598/4

Matrix: Water

Analysis Batch: 585598

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	99.1		mg/L		99	90 - 110
Fluoride	5.00	4.90		mg/L		98	90 - 110
Sulfate	100	96.9		mg/L		97	90 - 110

Lab Sample ID: LCS 280-585598/43

Matrix: Water

Analysis Batch: 585598

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	100		mg/L		100	90 - 110
Fluoride	5.00	5.35		mg/L		107	90 - 110
Sulfate	100	98.2		mg/L		98	90 - 110

Lab Sample ID: LCSD 280-585598/44

Matrix: Water

Analysis Batch: 585598

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	100		mg/L		100	90 - 110	0	10
Fluoride	5.00	5.38		mg/L		108	90 - 110	1	10
Sulfate	100	98.0		mg/L		98	90 - 110	0	10

Lab Sample ID: LCSD 280-585598/5

Matrix: Water

Analysis Batch: 585598

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	98.7		mg/L		99	90 - 110	0	10
Fluoride	5.00	4.83		mg/L		97	90 - 110	1	10
Sulfate	100	96.5		mg/L		97	90 - 110	0	10

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

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

Lab Sample ID: MRL 280-585598/3
Matrix: Water
Analysis Batch: 585598

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.00	3.98		mg/L		80	50 - 150
Fluoride	0.500	0.384	J	mg/L		77	50 - 150
Sulfate	5.00	4.12	J	mg/L		82	50 - 150

Lab Sample ID: MB 280-585730/51
Matrix: Water
Analysis Batch: 585730

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		5.0	1.0	mg/L			09/02/22 01:04	1

Lab Sample ID: LCS 280-585730/49
Matrix: Water
Analysis Batch: 585730

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	100	97.6		mg/L		98	90 - 110

Lab Sample ID: LCSD 280-585730/50
Matrix: Water
Analysis Batch: 585730

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	100	97.0		mg/L		97	90 - 110	1	10

Lab Sample ID: MRL 280-585730/3
Matrix: Water
Analysis Batch: 585730

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	5.00	5.05		mg/L		101	50 - 150

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-585314/58
Matrix: Water
Analysis Batch: 585314

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	ND		10	3.1	mg/L			08/26/22 19:18	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			08/26/22 19:18	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			08/26/22 19:18	1

Lab Sample ID: LCS 280-585314/57
Matrix: Water
Analysis Batch: 585314

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	200	199		mg/L		100	89 - 109

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: MB 280-585456/59

Matrix: Water

Analysis Batch: 585456

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	ND		10	3.1	mg/L			08/29/22 17:40	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			08/29/22 17:40	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			08/29/22 17:40	1

Lab Sample ID: MB 280-585456/85

Matrix: Water

Analysis Batch: 585456

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	ND		10	3.1	mg/L			08/29/22 20:03	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			08/29/22 20:03	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			08/29/22 20:03	1

Lab Sample ID: LCS 280-585456/84

Matrix: Water

Analysis Batch: 585456

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	200	198		mg/L		99	89 - 109

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

Lab Sample ID: MB 280-585220/1

Matrix: Water

Analysis Batch: 585220

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 (TDS)	ND		10	4.7	mg/L			08/26/22 10:35	1

Lab Sample ID: LCS 280-585220/2

Matrix: Water

Analysis Batch: 585220

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 (TDS)	502	492		mg/L		98	88 - 114

Lab Sample ID: LCSD 280-585220/3

Matrix: Water

Analysis Batch: 585220

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids (TDS)	502	480		mg/L		96	88 - 114	2	20

Lab Sample ID: MB 280-585342/1

Matrix: Water

Analysis Batch: 585342

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 (TDS)	ND		10	4.7	mg/L			08/29/22 10:41	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

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

Lab Sample ID: LCS 280-585342/2

Matrix: Water

Analysis Batch: 585342

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 (TDS)	502	541		mg/L		108	88 - 114

Lab Sample ID: LCSD 280-585342/3

Matrix: Water

Analysis Batch: 585342

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids (TDS)	502	563		mg/L		112	88 - 114	4	20

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 280-585230/2

Matrix: Water

Analysis Batch: 585230

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			08/26/22 10:54	1

Lab Sample ID: LCS 280-585230/1

Matrix: Water

Analysis Batch: 585230

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	501	478		mg/L		96	79 - 114

Lab Sample ID: 280-165874-1 DU

Matrix: Water

Analysis Batch: 585230

Client Sample ID: W-2A

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	43		42.8		mg/L		0	10

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

Metals

Prep Batch: 585201

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-165874-1	W-2A	Total Recoverable	Water	3005A	
280-165874-2	W-2C	Total Recoverable	Water	3005A	
280-165874-3	W-3B	Total Recoverable	Water	3005A	
280-165874-4	W-5B	Total Recoverable	Water	3005A	
280-165874-5	W-5B-FD	Total Recoverable	Water	3005A	
280-165874-6	W-6B1	Total Recoverable	Water	3005A	
280-165874-7	W-10B-EB	Total Recoverable	Water	3005A	
280-165874-8	W-10B	Total Recoverable	Water	3005A	
280-165874-9	MW-7	Total Recoverable	Water	3005A	
280-165874-10	W-14	Total Recoverable	Water	3005A	
MB 280-585201/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-585201/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 585210

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-165874-1	W-2A	Total Recoverable	Water	3005A	
280-165874-2	W-2C	Total Recoverable	Water	3005A	
280-165874-3	W-3B	Total Recoverable	Water	3005A	
280-165874-4	W-5B	Total Recoverable	Water	3005A	
280-165874-5	W-5B-FD	Total Recoverable	Water	3005A	
280-165874-6	W-6B1	Total Recoverable	Water	3005A	
280-165874-7	W-10B-EB	Total Recoverable	Water	3005A	
280-165874-8	W-10B	Total Recoverable	Water	3005A	
280-165874-9	MW-7	Total Recoverable	Water	3005A	
280-165874-10	W-14	Total Recoverable	Water	3005A	
MB 280-585210/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-585210/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-165874-10 MS	W-14	Total Recoverable	Water	3005A	
280-165874-10 MSD	W-14	Total Recoverable	Water	3005A	

Prep Batch: 585266

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-165874-1	W-2A	Total/NA	Water	7470A	
280-165874-2	W-2C	Total/NA	Water	7470A	
280-165874-3	W-3B	Total/NA	Water	7470A	
280-165874-4	W-5B	Total/NA	Water	7470A	
280-165874-5	W-5B-FD	Total/NA	Water	7470A	
280-165874-6	W-6B1	Total/NA	Water	7470A	
280-165874-7	W-10B-EB	Total/NA	Water	7470A	
280-165874-8	W-10B	Total/NA	Water	7470A	
280-165874-9	MW-7	Total/NA	Water	7470A	
280-165874-10	W-14	Total/NA	Water	7470A	
MB 280-585266/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-585266/2-A	Lab Control Sample	Total/NA	Water	7470A	
280-165874-1 MS	W-2A	Total/NA	Water	7470A	
280-165874-1 MSD	W-2A	Total/NA	Water	7470A	

Analysis Batch: 585436

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-165874-1	W-2A	Total Recoverable	Water	6010C	585210
280-165874-2	W-2C	Total Recoverable	Water	6010C	585210

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

Metals (Continued)

Analysis Batch: 585436 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-165874-3	W-3B	Total Recoverable	Water	6010C	585210
280-165874-4	W-5B	Total Recoverable	Water	6010C	585210
280-165874-5	W-5B-FD	Total Recoverable	Water	6010C	585210
280-165874-6	W-6B1	Total Recoverable	Water	6010C	585210
280-165874-7	W-10B-EB	Total Recoverable	Water	6010C	585210
280-165874-8	W-10B	Total Recoverable	Water	6010C	585210
280-165874-9	MW-7	Total Recoverable	Water	6010C	585210
280-165874-10	W-14	Total Recoverable	Water	6010C	585210
MB 280-585210/1-A	Method Blank	Total Recoverable	Water	6010C	585210
LCS 280-585210/2-A	Lab Control Sample	Total Recoverable	Water	6010C	585210
280-165874-10 MS	W-14	Total Recoverable	Water	6010C	585210
280-165874-10 MSD	W-14	Total Recoverable	Water	6010C	585210

Analysis Batch: 585451

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-165874-1	W-2A	Total/NA	Water	7470A	585266
280-165874-2	W-2C	Total/NA	Water	7470A	585266
280-165874-3	W-3B	Total/NA	Water	7470A	585266
280-165874-4	W-5B	Total/NA	Water	7470A	585266
280-165874-5	W-5B-FD	Total/NA	Water	7470A	585266
280-165874-6	W-6B1	Total/NA	Water	7470A	585266
280-165874-7	W-10B-EB	Total/NA	Water	7470A	585266
280-165874-8	W-10B	Total/NA	Water	7470A	585266
280-165874-9	MW-7	Total/NA	Water	7470A	585266
280-165874-10	W-14	Total/NA	Water	7470A	585266
MB 280-585266/1-A	Method Blank	Total/NA	Water	7470A	585266
LCS 280-585266/2-A	Lab Control Sample	Total/NA	Water	7470A	585266
280-165874-1 MS	W-2A	Total/NA	Water	7470A	585266
280-165874-1 MSD	W-2A	Total/NA	Water	7470A	585266

Analysis Batch: 585452

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-165874-1	W-2A	Total Recoverable	Water	6020B	585201
280-165874-2	W-2C	Total Recoverable	Water	6020B	585201
280-165874-3	W-3B	Total Recoverable	Water	6020B	585201
280-165874-4	W-5B	Total Recoverable	Water	6020B	585201
280-165874-5	W-5B-FD	Total Recoverable	Water	6020B	585201
280-165874-6	W-6B1	Total Recoverable	Water	6020B	585201
280-165874-7	W-10B-EB	Total Recoverable	Water	6020B	585201
280-165874-8	W-10B	Total Recoverable	Water	6020B	585201
280-165874-9	MW-7	Total Recoverable	Water	6020B	585201
280-165874-10	W-14	Total Recoverable	Water	6020B	585201
MB 280-585201/1-A	Method Blank	Total Recoverable	Water	6020B	585201
LCS 280-585201/2-A	Lab Control Sample	Total Recoverable	Water	6020B	585201

Analysis Batch: 585587

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-165874-1	W-2A	Total Recoverable	Water	6010C	585210
280-165874-2	W-2C	Total Recoverable	Water	6010C	585210
280-165874-3	W-3B	Total Recoverable	Water	6010C	585210
280-165874-4	W-5B	Total Recoverable	Water	6010C	585210

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

Metals (Continued)

Analysis Batch: 585587 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-165874-5	W-5B-FD	Total Recoverable	Water	6010C	585210
280-165874-6	W-6B1	Total Recoverable	Water	6010C	585210
280-165874-7	W-10B-EB	Total Recoverable	Water	6010C	585210
280-165874-8	W-10B	Total Recoverable	Water	6010C	585210
280-165874-9	MW-7	Total Recoverable	Water	6010C	585210
280-165874-10	W-14	Total Recoverable	Water	6010C	585210
MB 280-585210/1-A	Method Blank	Total Recoverable	Water	6010C	585210
LCS 280-585210/2-A	Lab Control Sample	Total Recoverable	Water	6010C	585210
280-165874-10 MS	W-14	Total Recoverable	Water	6010C	585210
280-165874-10 MSD	W-14	Total Recoverable	Water	6010C	585210

Analysis Batch: 585846

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-165874-1	W-2A	Total Recoverable	Water	6020B	585201
280-165874-2	W-2C	Total Recoverable	Water	6020B	585201
280-165874-3	W-3B	Total Recoverable	Water	6020B	585201
280-165874-4	W-5B	Total Recoverable	Water	6020B	585201
280-165874-5	W-5B-FD	Total Recoverable	Water	6020B	585201
280-165874-6	W-6B1	Total Recoverable	Water	6020B	585201
280-165874-8	W-10B	Total Recoverable	Water	6020B	585201
280-165874-9	MW-7	Total Recoverable	Water	6020B	585201
280-165874-10	W-14	Total Recoverable	Water	6020B	585201

Analysis Batch: 586091

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-165874-1	W-2A	Total Recoverable	Water	6020B	585201
280-165874-2	W-2C	Total Recoverable	Water	6020B	585201
280-165874-3	W-3B	Total Recoverable	Water	6020B	585201
280-165874-4	W-5B	Total Recoverable	Water	6020B	585201
280-165874-5	W-5B-FD	Total Recoverable	Water	6020B	585201
280-165874-6	W-6B1	Total Recoverable	Water	6020B	585201
280-165874-8	W-10B	Total Recoverable	Water	6020B	585201
280-165874-9	MW-7	Total Recoverable	Water	6020B	585201
280-165874-10	W-14	Total Recoverable	Water	6020B	585201

Analysis Batch: 586159

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-165874-7	W-10B-EB	Total Recoverable	Water	6020B	585201

General Chemistry

Analysis Batch: 585220

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-165874-1	W-2A	Total/NA	Water	SM 2540C	
280-165874-2	W-2C	Total/NA	Water	SM 2540C	
280-165874-3	W-3B	Total/NA	Water	SM 2540C	
280-165874-4	W-5B	Total/NA	Water	SM 2540C	
280-165874-5	W-5B-FD	Total/NA	Water	SM 2540C	
280-165874-6	W-6B1	Total/NA	Water	SM 2540C	
280-165874-7	W-10B-EB	Total/NA	Water	SM 2540C	
280-165874-9	MW-7	Total/NA	Water	SM 2540C	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

General Chemistry (Continued)

Analysis Batch: 585220 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-585220/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-585220/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-585220/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 585230

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-165874-1	W-2A	Total/NA	Water	SM 2540D	
280-165874-2	W-2C	Total/NA	Water	SM 2540D	
280-165874-3	W-3B	Total/NA	Water	SM 2540D	
280-165874-4	W-5B	Total/NA	Water	SM 2540D	
280-165874-5	W-5B-FD	Total/NA	Water	SM 2540D	
280-165874-6	W-6B1	Total/NA	Water	SM 2540D	
280-165874-7	W-10B-EB	Total/NA	Water	SM 2540D	
280-165874-8	W-10B	Total/NA	Water	SM 2540D	
280-165874-9	MW-7	Total/NA	Water	SM 2540D	
280-165874-10	W-14	Total/NA	Water	SM 2540D	
MB 280-585230/2	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-585230/1	Lab Control Sample	Total/NA	Water	SM 2540D	
280-165874-1 DU	W-2A	Total/NA	Water	SM 2540D	

Analysis Batch: 585314

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-165874-2	W-2C	Total/NA	Water	SM 2320B	
280-165874-3	W-3B	Total/NA	Water	SM 2320B	
280-165874-4	W-5B	Total/NA	Water	SM 2320B	
280-165874-5	W-5B-FD	Total/NA	Water	SM 2320B	
280-165874-6	W-6B1	Total/NA	Water	SM 2320B	
280-165874-7	W-10B-EB	Total/NA	Water	SM 2320B	
280-165874-8	W-10B	Total/NA	Water	SM 2320B	
280-165874-9	MW-7	Total/NA	Water	SM 2320B	
280-165874-10	W-14	Total/NA	Water	SM 2320B	
MB 280-585314/58	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-585314/57	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 585342

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-165874-8	W-10B	Total/NA	Water	SM 2540C	
280-165874-10	W-14	Total/NA	Water	SM 2540C	
MB 280-585342/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-585342/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-585342/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 585450

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-165874-1	W-2A	Total/NA	Water	9040B	
280-165874-2	W-2C	Total/NA	Water	9040B	
280-165874-3	W-3B	Total/NA	Water	9040B	
280-165874-4	W-5B	Total/NA	Water	9040B	
280-165874-5	W-5B-FD	Total/NA	Water	9040B	
280-165874-6	W-6B1	Total/NA	Water	9040B	
280-165874-8	W-10B	Total/NA	Water	9040B	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

General Chemistry (Continued)

Analysis Batch: 585450 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-165874-9	MW-7	Total/NA	Water	9040B	
280-165874-10	W-14	Total/NA	Water	9040B	
LCS 280-585450/27	Lab Control Sample	Total/NA	Water	9040B	
LCS 280-585450/4	Lab Control Sample	Total/NA	Water	9040B	
280-165874-5 DU	W-5B-FD	Total/NA	Water	9040B	

Analysis Batch: 585456

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-165874-1	W-2A	Total/NA	Water	SM 2320B	
MB 280-585456/59	Method Blank	Total/NA	Water	SM 2320B	
MB 280-585456/85	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-585456/84	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 585460

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-165874-1	W-2A	Total/NA	Water	9056A	
280-165874-2	W-2C	Total/NA	Water	9056A	
280-165874-3	W-3B	Total/NA	Water	9056A	
280-165874-4	W-5B	Total/NA	Water	9056A	
280-165874-5	W-5B-FD	Total/NA	Water	9056A	
280-165874-6	W-6B1	Total/NA	Water	9056A	
280-165874-7	W-10B-EB	Total/NA	Water	9056A	
280-165874-8	W-10B	Total/NA	Water	9056A	
280-165874-9	MW-7	Total/NA	Water	9056A	
280-165874-10	W-14	Total/NA	Water	9056A	
MB 280-585460/6	Method Blank	Total/NA	Water	9056A	
LCS 280-585460/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-585460/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-585460/3	Lab Control Sample	Total/NA	Water	9056A	
280-165874-7 MS	W-10B-EB	Total/NA	Water	9056A	
280-165874-7 MSD	W-10B-EB	Total/NA	Water	9056A	
280-165874-7 DU	W-10B-EB	Total/NA	Water	9056A	

Analysis Batch: 585598

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-165874-1	W-2A	Total/NA	Water	9056A	
280-165874-2	W-2C	Total/NA	Water	9056A	
280-165874-4	W-5B	Total/NA	Water	9056A	
280-165874-5	W-5B-FD	Total/NA	Water	9056A	
280-165874-6	W-6B1	Total/NA	Water	9056A	
280-165874-8	W-10B	Total/NA	Water	9056A	
280-165874-9	MW-7	Total/NA	Water	9056A	
280-165874-10	W-14	Total/NA	Water	9056A	
MB 280-585598/45	Method Blank	Total/NA	Water	9056A	
MB 280-585598/6	Method Blank	Total/NA	Water	9056A	
LCS 280-585598/4	Lab Control Sample	Total/NA	Water	9056A	
LCS 280-585598/43	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-585598/44	Lab Control Sample Dup	Total/NA	Water	9056A	
LCSD 280-585598/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-585598/3	Lab Control Sample	Total/NA	Water	9056A	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

General Chemistry

Analysis Batch: 585730

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-165874-3	W-3B	Total/NA	Water	9056A	
MB 280-585730/51	Method Blank	Total/NA	Water	9056A	
LCS 280-585730/49	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-585730/50	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-585730/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 586265

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-165874-7	W-10B-EB	Total/NA	Water	9040B	
LCS 280-586265/4	Lab Control Sample	Total/NA	Water	9040B	

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

Client Sample ID: W-2A

Date Collected: 08/22/22 15:30

Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	585210	08/28/22 23:40	KMS	EET DEN
Total Recoverable	Analysis	6010C		1			585587	08/30/22 16:07	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585210	08/28/22 23:40	KMS	EET DEN
Total Recoverable	Analysis	6010C		1			585436	08/29/22 19:55	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585201	08/28/22 14:43	MCR	EET DEN
Total Recoverable	Analysis	6020B		1			585452	08/29/22 20:18	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585201	08/28/22 14:43	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			585846	09/01/22 20:55	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585201	08/28/22 14:43	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			586091	09/06/22 17:54	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	585266	08/29/22 10:29	PFM	EET DEN
Total/NA	Analysis	7470A		1			585451	08/29/22 18:01	PFM	EET DEN
Total/NA	Analysis	9040B		1			585450	08/29/22 14:17	KEG	EET DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	585460	08/30/22 16:30	MEC	EET DEN
Total/NA	Analysis	9056A		500	5 mL	5 mL	585598	08/31/22 18:26	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			585456	08/29/22 23:05	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	585220	08/26/22 10:35	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	585230	08/26/22 10:54	ASP	EET DEN

Client Sample ID: W-2C

Date Collected: 08/23/22 10:45

Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	585210	08/28/22 23:40	KMS	EET DEN
Total Recoverable	Analysis	6010C		1			585587	08/30/22 16:11	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585210	08/28/22 23:40	KMS	EET DEN
Total Recoverable	Analysis	6010C		1			585436	08/29/22 20:17	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585201	08/28/22 14:43	MCR	EET DEN
Total Recoverable	Analysis	6020B		1			585452	08/29/22 20:22	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585201	08/28/22 14:43	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			585846	09/01/22 20:59	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585201	08/28/22 14:43	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			586091	09/06/22 17:58	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	585266	08/29/22 10:29	PFM	EET DEN
Total/NA	Analysis	7470A		1			585451	08/29/22 18:08	PFM	EET DEN
Total/NA	Analysis	9040B		1			585450	08/29/22 14:21	KEG	EET DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	585460	08/30/22 17:02	MEC	EET DEN
Total/NA	Analysis	9056A		200	5 mL	5 mL	585598	08/31/22 18:42	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			585314	08/26/22 20:51	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	585220	08/26/22 10:35	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	585230	08/26/22 10:54	ASP	EET DEN

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

Client Sample ID: W-3B

Date Collected: 08/23/22 12:15

Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	585210	08/28/22 23:40	KMS	EET DEN
Total Recoverable	Analysis	6010C		1			585587	08/30/22 16:15	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585210	08/28/22 23:40	KMS	EET DEN
Total Recoverable	Analysis	6010C		1			585436	08/29/22 20:21	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585201	08/28/22 14:43	MCR	EET DEN
Total Recoverable	Analysis	6020B		1			585452	08/29/22 20:33	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585201	08/28/22 14:43	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			585846	09/01/22 21:03	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585201	08/28/22 14:43	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			586091	09/06/22 18:02	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	585266	08/29/22 10:29	PFM	EET DEN
Total/NA	Analysis	7470A		1			585451	08/29/22 18:11	PFM	EET DEN
Total/NA	Analysis	9040B		1			585450	08/29/22 14:24	KEG	EET DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	585460	08/30/22 17:34	MEC	EET DEN
Total/NA	Analysis	9056A		3000	10 mL	10 mL	585730	09/02/22 03:44	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			585314	08/26/22 21:03	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	585220	08/26/22 10:35	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	585230	08/26/22 10:54	ASP	EET DEN

Client Sample ID: W-5B

Date Collected: 08/23/22 14:10

Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	585210	08/28/22 23:40	KMS	EET DEN
Total Recoverable	Analysis	6010C		1			585587	08/30/22 16:19	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585210	08/28/22 23:40	KMS	EET DEN
Total Recoverable	Analysis	6010C		1			585436	08/29/22 20:26	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585201	08/28/22 14:43	MCR	EET DEN
Total Recoverable	Analysis	6020B		1			585452	08/29/22 20:37	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585201	08/28/22 14:43	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			585846	09/01/22 21:07	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585201	08/28/22 14:43	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			586091	09/06/22 18:05	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	585266	08/29/22 10:29	PFM	EET DEN
Total/NA	Analysis	7470A		1			585451	08/29/22 18:13	PFM	EET DEN
Total/NA	Analysis	9040B		1			585450	08/29/22 14:28	KEG	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	585460	08/30/22 17:49	MEC	EET DEN
Total/NA	Analysis	9056A		50	5 mL	5 mL	585598	08/31/22 20:49	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			585314	08/26/22 21:10	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	585220	08/26/22 10:35	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	585230	08/26/22 10:54	ASP	EET DEN

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

Client Sample ID: W-5B-FD

Lab Sample ID: 280-165874-5

Date Collected: 08/23/22 14:30

Matrix: Water

Date Received: 08/25/22 14:13

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	585210	08/28/22 23:40	KMS	EET DEN
Total Recoverable	Analysis	6010C		1			585587	08/30/22 16:23	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585210	08/28/22 23:40	KMS	EET DEN
Total Recoverable	Analysis	6010C		1			585436	08/29/22 20:30	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585201	08/28/22 14:43	MCR	EET DEN
Total Recoverable	Analysis	6020B		1			585452	08/29/22 20:40	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585201	08/28/22 14:43	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			585846	09/01/22 21:10	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585201	08/28/22 14:43	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			586091	09/06/22 18:09	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	585266	08/29/22 10:29	PFM	EET DEN
Total/NA	Analysis	7470A		1			585451	08/30/22 07:33	PFM	EET DEN
Total/NA	Analysis	9040B		1			585450	08/29/22 14:38	KEG	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	585460	08/30/22 18:21	MEC	EET DEN
Total/NA	Analysis	9056A		50	5 mL	5 mL	585598	08/31/22 21:05	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			585314	08/26/22 21:16	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	585220	08/26/22 10:35	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	585230	08/26/22 10:54	ASP	EET DEN

Client Sample ID: W-6B1

Lab Sample ID: 280-165874-6

Date Collected: 08/23/22 17:50

Matrix: Water

Date Received: 08/25/22 14:13

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	585210	08/28/22 23:40	KMS	EET DEN
Total Recoverable	Analysis	6010C		1			585587	08/30/22 16:27	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585210	08/28/22 23:40	KMS	EET DEN
Total Recoverable	Analysis	6010C		1			585436	08/29/22 20:34	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585201	08/28/22 14:43	MCR	EET DEN
Total Recoverable	Analysis	6020B		1			585452	08/29/22 20:44	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585201	08/28/22 14:43	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			585846	09/01/22 21:14	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585201	08/28/22 14:43	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			586091	09/06/22 18:13	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	585266	08/29/22 10:29	PFM	EET DEN
Total/NA	Analysis	7470A		1			585451	08/30/22 07:35	PFM	EET DEN
Total/NA	Analysis	9040B		1			585450	08/29/22 14:45	KEG	EET DEN
Total/NA	Analysis	9056A		500	5 mL	5 mL	585460	08/30/22 19:40	MEC	EET DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	585598	08/31/22 21:21	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			585314	08/26/22 21:28	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	585220	08/26/22 10:35	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	585230	08/26/22 10:54	ASP	EET DEN

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

Client Sample ID: W-10B-EB

Lab Sample ID: 280-165874-7

Date Collected: 08/24/22 09:30

Matrix: Water

Date Received: 08/25/22 14:13

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	585210	08/28/22 23:40	KMS	EET DEN
Total Recoverable	Analysis	6010C		1			585587	08/30/22 16:32	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585210	08/28/22 23:40	KMS	EET DEN
Total Recoverable	Analysis	6010C		1			585436	08/29/22 20:39	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585201	08/28/22 14:43	MCR	EET DEN
Total Recoverable	Analysis	6020B		1			585452	08/29/22 20:48	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585201	08/28/22 14:43	MCR	EET DEN
Total Recoverable	Analysis	6020B		1			586159	09/07/22 13:21	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	585266	08/29/22 10:29	PFM	EET DEN
Total/NA	Analysis	7470A		1			585451	08/29/22 18:26	PFM	EET DEN
Total/NA	Analysis	9040B		1			586265	09/08/22 13:01	KEG	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	585460	08/30/22 19:56	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			585314	08/26/22 21:34	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	585220	08/26/22 10:35	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	585230	08/26/22 10:54	ASP	EET DEN

Client Sample ID: W-10B

Lab Sample ID: 280-165874-8

Date Collected: 08/24/22 10:00

Matrix: Water

Date Received: 08/25/22 14:13

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	585210	08/28/22 23:40	KMS	EET DEN
Total Recoverable	Analysis	6010C		1			585587	08/30/22 16:36	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585210	08/28/22 23:40	KMS	EET DEN
Total Recoverable	Analysis	6010C		1			585436	08/29/22 20:43	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585201	08/28/22 14:43	MCR	EET DEN
Total Recoverable	Analysis	6020B		1			585452	08/29/22 20:52	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585201	08/28/22 14:43	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			585846	09/01/22 21:22	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585201	08/28/22 14:43	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			586091	09/06/22 18:28	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	585266	08/29/22 10:29	PFM	EET DEN
Total/NA	Analysis	7470A		1			585451	08/29/22 18:29	PFM	EET DEN
Total/NA	Analysis	9040B		1			585450	08/29/22 14:56	KEG	EET DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	585460	08/30/22 21:15	MEC	EET DEN
Total/NA	Analysis	9056A		500	5 mL	5 mL	585598	08/31/22 21:37	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			585314	08/26/22 21:46	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	585342	08/29/22 10:41	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	585230	08/26/22 10:54	ASP	EET DEN

Eurofins Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

Client Sample ID: MW-7

Date Collected: 08/24/22 13:05

Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	585210	08/28/22 23:40	KMS	EET DEN
Total Recoverable	Analysis	6010C		1			585587	08/30/22 16:56	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585210	08/28/22 23:40	KMS	EET DEN
Total Recoverable	Analysis	6010C		1			585436	08/29/22 20:47	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585201	08/28/22 14:43	MCR	EET DEN
Total Recoverable	Analysis	6020B		1			585452	08/29/22 20:56	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585201	08/28/22 14:43	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			585846	09/01/22 21:25	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585201	08/28/22 14:43	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			586091	09/06/22 18:32	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	585266	08/29/22 10:29	PFM	EET DEN
Total/NA	Analysis	7470A		1			585451	08/29/22 18:31	PFM	EET DEN
Total/NA	Analysis	9040B		1			585450	08/29/22 14:59	KEG	EET DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	585460	08/30/22 21:47	MEC	EET DEN
Total/NA	Analysis	9056A		100	5 mL	5 mL	585598	08/31/22 21:52	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			585314	08/26/22 21:57	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	585220	08/26/22 10:35	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	585230	08/26/22 10:54	ASP	EET DEN

Client Sample ID: W-14

Date Collected: 08/24/22 15:00

Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	585210	08/28/22 23:40	KMS	EET DEN
Total Recoverable	Analysis	6010C		1			585587	08/30/22 17:00	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585210	08/28/22 23:40	KMS	EET DEN
Total Recoverable	Analysis	6010C		1			585436	08/29/22 20:52	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585201	08/28/22 14:43	MCR	EET DEN
Total Recoverable	Analysis	6020B		1			585452	08/29/22 20:59	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585201	08/28/22 14:43	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			585846	09/01/22 21:29	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	585201	08/28/22 14:43	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			586091	09/06/22 18:35	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	585266	08/29/22 10:29	PFM	EET DEN
Total/NA	Analysis	7470A		1			585451	08/29/22 18:34	PFM	EET DEN
Total/NA	Analysis	9040B		1			585450	08/29/22 15:03	KEG	EET DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	585460	08/30/22 22:50	MEC	EET DEN
Total/NA	Analysis	9056A		100	5 mL	5 mL	585598	08/31/22 22:08	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			585314	08/26/22 22:10	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	585342	08/29/22 10:41	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	585230	08/26/22 10:54	ASP	EET DEN

Eurofins Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

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

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Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-165874-1

Laboratory: Eurofins Denver

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

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-23

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	Calcium
6020B	3005A	Water	Magnesium
6020B	3005A	Water	Potassium
6020B	3005A	Water	Sodium
9040B		Water	Temperature

Chain of Custody Record

Client Information		Sampler: <i>F. Davis Ray</i>		Lab PM: Harrington, Danielle M	Carrier Tracking No(s):	COC No: 280-110862-32017.2					
Client Contact: Molly Reeves		Phone: (720) 298-3594		E-Mail: Danielle.Harrington@Eurofinset.com	State of Origin:	Page: of					
Company: HDR Inc		PWSID:		Job #:							
Address: 1670 Broadway Suite 3400		Due Date Requested:		Analysis Requested							
City: Denver		TAT Requested (days):		Preservation Codes:							
State/Zip: CO, 80202		Compliance Project: ☐ Yes ☐ No		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:							
Phone: 734-263-7138(Tel)		PO #: DEN-021		M - Hexane N - None O - AshNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)							
Email: Molly.Reeves@hdrinc.com		WO #:		Total Number of Containers							
Project Name: Xcel Energy GW CCR Monitoring - Comanche		Project #: 28014376		Special Instructions/Note:							
Site: COLORADO		SSOW#:									
APP III + IV - TSS, Additional Methods											
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=soil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Form MS/MSD (Yes or No)	9040B pH, 9056A, 280C Chloride, Fluoride, Sulfate, Alk 2340B	Radium - 226 9135 and Radium - 228 Method 9320/	2540D - TSS/2540C TDS	Barcode	Chain of Custody
W-2A	8/22/22	1530	G	W	X	X	X	X	X	280-165874 Chain of Custody	
W-2C	8/23/22	1045	G	W	X	X	X	X	X		
W-3B	8/23/22	1215	G	W	X	X	X	X	X		
W-5B	8/23/22	1410	G	W	X	X	X	X	X		
W-5B-FD	8/23/22	1430	G	W	X	X	X	X	X		
W-6B	8/23/22	1750	G	W	X	X	X	X	X		
W-10B-EB	8/24/22	0930	G	W	X	X	X	X	X		
W-10B	8/24/22	1000	G	W	X	X	X	X	X		
W-7	8/24/22	1305	G	W	X	X	X	X	X		
W-14	8/24/22	1500	G	W	X	X	X	X	X		
Possible Hazard Identification				Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)							
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Polson B ☐ Unknown ☐ Radiological				☐ Return To Client ☐ Disposal By Lab ☐ Archive For Months							
Deliverable Requested: I, II, III, IV, Other (specify)				Special Instructions/QC Requirements:							
Empty Kit Relinquished by:				Method of Shipment:							
Relinquished by: <i>Gavin Ray</i>				Received by: <i>Attkin</i>							
Relinquished by:				Received by:							
Relinquished by:				Received by:							
Custody Seals Intact: ☐ Yes ☐ No				Cooler Temperature(s) °C and Other Remarks: 0.5, 0.3, 0.4 CF-0.0 12#12							

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-165874-1

Login Number: 165874

List Number: 1

Creator: Roehsner, Karen P

List Source: Eurofins Denver

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

ANALYTICAL REPORT

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-165874-2

Client Project/Site: Xcel Energy GW CCR Monitoring Comanche
- RAD ONLY

Revision: 1

For:

HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Attn: Molly Reeves



Authorized for release by:
9/30/2022 11:49:11 AM

Nicole Ryan, Project Manager I
(303)736-0100
Nicole.Ryan@ET.eurofinsus.com

LINKS

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results through



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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring Comanche -
RAD ONLY

Job ID: 280-165874-2

Qualifiers

Rad

Qualifier	Qualifier Description
G	The Sample MDC is greater than the requested RL.
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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring Comanche - RAD C

Job ID: 280-165874-2

Job ID: 280-165874-2

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring Comanche - RAD ONLY

Report Number: 280-165874-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

Revision 1, September 30, 2022

The client has requested that the sample ID for 280-165874-6 is updated from W-6B to W6B1.

Receipt

The samples were received on 8/25/2022 2:13 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 0.3°C, 0.4°C and 0.5°C

RADIUM-226 (GFPC)

Samples W-2A (280-165874-1), W-2C (280-165874-2), W-3B (280-165874-3), W-5B (280-165874-4), W-5B-FD (280-165874-5), W-6B (280-165874-6), W-10B-EB (280-165874-7), W-10B (280-165874-8), MW-7 (280-165874-9) and W-14 (280-165874-10) were analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 08/31/2022 and analyzed on 09/22/2022.

The following samples were prepared at a reduced aliquot due to Matrix: W-2C (280-165874-2), W-3B (280-165874-3), W-5B (280-165874-4), W-5B-FD (280-165874-5), W-6B (280-165874-6) and W-10B (280-165874-8). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Insufficient sample volume was available to perform a sample duplicate for the following samples: W-2A (280-165874-1), W-2C (280-165874-2), W-3B (280-165874-3), W-5B (280-165874-4), W-5B-FD (280-165874-5), W-6B (280-165874-6), W-10B-EB (280-165874-7), W-10B (280-165874-8), MW-7 (280-165874-9) and W-14 (280-165874-10). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

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

RADIUM-228

Samples W-2A (280-165874-1), W-2C (280-165874-2), W-3B (280-165874-3), W-5B (280-165874-4), W-5B-FD (280-165874-5), W-6B (280-165874-6), W-10B-EB (280-165874-7), W-10B (280-165874-8), MW-7 (280-165874-9) and W-14 (280-165874-10) were analyzed for Radium-228 in accordance with 9320. The samples were prepared on 08/31/2022 and analyzed on 09/12/2022.

Radium-228 was detected in method blank MB 160-580177/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring Comanche - RAD C

Job ID: 280-165874-2

Job ID: 280-165874-2 (Continued)

Laboratory: Eurofins Denver (Continued)

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

RADIUM-226/RADIUM-228 (GFPC)

Samples W-2A (280-165874-1), W-2C (280-165874-2), W-3B (280-165874-3), W-5B (280-165874-4), W-5B-FD (280-165874-5), W-6B (280-165874-6), W-10B-EB (280-165874-7), W-10B (280-165874-8), MW-7 (280-165874-9) and W-14 (280-165874-10) were analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 09/22/2022.

The following samples were prepared at a reduced aliquot due to Matrix: W-2A (280-165874-1), W-2C (280-165874-2), W-3B (280-165874-3), W-5B (280-165874-4), W-5B-FD (280-165874-5), W-6B (280-165874-6) and W-10B (280-165874-8). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Insufficient sample volume was available to perform a sample duplicate for the following samples: W-2A (280-165874-1), W-2C (280-165874-2), W-3B (280-165874-3), W-5B (280-165874-4), W-5B-FD (280-165874-5), W-6B (280-165874-6), W-10B-EB (280-165874-7), W-10B (280-165874-8), MW-7 (280-165874-9) and W-14 (280-165874-10). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

The LCS/LCSD recovered at (146% & 126%). The limits in our LIMS system at 75-125 reflect the requirements of a regulatory agency that represents a large amount of our work. However the samples associated with this LCS are not from this agency and are therefore held to our in-house statistical limits of (62-148%) per method requirements. The LCS passes, no further action is required (LCS 160-580177/2-A) and (LCSD 160-580177/3-A)

The detection goal was not met for the following sample(s). The samples were prepped at a reduced volume due to the presence of matrix interferences: W-2A (280-165874-1), W-2C (280-165874-2) and W-3B (280-165874-3). Analytical results are reported with the detection limit achieved.

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

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring Comanche -
RAD ONLY

Job ID: 280-165874-2

Client Sample ID: W-2A	Lab Sample ID: 280-165874-1
No Detections.	
Client Sample ID: W-2C	Lab Sample ID: 280-165874-2
No Detections.	
Client Sample ID: W-3B	Lab Sample ID: 280-165874-3
No Detections.	
Client Sample ID: W-5B	Lab Sample ID: 280-165874-4
No Detections.	
Client Sample ID: W-5B-FD	Lab Sample ID: 280-165874-5
No Detections.	
Client Sample ID: W-6B1	Lab Sample ID: 280-165874-6
No Detections.	
Client Sample ID: W-10B-EB	Lab Sample ID: 280-165874-7
No Detections.	
Client Sample ID: W-10B	Lab Sample ID: 280-165874-8
No Detections.	
Client Sample ID: MW-7	Lab Sample ID: 280-165874-9
No Detections.	
Client Sample ID: W-14	Lab Sample ID: 280-165874-10
No Detections.	

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Method Summary

Client: HDR Inc

Job ID: 280-165874-2

Project/Site: Xcel Energy GW CCR Monitoring Comanche -
RAD ONLY

Method	Method Description	Protocol	Laboratory
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
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL

Protocol References:

None = None

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

Sample Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring Comanche -
RAD ONLY

Job ID: 280-165874-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-165874-1	W-2A	Water	08/22/22 15:30	08/25/22 14:13
280-165874-2	W-2C	Water	08/23/22 10:45	08/25/22 14:13
280-165874-3	W-3B	Water	08/23/22 12:15	08/25/22 14:13
280-165874-4	W-5B	Water	08/23/22 14:10	08/25/22 14:13
280-165874-5	W-5B-FD	Water	08/23/22 14:30	08/25/22 14:13
280-165874-6	W-6B1	Water	08/23/22 17:50	08/25/22 14:13
280-165874-7	W-10B-EB	Water	08/24/22 09:30	08/25/22 14:13
280-165874-8	W-10B	Water	08/24/22 10:00	08/25/22 14:13
280-165874-9	MW-7	Water	08/24/22 13:05	08/25/22 14:13
280-165874-10	W-14	Water	08/24/22 15:00	08/25/22 14:13

Client Sample Results

Client: HDR Inc

Job ID: 280-165874-2

Project/Site: Xcel Energy GW CCR Monitoring Comanche -
RAD ONLY

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: W-2A

Date Collected: 08/22/22 15:30

Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-1

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.15		0.304	0.322	1.00	0.269	pCi/L	08/31/22 13:20	09/22/22 07:46	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	78.3		40 - 110					08/31/22 13:20	09/22/22 07:46	1

Client Sample ID: W-2C

Date Collected: 08/23/22 10:45

Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-2

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.94		0.376	0.415	1.00	0.213	pCi/L	08/31/22 13:20	09/22/22 07:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	74.3		40 - 110					08/31/22 13:20	09/22/22 07:47	1

Client Sample ID: W-3B

Date Collected: 08/23/22 12:15

Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-3

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	3.87		0.488	0.599	1.00	0.183	pCi/L	08/31/22 13:20	09/22/22 07:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.7		40 - 110					08/31/22 13:20	09/22/22 07:47	1

Client Sample ID: W-5B

Date Collected: 08/23/22 14:10

Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-4

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.642		0.163	0.173	1.00	0.127	pCi/L	08/31/22 13:20	09/22/22 07:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					08/31/22 13:20	09/22/22 07:47	1

Client Sample ID: W-5B-FD

Date Collected: 08/23/22 14:30

Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-5

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.558		0.153	0.161	1.00	0.125	pCi/L	08/31/22 13:20	09/22/22 07:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					08/31/22 13:20	09/22/22 07:47	1

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Client Sample Results

Client: HDR Inc

Job ID: 280-165874-2

Project/Site: Xcel Energy GW CCR Monitoring Comanche -
RAD ONLY

Method: 9315 - Radium-226 (GFPC)

Client Sample ID: W-6B1

Date Collected: 08/23/22 17:50

Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-6

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	3.41		0.448	0.543	1.00	0.202	pCi/L	08/31/22 13:20	09/22/22 07:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.3		40 - 110					08/31/22 13:20	09/22/22 07:47	1

Client Sample ID: W-10B-EB

Date Collected: 08/24/22 09:30

Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-7

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.00690	U	0.0446	0.0446	1.00	0.103	pCi/L	08/31/22 13:20	09/22/22 07:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	74.1		40 - 110					08/31/22 13:20	09/22/22 07:48	1

Client Sample ID: W-10B

Date Collected: 08/24/22 10:00

Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-8

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.714		0.218	0.227	1.00	0.178	pCi/L	08/31/22 13:20	09/22/22 07:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.3		40 - 110					08/31/22 13:20	09/22/22 07:48	1

Client Sample ID: MW-7

Date Collected: 08/24/22 13:05

Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-9

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.386		0.169	0.173	1.00	0.178	pCi/L	08/31/22 13:20	09/22/22 07:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.3		40 - 110					08/31/22 13:20	09/22/22 07:48	1

Client Sample ID: W-14

Date Collected: 08/24/22 15:00

Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-10

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.33		0.300	0.323	1.00	0.237	pCi/L	08/31/22 13:20	09/22/22 07:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.6		40 - 110					08/31/22 13:20	09/22/22 07:48	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring Comanche -
RAD ONLY

Job ID: 280-165874-2

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: W-2A

Date Collected: 08/22/22 15:30

Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-1

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	7.42	G	1.34	1.51	1.00	1.20	pCi/L	08/31/22 13:57	09/12/22 13:09	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	78.3		40 - 110					08/31/22 13:57	09/12/22 13:09	1
Y Carrier	88.6		40 - 110					08/31/22 13:57	09/12/22 13:09	1

Client Sample ID: W-2C

Date Collected: 08/23/22 10:45

Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-2

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	4.39	G	1.13	1.20	1.00	1.22	pCi/L	08/31/22 13:57	09/12/22 13:09	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	74.3		40 - 110					08/31/22 13:57	09/12/22 13:09	1
Y Carrier	89.0		40 - 110					08/31/22 13:57	09/12/22 13:09	1

Client Sample ID: W-3B

Date Collected: 08/23/22 12:15

Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-3

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	9.50	G	1.41	1.66	1.00	1.09	pCi/L	08/31/22 13:57	09/12/22 13:09	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.7		40 - 110					08/31/22 13:57	09/12/22 13:09	1
Y Carrier	88.2		40 - 110					08/31/22 13:57	09/12/22 13:09	1

Client Sample ID: W-5B

Date Collected: 08/23/22 14:10

Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-4

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	4.71		0.736	0.854	1.00	0.554	pCi/L	08/31/22 13:57	09/12/22 13:09	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					08/31/22 13:57	09/12/22 13:09	1
Y Carrier	89.7		40 - 110					08/31/22 13:57	09/12/22 13:09	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring Comanche -
RAD ONLY

Job ID: 280-165874-2

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: W-5B-FD
Date Collected: 08/23/22 14:30
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.56		0.500	0.521	1.00	0.590	pCi/L	08/31/22 13:57	09/12/22 13:10	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					08/31/22 13:57	09/12/22 13:10	1
Y Carrier	87.9		40 - 110					08/31/22 13:57	09/12/22 13:10	1

Client Sample ID: W-6B1
Date Collected: 08/23/22 17:50
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	8.76		1.26	1.49	1.00	0.886	pCi/L	08/31/22 13:57	09/12/22 13:10	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.3		40 - 110					08/31/22 13:57	09/12/22 13:10	1
Y Carrier	87.9		40 - 110					08/31/22 13:57	09/12/22 13:10	1

Client Sample ID: W-10B-EB
Date Collected: 08/24/22 09:30
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.914		0.443	0.451	1.00	0.604	pCi/L	08/31/22 13:57	09/12/22 13:10	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	74.1		40 - 110					08/31/22 13:57	09/12/22 13:10	1
Y Carrier	85.6		40 - 110					08/31/22 13:57	09/12/22 13:10	1

Client Sample ID: W-10B
Date Collected: 08/24/22 10:00
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	4.08		0.929	1.00	1.00	0.929	pCi/L	08/31/22 13:57	09/12/22 13:10	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.3		40 - 110					08/31/22 13:57	09/12/22 13:10	1
Y Carrier	87.9		40 - 110					08/31/22 13:57	09/12/22 13:10	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring Comanche -
RAD ONLY

Job ID: 280-165874-2

Method: 9320 - Radium-228 (GFPC)

Client Sample ID: MW-7
Date Collected: 08/24/22 13:05
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	3.28		0.849	0.901	1.00	0.875	pCi/L	08/31/22 13:57	09/12/22 13:10	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.3		40 - 110					08/31/22 13:57	09/12/22 13:10	1
Y Carrier	89.7		40 - 110					08/31/22 13:57	09/12/22 13:10	1

Client Sample ID: W-14
Date Collected: 08/24/22 15:00
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-10
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	4.29		0.951	1.03	1.00	0.896	pCi/L	08/31/22 13:57	09/12/22 13:10	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.6		40 - 110					08/31/22 13:57	09/12/22 13:10	1
Y Carrier	86.4		40 - 110					08/31/22 13:57	09/12/22 13:10	1

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

Client Sample ID: W-2A
Date Collected: 08/22/22 15:30
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	8.57		1.37	1.54	5.00	1.20	pCi/L		09/22/22 13:40	1

Client Sample ID: W-2C
Date Collected: 08/23/22 10:45
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	6.33		1.19	1.27	5.00	1.22	pCi/L		09/22/22 13:40	1

Client Sample ID: W-3B
Date Collected: 08/23/22 12:15
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	13.4		1.49	1.76	5.00	1.09	pCi/L		09/22/22 13:40	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring Comanche -
RAD ONLY

Job ID: 280-165874-2

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

Client Sample ID: W-5B
Date Collected: 08/23/22 14:10
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	5.35		0.754	0.871	5.00	0.554	pCi/L		09/22/22 13:40	1

Client Sample ID: W-5B-FD
Date Collected: 08/23/22 14:30
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.12		0.523	0.545	5.00	0.590	pCi/L		09/22/22 13:40	1

Client Sample ID: W-6B1
Date Collected: 08/23/22 17:50
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	12.2		1.34	1.59	5.00	0.886	pCi/L		09/22/22 13:40	1

Client Sample ID: W-10B-EB
Date Collected: 08/24/22 09:30
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.907		0.445	0.453	5.00	0.604	pCi/L		09/22/22 13:40	1

Client Sample ID: W-10B
Date Collected: 08/24/22 10:00
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	4.79		0.954	1.03	5.00	0.929	pCi/L		09/22/22 13:40	1

Client Sample ID: MW-7
Date Collected: 08/24/22 13:05
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	3.66		0.866	0.917	5.00	0.875	pCi/L		09/22/22 13:40	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring Comanche -
RAD ONLY

Job ID: 280-165874-2

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

Client Sample ID: W-14
Date Collected: 08/24/22 15:00
Date Received: 08/25/22 14:13

Lab Sample ID: 280-165874-10
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2 σ +/-)	Total Uncert. (2 σ +/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	5.62		0.997	1.08	5.00	0.896	pCi/L		09/22/22 13:40	1

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring Comanche -
RAD ONLY

Job ID: 280-165874-2

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-580175/1-A

Matrix: Water

Analysis Batch: 583158

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 580175

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.02772	U	0.0542	0.0543	1.00	0.0973	pCi/L	08/31/22 13:20	09/22/22 07:46	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.8		40 - 110					08/31/22 13:20	09/22/22 07:46	1

Lab Sample ID: LCS 160-580175/2-A

Matrix: Water

Analysis Batch: 583158

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 580175

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
Radium-226	11.3	9.827		1.03	1.00	0.0885	pCi/L	87	75 - 125	
Carrier	LCS %Yield	LCS Qualifier	Limits							
Ba Carrier	92.3		40 - 110							

Lab Sample ID: LCSD 160-580175/3-A

Matrix: Water

Analysis Batch: 583158

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 580175

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-226	11.3	10.23		1.06	1.00	0.120	pCi/L	90	75 - 125	0.19	1
Carrier	LCSD %Yield	LCSD Qualifier	Limits								
Ba Carrier	102		40 - 110								

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-580177/1-A

Matrix: Water

Analysis Batch: 581854

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 580177

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.9689		0.358	0.369	1.00	0.448	pCi/L	08/31/22 13:57	09/12/22 13:09	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.8		40 - 110					08/31/22 13:57	09/12/22 13:09	1
Y Carrier	87.5		40 - 110					08/31/22 13:57	09/12/22 13:09	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring Comanche -
RAD ONLY

Job ID: 280-165874-2

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

Lab Sample ID: LCS 160-580177/2-A

Matrix: Water

Analysis Batch: 581854

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 580177

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-228		8.28	12.12		1.50	1.00	0.435	pCi/L	146	75 - 125		
Carrier	LCS %Yield	LCS Qualifier	Limits									
Ba Carrier	92.3		40 - 110									
Y Carrier	88.2		40 - 110									

Lab Sample ID: LCSD 160-580177/3-A

Matrix: Water

Analysis Batch: 581854

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 580177

Analyte		Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-228		8.28	10.45		1.32	1.00	0.442	pCi/L	126	75 - 125	0.59	1
Carrier	LCSD %Yield	LCSD Qualifier	Limits									
Ba Carrier	102		40 - 110									
Y Carrier	87.5		40 - 110									

QC Association Summary

Client: HDR Inc

Job ID: 280-165874-2

Project/Site: Xcel Energy GW CCR Monitoring Comanche -
RAD ONLY

Rad

Prep Batch: 580175

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-165874-1	W-2A	Total/NA	Water	PrecSep-21	
280-165874-2	W-2C	Total/NA	Water	PrecSep-21	
280-165874-3	W-3B	Total/NA	Water	PrecSep-21	
280-165874-4	W-5B	Total/NA	Water	PrecSep-21	
280-165874-5	W-5B-FD	Total/NA	Water	PrecSep-21	
280-165874-6	W-6B1	Total/NA	Water	PrecSep-21	
280-165874-7	W-10B-EB	Total/NA	Water	PrecSep-21	
280-165874-8	W-10B	Total/NA	Water	PrecSep-21	
280-165874-9	MW-7	Total/NA	Water	PrecSep-21	
280-165874-10	W-14	Total/NA	Water	PrecSep-21	
MB 160-580175/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-580175/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-580175/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 580177

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-165874-1	W-2A	Total/NA	Water	PrecSep_0	
280-165874-2	W-2C	Total/NA	Water	PrecSep_0	
280-165874-3	W-3B	Total/NA	Water	PrecSep_0	
280-165874-4	W-5B	Total/NA	Water	PrecSep_0	
280-165874-5	W-5B-FD	Total/NA	Water	PrecSep_0	
280-165874-6	W-6B1	Total/NA	Water	PrecSep_0	
280-165874-7	W-10B-EB	Total/NA	Water	PrecSep_0	
280-165874-8	W-10B	Total/NA	Water	PrecSep_0	
280-165874-9	MW-7	Total/NA	Water	PrecSep_0	
280-165874-10	W-14	Total/NA	Water	PrecSep_0	
MB 160-580177/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-580177/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-580177/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Eurofins Denver

Lab Chronicle

Client: HDR Inc

Job ID: 280-165874-2

Project/Site: Xcel Energy GW CCR Monitoring Comanche -
RAD ONLY

Client Sample ID: W-2A

Lab Sample ID: 280-165874-1

Date Collected: 08/22/22 15:30

Matrix: Water

Date Received: 08/25/22 14:13

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			500.69 mL	1.0 g	580175	08/31/22 13:20	TJ	EET SL
Total/NA	Analysis	9315		1			583158	09/22/22 07:46	FLC	EET SL
Total/NA	Prep	PrecSep_0			500.69 mL	1.0 g	580177	08/31/22 13:57	TJ	EET SL
Total/NA	Analysis	9320		1			581854	09/12/22 13:09	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			583195	09/22/22 13:40	CLP	EET SL

Client Sample ID: W-2C

Lab Sample ID: 280-165874-2

Date Collected: 08/23/22 10:45

Matrix: Water

Date Received: 08/25/22 14:13

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			500.26 mL	1.0 g	580175	08/31/22 13:20	TJ	EET SL
Total/NA	Analysis	9315		1			583158	09/22/22 07:47	FLC	EET SL
Total/NA	Prep	PrecSep_0			500.26 mL	1.0 g	580177	08/31/22 13:57	TJ	EET SL
Total/NA	Analysis	9320		1			581854	09/12/22 13:09	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			583195	09/22/22 13:40	CLP	EET SL

Client Sample ID: W-3B

Lab Sample ID: 280-165874-3

Date Collected: 08/23/22 12:15

Matrix: Water

Date Received: 08/25/22 14:13

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			500.24 mL	1.0 g	580175	08/31/22 13:20	TJ	EET SL
Total/NA	Analysis	9315		1			583158	09/22/22 07:47	FLC	EET SL
Total/NA	Prep	PrecSep_0			500.24 mL	1.0 g	580177	08/31/22 13:57	TJ	EET SL
Total/NA	Analysis	9320		1			581854	09/12/22 13:09	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			583195	09/22/22 13:40	CLP	EET SL

Client Sample ID: W-5B

Lab Sample ID: 280-165874-4

Date Collected: 08/23/22 14:10

Matrix: Water

Date Received: 08/25/22 14:13

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			751.03 mL	1.0 g	580175	08/31/22 13:20	TJ	EET SL
Total/NA	Analysis	9315		1			583158	09/22/22 07:47	FLC	EET SL
Total/NA	Prep	PrecSep_0			751.03 mL	1.0 g	580177	08/31/22 13:57	TJ	EET SL
Total/NA	Analysis	9320		1			581854	09/12/22 13:09	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			583195	09/22/22 13:40	CLP	EET SL

Eurofins Denver

Lab Chronicle

Client: HDR Inc

Job ID: 280-165874-2

Project/Site: Xcel Energy GW CCR Monitoring Comanche -
RAD ONLY

Client Sample ID: W-5B-FD

Lab Sample ID: 280-165874-5

Date Collected: 08/23/22 14:30

Matrix: Water

Date Received: 08/25/22 14:13

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			750.18 mL	1.0 g	580175	08/31/22 13:20	TJ	EET SL
Total/NA	Analysis	9315		1			583158	09/22/22 07:47	FLC	EET SL
Total/NA	Prep	PrecSep_0			750.18 mL	1.0 g	580177	08/31/22 13:57	TJ	EET SL
Total/NA	Analysis	9320		1			581854	09/12/22 13:10	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			583195	09/22/22 13:40	CLP	EET SL

Client Sample ID: W-6B1

Lab Sample ID: 280-165874-6

Date Collected: 08/23/22 17:50

Matrix: Water

Date Received: 08/25/22 14:13

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			501.92 mL	1.0 g	580175	08/31/22 13:20	TJ	EET SL
Total/NA	Analysis	9315		1			583158	09/22/22 07:47	FLC	EET SL
Total/NA	Prep	PrecSep_0			501.92 mL	1.0 g	580177	08/31/22 13:57	TJ	EET SL
Total/NA	Analysis	9320		1			581854	09/12/22 13:10	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			583195	09/22/22 13:40	CLP	EET SL

Client Sample ID: W-10B-EB

Lab Sample ID: 280-165874-7

Date Collected: 08/24/22 09:30

Matrix: Water

Date Received: 08/25/22 14:13

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.63 mL	1.0 g	580175	08/31/22 13:20	TJ	EET SL
Total/NA	Analysis	9315		1			583158	09/22/22 07:48	FLC	EET SL
Total/NA	Prep	PrecSep_0			999.63 mL	1.0 g	580177	08/31/22 13:57	TJ	EET SL
Total/NA	Analysis	9320		1			581854	09/12/22 13:10	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			583195	09/22/22 13:40	CLP	EET SL

Client Sample ID: W-10B

Lab Sample ID: 280-165874-8

Date Collected: 08/24/22 10:00

Matrix: Water

Date Received: 08/25/22 14:13

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			500.25 mL	1.0 g	580175	08/31/22 13:20	TJ	EET SL
Total/NA	Analysis	9315		1			583158	09/22/22 07:48	FLC	EET SL
Total/NA	Prep	PrecSep_0			500.25 mL	1.0 g	580177	08/31/22 13:57	TJ	EET SL
Total/NA	Analysis	9320		1			581854	09/12/22 13:10	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			583195	09/22/22 13:40	CLP	EET SL

Eurofins Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring Comanche -
RAD ONLY

Job ID: 280-165874-2

Client Sample ID: MW-7

Lab Sample ID: 280-165874-9

Date Collected: 08/24/22 13:05

Matrix: Water

Date Received: 08/25/22 14:13

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			502.99 mL	1.0 g	580175	08/31/22 13:20	TJ	EET SL
Total/NA	Analysis	9315		1			583158	09/22/22 07:48	FLC	EET SL
Total/NA	Prep	PrecSep_0			502.99 mL	1.0 g	580177	08/31/22 13:57	TJ	EET SL
Total/NA	Analysis	9320		1			581854	09/12/22 13:10	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			583195	09/22/22 13:40	CLP	EET SL

Client Sample ID: W-14

Lab Sample ID: 280-165874-10

Date Collected: 08/24/22 15:00

Matrix: Water

Date Received: 08/25/22 14:13

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			503.72 mL	1.0 g	580175	08/31/22 13:20	TJ	EET SL
Total/NA	Analysis	9315		1			583158	09/22/22 07:48	FLC	EET SL
Total/NA	Prep	PrecSep_0			503.72 mL	1.0 g	580177	08/31/22 13:57	TJ	EET SL
Total/NA	Analysis	9320		1			581854	09/12/22 13:10	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			583195	09/22/22 13:40	CLP	EET SL

Laboratory References:

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

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring Comanche -
RAD ONLY

Job ID: 280-165874-2

Laboratory: Eurofins St. Louis

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

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-22
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	07-01-22 *
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-22
Iowa	State	373	12-01-22
Kansas	NELAP	E-10236	10-31-22
Kentucky (DW)	State	KY90125	12-31-22
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-22
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-22
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	04-01-23
North Dakota	State	R-207	06-30-23
NRC	NRC	24-24817-01	12-31-22
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-23
South Carolina	State	85002001	06-30-22 *
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-23
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-22

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

Eurofins Denver

Chain of Custody Record

Client Information		Sampler: F. Davis Ray		Lab PM: Harrington, Danielle M	Carrier Tracking No(s):	COC No: 280-110862-32017.2						
Client Contact: Molly Reeves		Phone: (720) 298-3594		E-Mail: Danielle.Harrington@Eurofinset.com	State of Origin:	Page: of						
Company: HDR Inc		PWSID:		Job #:								
Address: 1670 Broadway Suite 3400		Due Date Requested:		Analysis Requested								
City: Denver		TAT Requested (days):		Preservation Codes:								
State/Zip: CO, 80202		Compliance Project: ☐ Yes ☐ No		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:								
Phone: 734-263-7138(Tel)		PO #: DEN-021		M - Hexane N - None O - AshNaO2 P - Na2SO3 Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)								
Email: Molly.Reeves@hdrinc.com		WO #:		Total Number of Containers								
Project Name: Xcel Energy GW CCR Monitoring - Comanche		Project #: 28014376		Special Instructions/Note:								
Site: COLORADO		SSOW#:										
APP III + IV - TSS, Additional Methods												
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=soil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Form MS/MSD (Yes or No)	6010C, 6020B, 7470A Total Metals - APP III + IV metals + Mg	9040B pH, 9056A, 28DCChloride, Fluoride, Sulfate, Alk 2340B	Radium - 226 9135 and Radium - 228 Method 9320/	2540D - TSS/2540C TDS	Barcode	280-165874 Chain of Custody
W-2A	8/22/22	1530	G	W	X	X	X	X	X	X		280-165874 Chain of Custody
W-2C	8/23/22	1045	G	W	X	X	X	X	X	X		
W-3B	8/23/22	1215	G	W	X	X	X	X	X	X		
W-5B	8/23/22	1410	G	W	X	X	X	X	X	X		
W-5B-FD	8/23/22	1430	G	W	X	X	X	X	X	X		
W-6B	8/23/22	1750	G	W	X	X	X	X	X	X		
W-10B-EB	8/24/22	0930	G	W	X	X	X	X	X	X		
W-10B	8/24/22	1000	G	W	X	X	X	X	X	X		
W-7	8/24/22	1305	G	W	X	X	X	X	X	X		
W-14	8/24/22	1500	G	W	X	X	X	X	X	X		
Possible Hazard Identification ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological												
Deliverable Requested: I, II, III, IV, Other (specify)												
Empty Kit Relinquished by:												
Relinquished by: <i>Gavin Ray</i> Date: 8/25/22 1413 Company: HDR												
Relinquished by: Date: Company:												
Relinquished by: Date: Company:												
Custody Seals Intact: ☐ Yes ☐ No Custody Seal No.:												
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) ☐ Return To Client ☐ Disposal By Lab ☐ Archive For Months												
Special Instructions/QC Requirements:												
Method of Shipment:												
Received by: <i>Attkin</i> Date: 8/25/2012 1413 Company: EA D&S												
Received by: Date: Company:												
Received by: Date: Company:												
Cooler Temperature(s) °C and Other Remarks: 0.5, 0.3, 0.4 CF-0.0 12#12												

Eurofins Denver

4955 Yarrow Street
Arvada, CO 80002

Phone: 303-736-0100 Fax: 303-431-7171

Chain of Custody Record

Environment Testing
America

Client Information (Sub Contract Lab)		Sampler:		Lab PM:		Carrier Tracking No(s):		COC No:	
Client Contact:		Phone:		Harrington, Danielle M				280-626522.1	
Shipping/Receiving				E-Mail:		State of Origin:		Page:	
Company:				Danielle.Harrington@et.eurofins.com		Colorado		Page 1 of 2	
TestAmerica Laboratories, Inc.				Accreditations Required (See note):				Job #:	
Address:				DoD - A2LA				280-165874-2	
City:				Due Date Requested:				Preservation Codes:	
Earth City				9/26/2022				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)	
State, Zip:				TAT Requested (days):				Analysis Requested	
MO, 63045				1				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:	
Phone:				PO #:				Total Number of containers	
314-298-8566(Tel) 314-298-8757(Fax)				WO #:				2	
Email:				Project #:				Special Instructions/Note:	
				28014376					
Project Name:				SSOW#:					
Xcel Energy GW CCR Monitoring Comanche - RAD ONLY									
Site:									
Xcel Energy CCR - Comanche Station									

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=Water, S=Solid, O=Organic, B=Blood, T=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226/PreSep_21_Ra226 (1/3) - SUB	9320_Ra226/PreSep_0_Ra226 (2/3) - SUB	Ra226Ra228_GFP/Ci_Ra226/Ra228 Calc (3/3) - SUB	Total Number of containers	Special Instructions/Note:
W-2A (280-165874-1)	8/22/22	15:30	Mountain	Water			X	X	X	2	
W-2C (280-165874-2)	8/23/22	10:45	Mountain	Water			X	X	X	2	
W-3B (280-165874-3)	8/23/22	12:15	Mountain	Water			X	X	X	2	
W-5B (280-165874-4)	8/23/22	14:10	Mountain	Water			X	X	X	2	
W-5B-FD (280-165874-5)	8/23/22	14:30	Mountain	Water			X	X	X	2	
W-6B (280-165874-6)	8/23/22	17:50	Mountain	Water			X	X	X	2	
W-10B-EB (280-165874-7)	8/24/22	09:30	Mountain	Water			X	X	X	2	
W-10B (280-165874-8)	8/24/22	10:00	Mountain	Water			X	X	X	2	
MW-7 (280-165874-9)	8/24/22	13:05	Mountain	Water			X	X	X	2	

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

Possible Hazard Identification
Unconfirmed

Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2

Empty Kit Relinquished by: _____ Date: _____ Time: _____ Method of Shipment: _____

Relinquished by: _____ Date/Time: _____ Company: _____ Received by: _____ Date/Time: _____ Company: _____

Relinquished by: _____ Date/Time: _____ Company: _____ Received by: _____ Date/Time: _____ Company: _____

Relinquished by: _____ Date/Time: _____ Company: _____ Received by: _____ Date/Time: _____ Company: _____

Custody Seals Intact: _____ Custody Seal No.: _____ Cooler Temperature(s) °C and Other Remarks: _____

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-165874-2

Login Number: 165874

List Number: 1

Creator: Roehsner, Karen P

List Source: Eurofins Denver

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

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-165874-2

Login Number: 165874

List Number: 2

Creator: Bohlmann, Jessica M

List Source: Eurofins St. Louis

List Creation: 08/29/22 10:49 AM

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

Tracer/Carrier Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring Comanche -
RAD ONLY

Job ID: 280-165874-2

Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)					
Lab Sample ID	Client Sample ID	Ba (40-110)					
280-165874-1	W-2A	78.3					
280-165874-2	W-2C	74.3					
280-165874-3	W-3B	85.7					
280-165874-4	W-5B	101					
280-165874-5	W-5B-FD	101					
280-165874-6	W-6B1	95.3					
280-165874-7	W-10B-EB	74.1					
280-165874-8	W-10B	97.3					
280-165874-9	MW-7	93.3					
280-165874-10	W-14	94.6					
LCS 160-580175/2-A	Lab Control Sample	92.3					
LCSD 160-580175/3-A	Lab Control Sample Dup	102					
MB 160-580175/1-A	Method Blank	99.8					
Tracer/Carrier Legend							
Ba = Ba Carrier							

Method: 9320 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)					
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)				
280-165874-1	W-2A	78.3	88.6				
280-165874-2	W-2C	74.3	89.0				
280-165874-3	W-3B	85.7	88.2				
280-165874-4	W-5B	101	89.7				
280-165874-5	W-5B-FD	101	87.9				
280-165874-6	W-6B1	95.3	87.9				
280-165874-7	W-10B-EB	74.1	85.6				
280-165874-8	W-10B	97.3	87.9				
280-165874-9	MW-7	93.3	89.7				
280-165874-10	W-14	94.6	86.4				
LCS 160-580177/2-A	Lab Control Sample	92.3	88.2				
LCSD 160-580177/3-A	Lab Control Sample Dup	102	87.5				
MB 160-580177/1-A	Method Blank	99.8	87.5				
Tracer/Carrier Legend							
Ba = Ba Carrier							
Y = Y Carrier							

Eurofins Denver



Environment Testing

ANALYTICAL REPORT

Eurofins Denver
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Laboratory Job ID: 280-167106-1

Client Project/Site: Xcel Energy GW CCR Monitoring -
Comanche

Revision: 4

For:

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Authorized for release by:
11/11/2022 1:59:57 PM

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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 {0} Project Manager.

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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-1

Qualifiers

Metals

Qualifier	Qualifier Description
^~	Continuing Calibration Verification (CCV) is outside acceptance limits, low biased.
^+	Continuing Calibration Verification (CCV) is outside acceptance limits, high biased.
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.
B	Compound was found in the blank and sample.
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-1

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Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-167106-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

The presence of the '4' qualifier indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount.

Revision 1, October 17, 2022

The initial report included pages from an early preliminary report generated before all results were complete. Those pages have been removed.

Revision 2, October 26, 2022

This report has been revised to include sodium results per the clients request.

Revision 3, November 11, 2022

There was a B-flag pulling in on the sodium results, but it was not detected in the method blank. This revision has removed the B-flag.

Receipt

The samples were received on 9/30/2022 3:35 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 0.7° C and 2.1° C.

DISSOLVED METALS

Samples W-6B1 (280-167106-3) and W-10B (280-167106-5) were analyzed for Dissolved Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared and analyzed on 10/06/2022.

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

TOTAL RECOVERABLE METALS

Samples W-14 (280-167106-1), W-14-FD (280-167106-2), W-6B1 (280-167106-3), W-10B-EB (280-167106-4) and W-10B (280-167106-5) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared and analyzed on 10/05/2022.

The low level continuing calibration verification (CCVL) associated with batch 280-589086 recovered above the upper control limit for Li. The samples associated with this CCVL were either below the reporting limit or greater than 10x the level of the CCVL; therefore, the data have been reported.

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-1

Job ID: 280-167106-1 (Continued)

Laboratory: Eurofins Denver (Continued)

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

DISSOLVED METALS (ICP/MS)

Samples W-6B1 (280-167106-3) and W-10B (280-167106-5) were analyzed for Dissolved Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 10/05/2022 and analyzed on 10/07/2022, 10/08/2022 and 10/10/2022.

Several analytes were detected in method blank MB 280-588674/1-D at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Cobalt, Lead, Thallium and Calcium failed the recovery criteria low for the MS of sample W-6B1MS (280-167106-3) in batch 280-589509. Selenium and Beryllium failed the recovery criteria high.

Lead, Thallium and Calcium failed the recovery criteria low for the MSD of sample W-6B1MSD (280-167106-3) in batch 280-589509. Selenium and Beryllium failed the recovery criteria high.

Samples W-6B1 (280-167106-3)[50X] and W-10B (280-167106-5)[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

TOTAL RECOVERABLE METALS (ICP/MS)

Samples W-14 (280-167106-1), W-14-FD (280-167106-2), W-6B1 (280-167106-3), W-10B-EB (280-167106-4) and W-10B (280-167106-5) were analyzed for Total Recoverable Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 10/05/2022 and analyzed on 10/05/2022, 10/06/2022, 10/07/2022, 10/10/2022 and 10/12/2022.

The continuing calibration verification (CCV) associated with batch 280-589801 recovered (121%) above the upper control limit (110%) for Be. The samples associated with this CCV were <LOD for the affected analytes; therefore, the data have been reported. The associated samples are impacted: W-14 (280-167106-1), W-14-FD (280-167106-2), W-6B1 (280-167106-3), W-10B (280-167106-5) and (CCV 280-589801/173).

The instrument blank for analytical batch 280-589801 contained 61 ppb K which is greater than one-half the reporting limit (RL) of 120 ppb, and were not re-analyzed because the sample was >10x the blank. The data have been qualified and reported.

Cobalt failed the recovery criteria low for the MS of sample 280-167094-1 in batch 280-589801. Magnesium, Calcium and Potassium failed the recovery criteria high.

Calcium failed the recovery criteria low for the MSD of sample 280-167094-1 in batch 280-589801. Magnesium and Potassium failed the recovery criteria high.

Samples W-14 (280-167106-1)[50X], W-14-FD (280-167106-2)[50X], W-6B1 (280-167106-3)[50X] and W-10B (280-167106-5)[50X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

TOTAL MERCURY

Samples W-14 (280-167106-1), W-14-FD (280-167106-2), W-6B1 (280-167106-3), W-10B-EB (280-167106-4) and W-10B (280-167106-5) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 10/05/2022.

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

ALKALINITY

Samples W-14 (280-167106-1), W-14-FD (280-167106-2), W-6B1 (280-167106-3), W-10B-EB (280-167106-4) and W-10B (280-167106-5) were analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 10/03/2022.

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-1

Job ID: 280-167106-1 (Continued)

Laboratory: Eurofins Denver (Continued)

The method blank (MB) and continuing calibration blank (CCB) for analytical batch 280-588714 contained Alkalinity, Bicarbonate Alkalinity as CaCO₃ and Carbonate Alkalinity as CaCO₃ above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-analysis of samples was not performed.

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

TOTAL DISSOLVED SOLIDS

Samples W-14 (280-167106-1), W-14-FD (280-167106-2), W-6B1 (280-167106-3), W-10B-EB (280-167106-4) and W-10B (280-167106-5) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 10/03/2022.

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

TOTAL SUSPENDED SOLIDS

Samples W-14 (280-167106-1), W-14-FD (280-167106-2), W-6B1 (280-167106-3), W-10B-EB (280-167106-4) and W-10B (280-167106-5) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 10/04/2022.

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

CORROSIVITY (PH)

Samples W-14 (280-167106-1), W-14-FD (280-167106-2), W-6B1 (280-167106-3), W-10B-EB (280-167106-4) and W-10B (280-167106-5) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 10/03/2022 and 10/07/2022.

pH adj. to 25 deg C exceeded the RPD limit for the duplicate of sample 280-167102-1. Refer to the QC report for details.

Sample did not equilibrate to within 0.05 pH units after three measurements. This was observed in a previous analysis thus the sample was not rerun: W-10B-EB (280-167106-4)

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

ANIONS (28 DAYS)

Samples W-14 (280-167106-1), W-14-FD (280-167106-2), W-6B1 (280-167106-3), W-10B-EB (280-167106-4) and W-10B (280-167106-5) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days). The samples were analyzed on 10/07/2022, 10/11/2022 and 10/12/2022.

Sulfate failed the recovery criteria low for the MS and MSD of sample 280-167181-2 in batch 280-589708. Refer to the QC report for details.

Samples W-14 (280-167106-1)[10X], W-14 (280-167106-1)[100X], W-14-FD (280-167106-2)[10X], W-14-FD (280-167106-2)[100X], W-6B1 (280-167106-3)[500X] and W-10B (280-167106-5)[20X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-1

Job ID: 280-167106-1 (Continued)

Laboratory: Eurofins Denver (Continued)

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Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-1

Client Sample ID: W-14

Lab Sample ID: 280-167106-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.63		0.10	0.0015	mg/L	1		6010C	Total
									Recoverable
Lithium	3.5	^+	0.020	0.0091	mg/L	1		6010C	Total
									Recoverable
Antimony	0.00053	J	0.0020	0.00040	mg/L	1		6020B	Total
									Recoverable
Magnesium	1700		2.5	1.1	mg/L	50		6020B	Total
									Recoverable
Arsenic	0.00040	J	0.0050	0.00033	mg/L	1		6020B	Total
									Recoverable
Barium	0.014		0.0010	0.00029	mg/L	1		6020B	Total
									Recoverable
Potassium	46		6.0	2.6	mg/L	50		6020B	Total
									Recoverable
Cadmium	0.0012		0.0010	0.00027	mg/L	1		6020B	Total
									Recoverable
Chromium	0.0013	J	0.0020	0.00050	mg/L	1		6020B	Total
									Recoverable
Sodium	5400		7.5	3.2	mg/L	50		6020B	Total
									Recoverable
Cobalt	0.011		0.0010	0.000092	mg/L	1		6020B	Total
									Recoverable
Molybdenum	0.015		0.0020	0.00014	mg/L	1		6020B	Total
									Recoverable
Selenium	1.3		0.0050	0.00037	mg/L	1		6020B	Total
									Recoverable
Thallium	0.0022		0.0010	0.000089	mg/L	1		6020B	Total
									Recoverable
Calcium	430		10	1.9	mg/L	50		6020B	Total
									Recoverable
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	19.8	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	590		30	10	mg/L	10		9056A	Total/NA
Fluoride	40		5.0	1.7	mg/L	10		9056A	Total/NA
Sulfate	17000		500	100	mg/L	100		9056A	Total/NA
Alkalinity	1000		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	1000		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	23000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	8.8		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-14-FD

Lab Sample ID: 280-167106-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.64		0.10	0.0015	mg/L	1		6010C	Total
									Recoverable
Lithium	3.5	^+	0.020	0.0091	mg/L	1		6010C	Total
									Recoverable
Antimony	0.00051	J	0.0020	0.00040	mg/L	1		6020B	Total
									Recoverable
Magnesium	1700		2.5	1.1	mg/L	50		6020B	Total
									Recoverable
Arsenic	0.00039	J	0.0050	0.00033	mg/L	1		6020B	Total
									Recoverable
Barium	0.013		0.0010	0.00029	mg/L	1		6020B	Total
									Recoverable
Potassium	47		6.0	2.6	mg/L	50		6020B	Total
									Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-1

Client Sample ID: W-14-FD (Continued)

Lab Sample ID: 280-167106-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cadmium	0.0010		0.0010	0.00027	mg/L	1		6020B	Total
									Recoverable
Chromium	0.0014	J	0.0020	0.00050	mg/L	1		6020B	Total
									Recoverable
Sodium	5600		7.5	3.2	mg/L	50		6020B	Total
									Recoverable
Cobalt	0.012		0.0010	0.000092	mg/L	1		6020B	Total
									Recoverable
Molybdenum	0.015		0.0020	0.00014	mg/L	1		6020B	Total
									Recoverable
Selenium	1.3		0.0050	0.00037	mg/L	1		6020B	Total
									Recoverable
Thallium	0.0023		0.0010	0.000089	mg/L	1		6020B	Total
									Recoverable
Calcium	410		10	1.9	mg/L	50		6020B	Total
									Recoverable
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	19.8	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	600		30	10	mg/L	10		9056A	Total/NA
Fluoride	39		5.0	1.7	mg/L	10		9056A	Total/NA
Sulfate	17000		500	100	mg/L	100		9056A	Total/NA
Alkalinity	1100		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	1100		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	24000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	4.4		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-6B1

Lab Sample ID: 280-167106-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.98		0.10	0.0015	mg/L	1		6010C	Total
									Recoverable
Lithium	3.6	^+	0.020	0.0091	mg/L	1		6010C	Total
									Recoverable
Boron	0.94		0.10	0.0015	mg/L	1		6010C	Dissolved
Lithium	3.4		0.020	0.0091	mg/L	1		6010C	Dissolved
Antimony	0.00093	J	0.0020	0.00040	mg/L	1		6020B	Total
									Recoverable
Magnesium	5300		2.5	1.1	mg/L	50		6020B	Total
									Recoverable
Arsenic	0.0017	J	0.0050	0.00033	mg/L	1		6020B	Total
									Recoverable
Barium	0.022		0.0010	0.00029	mg/L	1		6020B	Total
									Recoverable
Potassium	49		6.0	2.6	mg/L	50		6020B	Total
									Recoverable
Beryllium	0.00028	J ^- ^+	0.0010	0.000080	mg/L	1		6020B	Total
									Recoverable
Cadmium	0.027		0.0010	0.00027	mg/L	1		6020B	Total
									Recoverable
Chromium	0.0022		0.0020	0.00050	mg/L	1		6020B	Total
									Recoverable
Sodium	11000		7.5	3.2	mg/L	50		6020B	Total
									Recoverable
Cobalt	0.13		0.0010	0.000092	mg/L	1		6020B	Total
									Recoverable
Lead	0.0012		0.0010	0.00018	mg/L	1		6020B	Total
									Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-1

Client Sample ID: W-6B1 (Continued)

Lab Sample ID: 280-167106-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Molybdenum	0.0068		0.0020	0.00014	mg/L	1		6020B	Total
									Recoverable
Selenium	0.0076		0.0050	0.00037	mg/L	1		6020B	Total
									Recoverable
Thallium	0.0043		0.0010	0.000089	mg/L	1		6020B	Total
									Recoverable
Calcium	490		10	1.9	mg/L	50		6020B	Total
									Recoverable
Antimony	0.00081	J B	0.0020	0.00040	mg/L	1		6020B	Dissolved
Arsenic	0.00096	J B	0.0050	0.00033	mg/L	1		6020B	Dissolved
Barium	0.018	B	0.0010	0.00029	mg/L	1		6020B	Dissolved
Cadmium	0.026		0.0010	0.00027	mg/L	1		6020B	Dissolved
Chromium	0.00054	J B	0.0020	0.00050	mg/L	1		6020B	Dissolved
Cobalt	0.13	F1	0.0010	0.000092	mg/L	1		6020B	Dissolved
Calcium	530		10	1.9	mg/L	50		6020B	Dissolved
Molybdenum	0.0063	B	0.0020	0.00014	mg/L	1		6020B	Dissolved
Selenium	0.0075	B F1	0.0050	0.00037	mg/L	1		6020B	Dissolved
Thallium	0.0043	F1	0.0010	0.000089	mg/L	1		6020B	Dissolved
pH adj. to 25 deg C	6.7	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	20.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	120		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	8.2		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	46000		2500	520	mg/L	500		9056A	Total/NA
Alkalinity	890		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	890		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	62000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	64		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-10B-EB

Lab Sample ID: 280-167106-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.0020	J	0.10	0.0015	mg/L	1		6010C	Total
									Recoverable
Lithium	0.012	J ^+	0.020	0.0091	mg/L	1		6010C	Total
									Recoverable
Magnesium	0.042	J	0.050	0.021	mg/L	1		6020B	Total
									Recoverable
Barium	0.00041	J	0.0010	0.00029	mg/L	1		6020B	Total
									Recoverable
Calcium	0.058	J	0.20	0.038	mg/L	1		6020B	Total
									Recoverable
pH adj. to 25 deg C	8.6	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	19.4	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Alkalinity	3.9	J	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	3.9	J	10	3.1	mg/L	1		SM 2320B	Total/NA
Total Suspended Solids	1.2	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-10B

Lab Sample ID: 280-167106-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.0		0.10	0.0015	mg/L	1		6010C	Total
									Recoverable
Lithium	6.0	^+	0.020	0.0091	mg/L	1		6010C	Total
									Recoverable
Boron	1.0		0.10	0.0015	mg/L	1		6010C	Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-1

Client Sample ID: W-10B (Continued)

Lab Sample ID: 280-167106-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lithium	5.8		0.020	0.0091	mg/L	1		6010C	Dissolved
Magnesium	11000		2.5	1.1	mg/L	50		6020B	Total
Arsenic	0.00079	J	0.0050	0.00033	mg/L	1		6020B	Recoverable
Barium	0.022		0.0010	0.00029	mg/L	1		6020B	Total
Potassium	78		6.0	2.6	mg/L	50		6020B	Recoverable
Beryllium	0.00025	J ^- ^+	0.0010	0.000080	mg/L	1		6020B	Total
Chromium	0.0014	J	0.0020	0.00050	mg/L	1		6020B	Recoverable
Sodium	6100		7.5	3.2	mg/L	50		6020B	Total
Cobalt	0.0027		0.0010	0.000092	mg/L	1		6020B	Recoverable
Lead	0.00033	J	0.0010	0.00018	mg/L	1		6020B	Total
Molybdenum	0.0037		0.0020	0.00014	mg/L	1		6020B	Recoverable
Selenium	5.0		0.25	0.019	mg/L	50		6020B	Total
Thallium	0.0074		0.0010	0.000089	mg/L	1		6020B	Recoverable
Calcium	440		10	1.9	mg/L	50		6020B	Total
Antimony	0.00055	J B	0.0020	0.00040	mg/L	1		6020B	Recoverable
Arsenic	0.00096	J B	0.0050	0.00033	mg/L	1		6020B	Dissolved
Barium	0.019	B	0.0010	0.00029	mg/L	1		6020B	Dissolved
Beryllium	0.00066	J	0.0010	0.000080	mg/L	1		6020B	Dissolved
Cadmium	0.00049	J	0.0010	0.00027	mg/L	1		6020B	Dissolved
Chromium	0.00056	J B	0.0020	0.00050	mg/L	1		6020B	Dissolved
Cobalt	0.0034		0.0010	0.000092	mg/L	1		6020B	Dissolved
Calcium	520		2.0	0.38	mg/L	10		6020B	Dissolved
Molybdenum	0.0046	B	0.0020	0.00014	mg/L	1		6020B	Dissolved
Selenium	5.3		0.050	0.0037	mg/L	10		6020B	Dissolved
Thallium	0.0053		0.0010	0.000089	mg/L	1		6020B	Dissolved
pH adj. to 25 deg C	6.9	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.5	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	50		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	4.6		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	2500		100	21	mg/L	20		9056A	Total/NA
Alkalinity	980		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	980		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	79000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	24		4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Method Summary

Client: HDR Inc

Job ID: 280-167106-1

Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	EET DEN
6020B	Metals (ICP/MS)	SW846	EET DEN
7470A	Mercury (CVAA)	SW846	EET DEN
9040B	pH	SW846	EET DEN
9056A	Anions, Ion Chromatography	SW846	EET DEN
SM 2320B	Alkalinity	SM	EET DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET DEN
SM 2540D	Solids, Total Suspended (TSS)	SM	EET DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET DEN
7470A	Preparation, Mercury	SW846	EET DEN
FILTRATION	Sample Filtration	None	EET DEN

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.

Laboratory References:

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

Sample Summary

Client: HDR Inc

Job ID: 280-167106-1

Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-167106-1	W-14	Water	09/28/22 16:00	09/30/22 15:35
280-167106-2	W-14-FD	Water	09/28/22 16:30	09/30/22 15:35
280-167106-3	W-6B1	Water	09/29/22 16:30	09/30/22 15:35
280-167106-4	W-10B-EB	Water	09/30/22 10:00	09/30/22 15:35
280-167106-5	W-10B	Water	09/30/22 10:30	09/30/22 15:35

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-1

Method: SW846 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: W-14
Date Collected: 09/28/22 16:00
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.63		0.10	0.0015	mg/L		10/05/22 06:41	10/05/22 21:17	1
Lithium	3.5	^+	0.020	0.0091	mg/L		10/05/22 06:41	10/05/22 21:17	1

Client Sample ID: W-14-FD
Date Collected: 09/28/22 16:30
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.64		0.10	0.0015	mg/L		10/05/22 06:41	10/05/22 21:21	1
Lithium	3.5	^+	0.020	0.0091	mg/L		10/05/22 06:41	10/05/22 21:21	1

Client Sample ID: W-6B1
Date Collected: 09/29/22 16:30
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.98		0.10	0.0015	mg/L		10/05/22 06:41	10/05/22 21:25	1
Lithium	3.6	^+	0.020	0.0091	mg/L		10/05/22 06:41	10/05/22 21:25	1

Client Sample ID: W-10B-EB
Date Collected: 09/30/22 10:00
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.0020	J	0.10	0.0015	mg/L		10/05/22 06:41	10/05/22 21:29	1
Lithium	0.012	J ^+	0.020	0.0091	mg/L		10/05/22 06:41	10/05/22 21:29	1

Client Sample ID: W-10B
Date Collected: 09/30/22 10:30
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.0		0.10	0.0015	mg/L		10/05/22 06:41	10/05/22 21:33	1
Lithium	6.0	^+	0.020	0.0091	mg/L		10/05/22 06:41	10/05/22 21:33	1

Method: SW846 6010C - Metals (ICP) - Dissolved

Client Sample ID: W-6B1
Date Collected: 09/29/22 16:30
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.94		0.10	0.0015	mg/L		10/06/22 01:00	10/06/22 17:54	1
Lithium	3.4		0.020	0.0091	mg/L		10/06/22 01:00	10/06/22 17:54	1

Client Sample ID: W-10B
Date Collected: 09/30/22 10:30
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.0		0.10	0.0015	mg/L		10/06/22 01:00	10/06/22 17:58	1
Lithium	5.8		0.020	0.0091	mg/L		10/06/22 01:00	10/06/22 17:58	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-1

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

Client Sample ID: W-14
Date Collected: 09/28/22 16:00
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00053	J	0.0020	0.00040	mg/L		10/05/22 06:46	10/07/22 02:00	1
Magnesium	1700		2.5	1.1	mg/L		10/05/22 06:46	10/05/22 20:37	50
Arsenic	0.00040	J	0.0050	0.00033	mg/L		10/05/22 06:46	10/07/22 02:00	1
Barium	0.014		0.0010	0.00029	mg/L		10/05/22 06:46	10/12/22 22:42	1
Potassium	46		6.0	2.6	mg/L		10/05/22 06:46	10/12/22 14:11	50
Beryllium	ND	^+	0.0010	0.000080	mg/L		10/05/22 06:46	10/12/22 22:42	1
Cadmium	0.0012		0.0010	0.00027	mg/L		10/05/22 06:46	10/07/22 02:00	1
Chromium	0.0013	J	0.0020	0.00050	mg/L		10/05/22 06:46	10/07/22 02:00	1
Sodium	5400		7.5	3.2	mg/L		10/05/22 06:46	10/12/22 14:11	50
Cobalt	0.011		0.0010	0.000092	mg/L		10/05/22 06:46	10/07/22 02:00	1
Lead	ND		0.0010	0.00018	mg/L		10/05/22 06:46	10/07/22 02:00	1
Molybdenum	0.015		0.0020	0.00014	mg/L		10/05/22 06:46	10/07/22 02:00	1
Selenium	1.3		0.0050	0.00037	mg/L		10/05/22 06:46	10/07/22 02:00	1
Thallium	0.0022		0.0010	0.000089	mg/L		10/05/22 06:46	10/07/22 02:00	1
Calcium	430		10	1.9	mg/L		10/05/22 06:46	10/06/22 16:16	50

Client Sample ID: W-14-FD
Date Collected: 09/28/22 16:30
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00051	J	0.0020	0.00040	mg/L		10/05/22 06:46	10/07/22 02:04	1
Magnesium	1700		2.5	1.1	mg/L		10/05/22 06:46	10/05/22 20:41	50
Arsenic	0.00039	J	0.0050	0.00033	mg/L		10/05/22 06:46	10/07/22 02:04	1
Barium	0.013		0.0010	0.00029	mg/L		10/05/22 06:46	10/12/22 22:46	1
Potassium	47		6.0	2.6	mg/L		10/05/22 06:46	10/12/22 14:15	50
Beryllium	ND	^+ ^+	0.0010	0.000080	mg/L		10/05/22 06:46	10/12/22 22:46	1
Cadmium	0.0010		0.0010	0.00027	mg/L		10/05/22 06:46	10/07/22 02:04	1
Chromium	0.0014	J	0.0020	0.00050	mg/L		10/05/22 06:46	10/07/22 02:04	1
Sodium	5600		7.5	3.2	mg/L		10/05/22 06:46	10/12/22 14:15	50
Cobalt	0.012		0.0010	0.000092	mg/L		10/05/22 06:46	10/07/22 02:04	1
Lead	ND		0.0010	0.00018	mg/L		10/05/22 06:46	10/07/22 02:04	1
Molybdenum	0.015		0.0020	0.00014	mg/L		10/05/22 06:46	10/07/22 02:04	1
Selenium	1.3		0.0050	0.00037	mg/L		10/05/22 06:46	10/07/22 02:04	1
Thallium	0.0023		0.0010	0.000089	mg/L		10/05/22 06:46	10/07/22 02:04	1
Calcium	410		10	1.9	mg/L		10/05/22 06:46	10/06/22 16:20	50

Client Sample ID: W-6B1
Date Collected: 09/29/22 16:30
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00093	J	0.0020	0.00040	mg/L		10/05/22 06:46	10/07/22 02:08	1
Magnesium	5300		2.5	1.1	mg/L		10/05/22 06:46	10/05/22 20:44	50
Arsenic	0.0017	J	0.0050	0.00033	mg/L		10/05/22 06:46	10/07/22 02:08	1
Barium	0.022		0.0010	0.00029	mg/L		10/05/22 06:46	10/12/22 22:49	1
Potassium	49		6.0	2.6	mg/L		10/05/22 06:46	10/12/22 14:19	50
Beryllium	0.00028	J ^+ ^+	0.0010	0.000080	mg/L		10/05/22 06:46	10/12/22 22:49	1
Cadmium	0.027		0.0010	0.00027	mg/L		10/05/22 06:46	10/07/22 02:08	1
Chromium	0.0022		0.0020	0.00050	mg/L		10/05/22 06:46	10/07/22 02:08	1
Sodium	11000		7.5	3.2	mg/L		10/05/22 06:46	10/12/22 14:19	50
Cobalt	0.13		0.0010	0.000092	mg/L		10/05/22 06:46	10/07/22 02:08	1

Eurofins Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-1

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

Client Sample ID: W-6B1
Date Collected: 09/29/22 16:30
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.0012		0.0010	0.00018	mg/L		10/05/22 06:46	10/07/22 02:08	1
Molybdenum	0.0068		0.0020	0.00014	mg/L		10/05/22 06:46	10/07/22 02:08	1
Selenium	0.0076		0.0050	0.00037	mg/L		10/05/22 06:46	10/07/22 02:08	1
Thallium	0.0043		0.0010	0.000089	mg/L		10/05/22 06:46	10/07/22 02:08	1
Calcium	490		10	1.9	mg/L		10/05/22 06:46	10/06/22 16:24	50

Client Sample ID: W-10B-EB
Date Collected: 09/30/22 10:00
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		10/05/22 06:46	10/05/22 20:48	1
Magnesium	0.042	J	0.050	0.021	mg/L		10/05/22 06:46	10/10/22 12:36	1
Arsenic	ND		0.0050	0.00033	mg/L		10/05/22 06:46	10/05/22 20:48	1
Barium	0.00041	J	0.0010	0.00029	mg/L		10/05/22 06:46	10/05/22 20:48	1
Potassium	ND		0.12	0.052	mg/L		10/05/22 06:46	10/10/22 12:36	1
Beryllium	ND		0.0010	0.000080	mg/L		10/05/22 06:46	10/06/22 16:27	1
Cadmium	ND		0.0010	0.00027	mg/L		10/05/22 06:46	10/05/22 20:48	1
Chromium	ND		0.0020	0.00050	mg/L		10/05/22 06:46	10/05/22 20:48	1
Sodium	ND		0.15	0.065	mg/L		10/05/22 06:46	10/27/22 10:28	1
Cobalt	ND		0.0010	0.000092	mg/L		10/05/22 06:46	10/05/22 20:48	1
Lead	ND		0.0010	0.00018	mg/L		10/05/22 06:46	10/05/22 20:48	1
Molybdenum	ND		0.0020	0.00014	mg/L		10/05/22 06:46	10/05/22 20:48	1
Selenium	ND		0.0050	0.00037	mg/L		10/05/22 06:46	10/05/22 20:48	1
Thallium	ND		0.0010	0.000089	mg/L		10/05/22 06:46	10/05/22 20:48	1
Calcium	0.058	J	0.20	0.038	mg/L		10/05/22 06:46	10/06/22 16:27	1

Client Sample ID: W-10B
Date Collected: 09/30/22 10:30
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		10/05/22 06:46	10/07/22 02:12	1
Magnesium	11000		2.5	1.1	mg/L		10/05/22 06:46	10/05/22 20:52	50
Arsenic	0.00079	J	0.0050	0.00033	mg/L		10/05/22 06:46	10/07/22 02:12	1
Barium	0.022		0.0010	0.00029	mg/L		10/05/22 06:46	10/12/22 22:53	1
Potassium	78		6.0	2.6	mg/L		10/05/22 06:46	10/12/22 14:23	50
Beryllium	0.00025	J ^- ^+	0.0010	0.000080	mg/L		10/05/22 06:46	10/12/22 22:53	1
Cadmium	ND		0.0010	0.00027	mg/L		10/05/22 06:46	10/07/22 02:12	1
Chromium	0.0014	J	0.0020	0.00050	mg/L		10/05/22 06:46	10/07/22 02:12	1
Sodium	6100		7.5	3.2	mg/L		10/05/22 06:46	10/12/22 14:23	50
Cobalt	0.0027		0.0010	0.000092	mg/L		10/05/22 06:46	10/07/22 02:12	1
Lead	0.00033	J	0.0010	0.00018	mg/L		10/05/22 06:46	10/07/22 02:12	1
Molybdenum	0.0037		0.0020	0.00014	mg/L		10/05/22 06:46	10/07/22 02:12	1
Selenium	5.0		0.25	0.019	mg/L		10/05/22 06:46	10/12/22 14:23	50
Thallium	0.0074		0.0010	0.000089	mg/L		10/05/22 06:46	10/07/22 02:12	1
Calcium	440		10	1.9	mg/L		10/05/22 06:46	10/06/22 16:35	50

Eurofins Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-1

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

Client Sample ID: W-6B1
Date Collected: 09/29/22 16:30
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00081	J B	0.0020	0.00040	mg/L		10/05/22 15:51	10/07/22 02:34	1
Arsenic	0.00096	J B	0.0050	0.00033	mg/L		10/05/22 15:51	10/07/22 02:34	1
Barium	0.018	B	0.0010	0.00029	mg/L		10/05/22 15:51	10/07/22 02:34	1
Beryllium	ND	F1	0.0010	0.000080	mg/L		10/05/22 15:51	10/08/22 03:33	1
Cadmium	0.026		0.0010	0.00027	mg/L		10/05/22 15:51	10/07/22 02:34	1
Chromium	0.00054	J B	0.0020	0.00050	mg/L		10/05/22 15:51	10/07/22 02:34	1
Cobalt	0.13	F1	0.0010	0.000092	mg/L		10/05/22 15:51	10/07/22 02:34	1
Lead	ND	F1	0.0010	0.00018	mg/L		10/05/22 15:51	10/07/22 02:34	1
Calcium	530		10	1.9	mg/L		10/05/22 15:51	10/10/22 19:02	50
Molybdenum	0.0063	B	0.0020	0.00014	mg/L		10/05/22 15:51	10/07/22 02:34	1
Selenium	0.0075	B F1	0.0050	0.00037	mg/L		10/05/22 15:51	10/07/22 02:34	1
Thallium	0.0043	F1	0.0010	0.000089	mg/L		10/05/22 15:51	10/07/22 02:34	1

Client Sample ID: W-10B
Date Collected: 09/30/22 10:30
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00055	J B	0.0020	0.00040	mg/L		10/05/22 15:51	10/07/22 02:53	1
Arsenic	0.00096	J B	0.0050	0.00033	mg/L		10/05/22 15:51	10/07/22 02:53	1
Barium	0.019	B	0.0010	0.00029	mg/L		10/05/22 15:51	10/07/22 02:53	1
Beryllium	0.00066	J	0.0010	0.000080	mg/L		10/05/22 15:51	10/08/22 03:53	1
Cadmium	0.00049	J	0.0010	0.00027	mg/L		10/05/22 15:51	10/07/22 02:53	1
Chromium	0.00056	J B	0.0020	0.00050	mg/L		10/05/22 15:51	10/07/22 02:53	1
Cobalt	0.0034		0.0010	0.000092	mg/L		10/05/22 15:51	10/08/22 03:53	1
Lead	ND		0.0010	0.00018	mg/L		10/05/22 15:51	10/07/22 02:53	1
Calcium	520		2.0	0.38	mg/L		10/05/22 15:51	10/10/22 19:21	10
Molybdenum	0.0046	B	0.0020	0.00014	mg/L		10/05/22 15:51	10/07/22 02:53	1
Selenium	5.3		0.050	0.0037	mg/L		10/05/22 15:51	10/10/22 19:21	10
Thallium	0.0053		0.0010	0.000089	mg/L		10/05/22 15:51	10/07/22 02:53	1

Method: SW846 7470A - Mercury (CVAA)

Client Sample ID: W-14
Date Collected: 09/28/22 16:00
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		10/05/22 11:40	10/05/22 17:17	1

Client Sample ID: W-14-FD
Date Collected: 09/28/22 16:30
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		10/05/22 11:40	10/05/22 17:20	1

Client Sample ID: W-6B1
Date Collected: 09/29/22 16:30
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		10/05/22 11:40	10/05/22 17:22	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-1

Method: SW846 7470A - Mercury (CVAA)

Client Sample ID: W-10B-EB
Date Collected: 09/30/22 10:00
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		10/05/22 11:40	10/05/22 17:30	1

Client Sample ID: W-10B
Date Collected: 09/30/22 10:30
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		10/05/22 11:40	10/05/22 17:32	1

General Chemistry

Client Sample ID: W-14
Date Collected: 09/28/22 16:00
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C (SW846 9040B)	7.2	HF	0.1	0.1	SU			10/03/22 14:05	1
Temperature (SW846 9040B)	19.8	HF	1.0	1.0	Degrees C			10/03/22 14:05	1
Chloride (SW846 9056A)	590		30	10	mg/L			10/07/22 03:00	10
Fluoride (SW846 9056A)	40		5.0	1.7	mg/L			10/07/22 03:00	10
Sulfate (SW846 9056A)	17000		500	100	mg/L			10/11/22 08:10	100
Alkalinity (SM 2320B)	1000		10	3.1	mg/L			10/03/22 17:59	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	1000		10	3.1	mg/L			10/03/22 17:59	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			10/03/22 17:59	1
Total Dissolved Solids (TDS) (SM 2540C)	23000		1000	470	mg/L			10/03/22 11:13	1
Total Suspended Solids (SM 2540D)	8.8		4.0	1.1	mg/L			10/04/22 10:48	1

Client Sample ID: W-14-FD
Date Collected: 09/28/22 16:30
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C (SW846 9040B)	7.2	HF	0.1	0.1	SU			10/03/22 14:08	1
Temperature (SW846 9040B)	19.8	HF	1.0	1.0	Degrees C			10/03/22 14:08	1
Chloride (SW846 9056A)	600		30	10	mg/L			10/07/22 03:32	10
Fluoride (SW846 9056A)	39		5.0	1.7	mg/L			10/07/22 03:32	10
Sulfate (SW846 9056A)	17000		500	100	mg/L			10/11/22 08:58	100
Alkalinity (SM 2320B)	1100		10	3.1	mg/L			10/03/22 18:12	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	1100		10	3.1	mg/L			10/03/22 18:12	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			10/03/22 18:12	1
Total Dissolved Solids (TDS) (SM 2540C)	24000		1000	470	mg/L			10/03/22 11:13	1
Total Suspended Solids (SM 2540D)	4.4		4.0	1.1	mg/L			10/04/22 10:48	1

Client Sample ID: W-6B1
Date Collected: 09/29/22 16:30
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C (SW846 9040B)	6.7	HF	0.1	0.1	SU			10/03/22 14:12	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-1

General Chemistry (Continued)

Client Sample ID: W-6B1
Date Collected: 09/29/22 16:30
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Temperature (SW846 9040B)	20.0	HF	1.0	1.0	Degrees C			10/03/22 14:12	1
Chloride (SW846 9056A)	120		3.0	1.0	mg/L			10/07/22 04:03	1
Fluoride (SW846 9056A)	8.2		0.50	0.17	mg/L			10/07/22 04:03	1
Sulfate (SW846 9056A)	46000		2500	520	mg/L			10/12/22 21:38	500
Alkalinity (SM 2320B)	890		10	3.1	mg/L			10/03/22 18:24	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	890		10	3.1	mg/L			10/03/22 18:24	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			10/03/22 18:24	1
Total Dissolved Solids (TDS) (SM 2540C)	62000		1000	470	mg/L			10/03/22 11:13	1
Total Suspended Solids (SM 2540D)	64		4.0	1.1	mg/L			10/04/22 10:48	1

Client Sample ID: W-10B-EB
Date Collected: 09/30/22 10:00
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C (SW846 9040B)	8.6	HF	0.1	0.1	SU			10/07/22 15:18	1
Temperature (SW846 9040B)	19.4	HF	1.0	1.0	Degrees C			10/07/22 15:18	1
Chloride (SW846 9056A)	ND		3.0	1.0	mg/L			10/07/22 04:35	1
Fluoride (SW846 9056A)	ND		0.50	0.17	mg/L			10/07/22 04:35	1
Sulfate (SW846 9056A)	ND		5.0	1.0	mg/L			10/07/22 04:35	1
Alkalinity (SM 2320B)	3.9	J	10	3.1	mg/L			10/03/22 18:30	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	3.9	J	10	3.1	mg/L			10/03/22 18:30	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			10/03/22 18:30	1
Total Dissolved Solids (TDS) (SM 2540C)	ND		10	4.7	mg/L			10/03/22 11:13	1
Total Suspended Solids (SM 2540D)	1.2	J	4.0	1.1	mg/L			10/04/22 10:48	1

Client Sample ID: W-10B
Date Collected: 09/30/22 10:30
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C (SW846 9040B)	6.9	HF	0.1	0.1	SU			10/03/22 14:23	1
Temperature (SW846 9040B)	21.5	HF	1.0	1.0	Degrees C			10/03/22 14:23	1
Chloride (SW846 9056A)	50		3.0	1.0	mg/L			10/07/22 06:10	1
Fluoride (SW846 9056A)	4.6		0.50	0.17	mg/L			10/07/22 06:10	1
Sulfate (SW846 9056A)	2500		100	21	mg/L			10/07/22 06:26	20
Alkalinity (SM 2320B)	980		10	3.1	mg/L			10/03/22 18:43	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	980		10	3.1	mg/L			10/03/22 18:43	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			10/03/22 18:43	1
Total Dissolved Solids (TDS) (SM 2540C)	79000		1000	470	mg/L			10/03/22 11:13	1
Total Suspended Solids (SM 2540D)	24		4.0	1.1	mg/L			10/04/22 10:48	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-588698/1-A

Matrix: Water

Analysis Batch: 589086

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 588698

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.0015	mg/L		10/05/22 06:41	10/05/22 20:12	1
Lithium	ND	^+	0.020	0.0091	mg/L		10/05/22 06:41	10/05/22 20:12	1

Lab Sample ID: LCS 280-588698/2-A

Matrix: Water

Analysis Batch: 589086

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 588698

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	1.99		mg/L		99	86 - 110
Lithium	1.00	1.00	^+	mg/L		100	90 - 112

Lab Sample ID: MB 280-588674/1-B

Matrix: Water

Analysis Batch: 589196

Client Sample ID: Method Blank

Prep Type: Dissolved

Prep Batch: 588865

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.0015	mg/L		10/06/22 01:00	10/06/22 17:21	1
Lithium	ND		0.020	0.0091	mg/L		10/06/22 01:00	10/06/22 17:21	1

Lab Sample ID: LCS 280-588674/2-B

Matrix: Water

Analysis Batch: 589196

Client Sample ID: Lab Control Sample

Prep Type: Dissolved

Prep Batch: 588865

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	2.05		mg/L		103	86 - 110
Lithium	1.00	1.00		mg/L		100	90 - 112

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-588697/1-A

Matrix: Water

Analysis Batch: 589035

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 588697

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	ND		50	21	ug/L		10/05/22 06:46	10/05/22 19:10	1

Lab Sample ID: MB 280-588697/1-A

Matrix: Water

Analysis Batch: 589155

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 588697

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.0010	0.000080	mg/L		10/05/22 06:46	10/06/22 15:59	1
Calcium	ND		0.20	0.038	mg/L		10/05/22 06:46	10/06/22 15:59	1

Lab Sample ID: MB 280-588697/1-A

Matrix: Water

Analysis Batch: 589871

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 588697

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium	ND		120	52	ug/L		10/05/22 06:46	10/13/22 12:29	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-1

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

Lab Sample ID: MB 280-588697/1-A

Matrix: Water

Analysis Batch: 591460

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 588697

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	ND		0.15	0.065	mg/L		10/05/22 06:46	10/27/22 10:25	1

Lab Sample ID: LCS 280-588697/2-A

Matrix: Water

Analysis Batch: 589035

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 588697

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Magnesium	0.800	0.891		mg/L		111	80 - 120

Lab Sample ID: LCS 280-588697/2-A

Matrix: Water

Analysis Batch: 589155

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 588697

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Beryllium	0.0400	0.0433		mg/L		108	80 - 125
Calcium	0.800	0.885		mg/L		111	80 - 120

Lab Sample ID: LCS 280-588697/2-A

Matrix: Water

Analysis Batch: 589871

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 588697

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Potassium	800	908		ug/L		114	80 - 120

Lab Sample ID: LCS 280-588697/2-A

Matrix: Water

Analysis Batch: 591460

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 588697

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sodium	0.800	0.847		mg/L		106	80 - 120

Lab Sample ID: MB 280-588674/1-D

Matrix: Water

Analysis Batch: 589199

Client Sample ID: Method Blank

Prep Type: Dissolved

Prep Batch: 588874

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00181	J	0.0020	0.00040	mg/L		10/05/22 15:51	10/07/22 02:27	1
Arsenic	0.00485	J	0.0050	0.00033	mg/L		10/05/22 15:51	10/07/22 02:27	1
Barium	0.000659	J	0.0010	0.00029	mg/L		10/05/22 15:51	10/07/22 02:27	1
Cadmium	ND		0.0010	0.00027	mg/L		10/05/22 15:51	10/07/22 02:27	1
Chromium	0.00197	J	0.0020	0.00050	mg/L		10/05/22 15:51	10/07/22 02:27	1
Lead	ND		0.0010	0.00018	mg/L		10/05/22 15:51	10/07/22 02:27	1
Molybdenum	0.000803	J	0.0020	0.00014	mg/L		10/05/22 15:51	10/07/22 02:27	1
Selenium	0.000391	J	0.0050	0.00037	mg/L		10/05/22 15:51	10/07/22 02:27	1
Thallium	ND		0.0010	0.000089	mg/L		10/05/22 15:51	10/07/22 02:27	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-1

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

Lab Sample ID: MB 280-588674/1-D

Matrix: Water

Analysis Batch: 589354

Client Sample ID: Method Blank

Prep Type: Dissolved

Prep Batch: 588874

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.0010	0.000080	mg/L		10/05/22 15:51	10/08/22 03:26	1
Cobalt	ND		0.0010	0.000092	mg/L		10/05/22 15:51	10/08/22 03:26	1
Calcium	ND		0.20	0.038	mg/L		10/05/22 15:51	10/08/22 03:26	1

Lab Sample ID: LCS 280-588674/2-D

Matrix: Water

Analysis Batch: 589199

Client Sample ID: Lab Control Sample

Prep Type: Dissolved

Prep Batch: 588874

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0425		mg/L		106	85 - 115
Arsenic	0.0400	0.0404		mg/L		101	85 - 117
Barium	0.0400	0.0402		mg/L		100	85 - 118
Cadmium	0.0400	0.0411		mg/L		103	85 - 115
Chromium	0.0400	0.0424		mg/L		106	84 - 121
Lead	0.0400	0.0398		mg/L		100	85 - 118
Molybdenum	0.0400	0.0435		mg/L		109	85 - 119
Selenium	0.0400	0.0431		mg/L		108	77 - 122
Thallium	0.0400	0.0398		mg/L		100	85 - 118

Lab Sample ID: LCS 280-588674/2-D

Matrix: Water

Analysis Batch: 589354

Client Sample ID: Lab Control Sample

Prep Type: Dissolved

Prep Batch: 588874

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Beryllium	0.0400	0.0422		mg/L		106	80 - 125
Cobalt	0.0400	0.0400		mg/L		100	85 - 120
Calcium	0.800	0.869		mg/L		109	80 - 120

Lab Sample ID: 280-167106-3 MS

Matrix: Water

Analysis Batch: 589199

Client Sample ID: W-6B1

Prep Type: Dissolved

Prep Batch: 588874

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.00081	J B	0.0400	0.0450		mg/L		111	80 - 111
Arsenic	0.00096	J B	0.0400	0.0448		mg/L		110	92 - 112
Barium	0.018	B	0.0400	0.0597		mg/L		103	92 - 117
Cadmium	0.026		0.0400	0.0656		mg/L		99	91 - 114
Chromium	0.00054	J B	0.0400	0.0440		mg/L		109	91 - 114
Cobalt	0.13	F1	0.0400	0.162	F1	mg/L		90	94 - 115
Lead	ND	F1	0.0400	0.0327	F1	mg/L		82	95 - 116
Molybdenum	0.0063	B	0.0400	0.0520		mg/L		114	84 - 117
Selenium	0.0075	B F1	0.0400	0.0615	F1	mg/L		135	90 - 115
Thallium	0.0043	F1	0.0400	0.0369	F1	mg/L		82	94 - 115

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-1

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

Lab Sample ID: 280-167106-3 MS

Matrix: Water

Analysis Batch: 589354

Client Sample ID: W-6B1

Prep Type: Dissolved

Prep Batch: 588874

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Beryllium	ND	F1	0.0400	0.0491	F1	mg/L		123	87 - 118

Lab Sample ID: 280-167106-3 MS

Matrix: Water

Analysis Batch: 589509

Client Sample ID: W-6B1

Prep Type: Dissolved

Prep Batch: 588874

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	530		0.800	507	4	mg/L		-2688	80 - 120

Lab Sample ID: 280-167106-3 MSD

Matrix: Water

Analysis Batch: 589199

Client Sample ID: W-6B1

Prep Type: Dissolved

Prep Batch: 588874

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	0.00081	J B	0.0400	0.0442		mg/L		109	80 - 111	2	20
Arsenic	0.00096	J B	0.0400	0.0449		mg/L		110	92 - 112	0	20
Barium	0.018	B	0.0400	0.0591		mg/L		102	92 - 117	1	20
Cadmium	0.026		0.0400	0.0649		mg/L		97	91 - 114	1	20
Chromium	0.00054	J B	0.0400	0.0437		mg/L		108	91 - 114	1	20
Cobalt	0.13	F1	0.0400	0.165		mg/L		96	94 - 115	2	20
Lead	ND	F1	0.0400	0.0334	F1	mg/L		84	95 - 116	2	20
Molybdenum	0.0063	B	0.0400	0.0518		mg/L		114	84 - 117	0	20
Selenium	0.0075	B F1	0.0400	0.0634	F1	mg/L		140	90 - 115	3	20
Thallium	0.0043	F1	0.0400	0.0377	F1	mg/L		84	94 - 115	2	20

Lab Sample ID: 280-167106-3 MSD

Matrix: Water

Analysis Batch: 589354

Client Sample ID: W-6B1

Prep Type: Dissolved

Prep Batch: 588874

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Beryllium	ND	F1	0.0400	0.0478	F1	mg/L		120	87 - 118	3	20

Lab Sample ID: 280-167106-3 MSD

Matrix: Water

Analysis Batch: 589509

Client Sample ID: W-6B1

Prep Type: Dissolved

Prep Batch: 588874

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	530		0.800	496	4	mg/L		-4075	80 - 120	2	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-588756/1-A

Matrix: Water

Analysis Batch: 589052

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 588756

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		10/05/22 11:40	10/05/22 16:29	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-1

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

Lab Sample ID: LCS 280-588756/2-A
Matrix: Water
Analysis Batch: 589052

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 588756

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00496		mg/L		99	84 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-588713/4
Matrix: Water
Analysis Batch: 588713

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH adj. to 25 deg C	7.00	7.1		SU		101	99 - 101

Lab Sample ID: LCS 280-589360/4
Matrix: Water
Analysis Batch: 589360

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH adj. to 25 deg C	7.00	7.1		SU		101	99 - 101

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-589092/47
Matrix: Water
Analysis Batch: 589092

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			10/07/22 02:12	1
Fluoride	ND		0.50	0.17	mg/L			10/07/22 02:12	1
Sulfate	ND		5.0	1.0	mg/L			10/07/22 02:12	1

Lab Sample ID: LCS 280-589092/45
Matrix: Water
Analysis Batch: 589092

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	97.9		mg/L		98	90 - 110
Fluoride	5.00	5.06		mg/L		101	90 - 110
Sulfate	100	95.5		mg/L		95	90 - 110

Lab Sample ID: LCSD 280-589092/46
Matrix: Water
Analysis Batch: 589092

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	98.0		mg/L		98	90 - 110	0	10
Fluoride	5.00	5.06		mg/L		101	90 - 110	0	10
Sulfate	100	95.4		mg/L		95	90 - 110	0	10

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-1

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

Lab Sample ID: MRL 280-589092/10

Matrix: Water

Analysis Batch: 589092

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.00	3.89		mg/L		78	50 - 150
Fluoride	0.500	0.402	J	mg/L		80	50 - 150
Sulfate	5.00	4.07	J	mg/L		81	50 - 150

Lab Sample ID: 280-167106-4 MS

Matrix: Water

Analysis Batch: 589092

Client Sample ID: W-10B-EB

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	ND		50.0	50.4		mg/L		101	80 - 120
Fluoride	ND		5.00	5.92		mg/L		119	80 - 120
Sulfate	ND		50.0	49.5		mg/L		99	80 - 120

Lab Sample ID: 280-167106-4 MSD

Matrix: Water

Analysis Batch: 589092

Client Sample ID: W-10B-EB

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	ND		50.0	50.3		mg/L		101	80 - 120	0	20
Fluoride	ND		5.00	5.90		mg/L		118	80 - 120	0	20
Sulfate	ND		50.0	49.4		mg/L		99	80 - 120	0	20

Lab Sample ID: 280-167106-4 DU

Matrix: Water

Analysis Batch: 589092

Client Sample ID: W-10B-EB

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	ND		ND		mg/L		NC	15
Fluoride	ND		ND		mg/L		NC	15
Sulfate	ND		ND		mg/L		NC	15

Lab Sample ID: MB 280-589386/52

Matrix: Water

Analysis Batch: 589386

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		5.0	1.0	mg/L			10/11/22 04:58	1

Lab Sample ID: LCS 280-589386/50

Matrix: Water

Analysis Batch: 589386

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	100	101		mg/L		101	90 - 110

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-1

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

Lab Sample ID: LCSD 280-589386/51

Matrix: Water

Analysis Batch: 589386

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	100	102		mg/L		102	90 - 110	1	10

Lab Sample ID: MRL 280-589386/3

Matrix: Water

Analysis Batch: 589386

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
Sulfate	5.00	4.86	J	mg/L		97	50 - 150		

Lab Sample ID: MB 280-589708/6

Matrix: Water

Analysis Batch: 589708

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		5.0	1.0	mg/L			10/12/22 11:07	1

Lab Sample ID: LCS 280-589708/4

Matrix: Water

Analysis Batch: 589708

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Sulfate	100	99.3		mg/L		99	90 - 110		

Lab Sample ID: LCSD 280-589708/5

Matrix: Water

Analysis Batch: 589708

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	100	99.4		mg/L		99	90 - 110	0	10

Lab Sample ID: MRL 280-589708/3

Matrix: Water

Analysis Batch: 589708

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
Sulfate	5.00	5.03		mg/L		101	50 - 150		

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-588714/32

Matrix: Water

Analysis Batch: 588714

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	ND		10	3.1	mg/L			10/03/22 15:47	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			10/03/22 15:47	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			10/03/22 15:47	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-1

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: LCS 280-588714/31
Matrix: Water
Analysis Batch: 588714

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	200	205		mg/L		103	89 - 109

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

Lab Sample ID: MB 280-588636/1
Matrix: Water
Analysis Batch: 588636

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 (TDS)	ND		10	4.7	mg/L			10/03/22 11:13	1

Lab Sample ID: LCS 280-588636/2
Matrix: Water
Analysis Batch: 588636

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 (TDS)	501	486		mg/L		97	88 - 114

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 280-588761/3
Matrix: Water
Analysis Batch: 588761

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			10/04/22 10:48	1

Lab Sample ID: LCS 280-588761/1
Matrix: Water
Analysis Batch: 588761

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	500	445		mg/L		89	79 - 114

Lab Sample ID: LCSD 280-588761/2
Matrix: Water
Analysis Batch: 588761

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	500	470		mg/L		94	79 - 114	6	20

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-1

Metals

Filtration Batch: 588674

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167106-3	W-6B1	Dissolved	Water	FILTRATION	
280-167106-5	W-10B	Dissolved	Water	FILTRATION	
MB 280-588674/1-B	Method Blank	Dissolved	Water	FILTRATION	
MB 280-588674/1-D	Method Blank	Dissolved	Water	FILTRATION	
LCS 280-588674/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 280-588674/2-D	Lab Control Sample	Dissolved	Water	FILTRATION	
280-167106-3 MS	W-6B1	Dissolved	Water	FILTRATION	
280-167106-3 MSD	W-6B1	Dissolved	Water	FILTRATION	

Prep Batch: 588697

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167106-1	W-14	Total Recoverable	Water	3005A	
280-167106-2	W-14-FD	Total Recoverable	Water	3005A	
280-167106-3	W-6B1	Total Recoverable	Water	3005A	
280-167106-4	W-10B-EB	Total Recoverable	Water	3005A	
280-167106-5	W-10B	Total Recoverable	Water	3005A	
MB 280-588697/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-588697/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 588698

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167106-1	W-14	Total Recoverable	Water	3005A	
280-167106-2	W-14-FD	Total Recoverable	Water	3005A	
280-167106-3	W-6B1	Total Recoverable	Water	3005A	
280-167106-4	W-10B-EB	Total Recoverable	Water	3005A	
280-167106-5	W-10B	Total Recoverable	Water	3005A	
MB 280-588698/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-588698/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 588756

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167106-1	W-14	Total/NA	Water	7470A	
280-167106-2	W-14-FD	Total/NA	Water	7470A	
280-167106-3	W-6B1	Total/NA	Water	7470A	
280-167106-4	W-10B-EB	Total/NA	Water	7470A	
280-167106-5	W-10B	Total/NA	Water	7470A	
MB 280-588756/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-588756/2-A	Lab Control Sample	Total/NA	Water	7470A	

Prep Batch: 588865

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167106-3	W-6B1	Dissolved	Water	3005A	588674
280-167106-5	W-10B	Dissolved	Water	3005A	588674
MB 280-588674/1-B	Method Blank	Dissolved	Water	3005A	588674
LCS 280-588674/2-B	Lab Control Sample	Dissolved	Water	3005A	588674

Prep Batch: 588874

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167106-3	W-6B1	Dissolved	Water	3005A	588674
280-167106-5	W-10B	Dissolved	Water	3005A	588674
MB 280-588674/1-D	Method Blank	Dissolved	Water	3005A	588674

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-1

Metals (Continued)

Prep Batch: 588874 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 280-588674/2-D	Lab Control Sample	Dissolved	Water	3005A	588674
280-167106-3 MS	W-6B1	Dissolved	Water	3005A	588674
280-167106-3 MSD	W-6B1	Dissolved	Water	3005A	588674

Analysis Batch: 589035

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167106-1	W-14	Total Recoverable	Water	6020B	588697
280-167106-2	W-14-FD	Total Recoverable	Water	6020B	588697
280-167106-3	W-6B1	Total Recoverable	Water	6020B	588697
280-167106-4	W-10B-EB	Total Recoverable	Water	6020B	588697
280-167106-5	W-10B	Total Recoverable	Water	6020B	588697
MB 280-588697/1-A	Method Blank	Total Recoverable	Water	6020B	588697
LCS 280-588697/2-A	Lab Control Sample	Total Recoverable	Water	6020B	588697

Analysis Batch: 589052

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167106-1	W-14	Total/NA	Water	7470A	588756
280-167106-2	W-14-FD	Total/NA	Water	7470A	588756
280-167106-3	W-6B1	Total/NA	Water	7470A	588756
280-167106-4	W-10B-EB	Total/NA	Water	7470A	588756
280-167106-5	W-10B	Total/NA	Water	7470A	588756
MB 280-588756/1-A	Method Blank	Total/NA	Water	7470A	588756
LCS 280-588756/2-A	Lab Control Sample	Total/NA	Water	7470A	588756

Analysis Batch: 589086

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167106-1	W-14	Total Recoverable	Water	6010C	588698
280-167106-2	W-14-FD	Total Recoverable	Water	6010C	588698
280-167106-3	W-6B1	Total Recoverable	Water	6010C	588698
280-167106-4	W-10B-EB	Total Recoverable	Water	6010C	588698
280-167106-5	W-10B	Total Recoverable	Water	6010C	588698
MB 280-588698/1-A	Method Blank	Total Recoverable	Water	6010C	588698
LCS 280-588698/2-A	Lab Control Sample	Total Recoverable	Water	6010C	588698

Analysis Batch: 589155

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167106-1	W-14	Total Recoverable	Water	6020B	588697
280-167106-2	W-14-FD	Total Recoverable	Water	6020B	588697
280-167106-3	W-6B1	Total Recoverable	Water	6020B	588697
280-167106-4	W-10B-EB	Total Recoverable	Water	6020B	588697
280-167106-5	W-10B	Total Recoverable	Water	6020B	588697
MB 280-588697/1-A	Method Blank	Total Recoverable	Water	6020B	588697
LCS 280-588697/2-A	Lab Control Sample	Total Recoverable	Water	6020B	588697

Analysis Batch: 589196

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167106-3	W-6B1	Dissolved	Water	6010C	588865
280-167106-5	W-10B	Dissolved	Water	6010C	588865
MB 280-588674/1-B	Method Blank	Dissolved	Water	6010C	588865
LCS 280-588674/2-B	Lab Control Sample	Dissolved	Water	6010C	588865

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-1

Metals

Analysis Batch: 589199

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167106-1	W-14	Total Recoverable	Water	6020B	588697
280-167106-2	W-14-FD	Total Recoverable	Water	6020B	588697
280-167106-3	W-6B1	Dissolved	Water	6020B	588874
280-167106-3	W-6B1	Total Recoverable	Water	6020B	588697
280-167106-5	W-10B	Dissolved	Water	6020B	588874
280-167106-5	W-10B	Total Recoverable	Water	6020B	588697
MB 280-588674/1-D	Method Blank	Dissolved	Water	6020B	588874
LCS 280-588674/2-D	Lab Control Sample	Dissolved	Water	6020B	588874
280-167106-3 MS	W-6B1	Dissolved	Water	6020B	588874
280-167106-3 MSD	W-6B1	Dissolved	Water	6020B	588874

Analysis Batch: 589354

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167106-3	W-6B1	Dissolved	Water	6020B	588874
280-167106-5	W-10B	Dissolved	Water	6020B	588874
MB 280-588674/1-D	Method Blank	Dissolved	Water	6020B	588874
LCS 280-588674/2-D	Lab Control Sample	Dissolved	Water	6020B	588874
280-167106-3 MS	W-6B1	Dissolved	Water	6020B	588874
280-167106-3 MSD	W-6B1	Dissolved	Water	6020B	588874

Analysis Batch: 589469

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167106-4	W-10B-EB	Total Recoverable	Water	6020B	588697

Analysis Batch: 589509

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167106-3	W-6B1	Dissolved	Water	6020B	588874
280-167106-5	W-10B	Dissolved	Water	6020B	588874
280-167106-3 MS	W-6B1	Dissolved	Water	6020B	588874
280-167106-3 MSD	W-6B1	Dissolved	Water	6020B	588874

Analysis Batch: 589801

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167106-1	W-14	Total Recoverable	Water	6020B	588697
280-167106-1	W-14	Total Recoverable	Water	6020B	588697
280-167106-2	W-14-FD	Total Recoverable	Water	6020B	588697
280-167106-2	W-14-FD	Total Recoverable	Water	6020B	588697
280-167106-3	W-6B1	Total Recoverable	Water	6020B	588697
280-167106-3	W-6B1	Total Recoverable	Water	6020B	588697
280-167106-5	W-10B	Total Recoverable	Water	6020B	588697
280-167106-5	W-10B	Total Recoverable	Water	6020B	588697

Analysis Batch: 589871

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-588697/1-A	Method Blank	Total Recoverable	Water	6020B	588697
LCS 280-588697/2-A	Lab Control Sample	Total Recoverable	Water	6020B	588697

Analysis Batch: 591460

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167106-4	W-10B-EB	Total Recoverable	Water	6020B	588697
MB 280-588697/1-A	Method Blank	Total Recoverable	Water	6020B	588697

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-1

Metals (Continued)

Analysis Batch: 591460 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 280-588697/2-A	Lab Control Sample	Total Recoverable	Water	6020B	588697

General Chemistry

Analysis Batch: 588636

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167106-1	W-14	Total/NA	Water	SM 2540C	
280-167106-2	W-14-FD	Total/NA	Water	SM 2540C	
280-167106-3	W-6B1	Total/NA	Water	SM 2540C	
280-167106-4	W-10B-EB	Total/NA	Water	SM 2540C	
280-167106-5	W-10B	Total/NA	Water	SM 2540C	
MB 280-588636/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-588636/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 588713

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167106-1	W-14	Total/NA	Water	9040B	
280-167106-2	W-14-FD	Total/NA	Water	9040B	
280-167106-3	W-6B1	Total/NA	Water	9040B	
280-167106-5	W-10B	Total/NA	Water	9040B	
LCS 280-588713/4	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 588714

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167106-1	W-14	Total/NA	Water	SM 2320B	
280-167106-2	W-14-FD	Total/NA	Water	SM 2320B	
280-167106-3	W-6B1	Total/NA	Water	SM 2320B	
280-167106-4	W-10B-EB	Total/NA	Water	SM 2320B	
280-167106-5	W-10B	Total/NA	Water	SM 2320B	
MB 280-588714/32	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-588714/31	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 588761

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167106-1	W-14	Total/NA	Water	SM 2540D	
280-167106-2	W-14-FD	Total/NA	Water	SM 2540D	
280-167106-3	W-6B1	Total/NA	Water	SM 2540D	
280-167106-4	W-10B-EB	Total/NA	Water	SM 2540D	
280-167106-5	W-10B	Total/NA	Water	SM 2540D	
MB 280-588761/3	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-588761/1	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-588761/2	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 589092

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167106-1	W-14	Total/NA	Water	9056A	
280-167106-2	W-14-FD	Total/NA	Water	9056A	
280-167106-3	W-6B1	Total/NA	Water	9056A	
280-167106-4	W-10B-EB	Total/NA	Water	9056A	
280-167106-5	W-10B	Total/NA	Water	9056A	
280-167106-5	W-10B	Total/NA	Water	9056A	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-1

General Chemistry (Continued)

Analysis Batch: 589092 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-589092/47	Method Blank	Total/NA	Water	9056A	
LCS 280-589092/45	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-589092/46	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-589092/10	Lab Control Sample	Total/NA	Water	9056A	
280-167106-4 MS	W-10B-EB	Total/NA	Water	9056A	
280-167106-4 MSD	W-10B-EB	Total/NA	Water	9056A	
280-167106-4 DU	W-10B-EB	Total/NA	Water	9056A	

Analysis Batch: 589360

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167106-4	W-10B-EB	Total/NA	Water	9040B	
LCS 280-589360/4	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 589386

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167106-1	W-14	Total/NA	Water	9056A	
280-167106-2	W-14-FD	Total/NA	Water	9056A	
MB 280-589386/52	Method Blank	Total/NA	Water	9056A	
LCS 280-589386/50	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-589386/51	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-589386/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 589708

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167106-3	W-6B1	Total/NA	Water	9056A	
MB 280-589708/6	Method Blank	Total/NA	Water	9056A	
LCS 280-589708/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-589708/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-589708/3	Lab Control Sample	Total/NA	Water	9056A	

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-1

Client Sample ID: W-14

Lab Sample ID: 280-167106-1

Date Collected: 09/28/22 16:00

Matrix: Water

Date Received: 09/30/22 15:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	588698	10/05/22 06:41	MAB	EET DEN
Total Recoverable	Analysis	6010C		1			589086	10/05/22 21:17	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	588697	10/05/22 06:46	MAB	EET DEN
Total Recoverable	Analysis	6020B		50			589035	10/05/22 20:37	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	588697	10/05/22 06:46	MAB	EET DEN
Total Recoverable	Analysis	6020B		50			589155	10/06/22 16:16	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	588697	10/05/22 06:46	MAB	EET DEN
Total Recoverable	Analysis	6020B		1			589199	10/07/22 02:00	LRD	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	588697	10/05/22 06:46	MAB	EET DEN
Total Recoverable	Analysis	6020B		50			589801	10/12/22 14:11	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	588697	10/05/22 06:46	MAB	EET DEN
Total Recoverable	Analysis	6020B		1			589801	10/12/22 22:42	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	588756	10/05/22 11:40	CEH	EET DEN
Total/NA	Analysis	7470A		1			589052	10/05/22 17:17	PFM	EET DEN
Total/NA	Analysis	9040B		1			588713	10/03/22 14:05	KEG	EET DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	589092	10/07/22 03:00	MEC	EET DEN
Total/NA	Analysis	9056A		100	10 mL	10 mL	589386	10/11/22 08:10	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			588714	10/03/22 17:59	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	588636	10/03/22 11:13	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	588761	10/04/22 10:48	ASP	EET DEN

Client Sample ID: W-14-FD

Lab Sample ID: 280-167106-2

Date Collected: 09/28/22 16:30

Matrix: Water

Date Received: 09/30/22 15:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	588698	10/05/22 06:41	MAB	EET DEN
Total Recoverable	Analysis	6010C		1			589086	10/05/22 21:21	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	588697	10/05/22 06:46	MAB	EET DEN
Total Recoverable	Analysis	6020B		50			589035	10/05/22 20:41	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	588697	10/05/22 06:46	MAB	EET DEN
Total Recoverable	Analysis	6020B		50			589155	10/06/22 16:20	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	588697	10/05/22 06:46	MAB	EET DEN
Total Recoverable	Analysis	6020B		1			589199	10/07/22 02:04	LRD	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	588697	10/05/22 06:46	MAB	EET DEN
Total Recoverable	Analysis	6020B		50			589801	10/12/22 14:15	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	588697	10/05/22 06:46	MAB	EET DEN
Total Recoverable	Analysis	6020B		1			589801	10/12/22 22:46	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	588756	10/05/22 11:40	CEH	EET DEN
Total/NA	Analysis	7470A		1			589052	10/05/22 17:20	PFM	EET DEN
Total/NA	Analysis	9040B		1			588713	10/03/22 14:08	KEG	EET DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	589092	10/07/22 03:32	MEC	EET DEN
Total/NA	Analysis	9056A		100	10 mL	10 mL	589386	10/11/22 08:58	MEC	EET DEN

Eurofins Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-1

Client Sample ID: W-14-FD

Lab Sample ID: 280-167106-2

Date Collected: 09/28/22 16:30

Matrix: Water

Date Received: 09/30/22 15:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2320B		1			588714	10/03/22 18:12	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	588636	10/03/22 11:13	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	588761	10/04/22 10:48	ASP	EET DEN

Client Sample ID: W-6B1

Lab Sample ID: 280-167106-3

Date Collected: 09/29/22 16:30

Matrix: Water

Date Received: 09/30/22 15:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			250 mL	250 mL	588674	10/03/22 16:44	KMS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	588865	10/06/22 01:00	MCR	EET DEN
Dissolved	Analysis	6010C		1			589196	10/06/22 17:54	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	588698	10/05/22 06:41	MAB	EET DEN
Total Recoverable	Analysis	6010C		1			589086	10/05/22 21:25	KRP	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	588674	10/03/22 16:44	KMS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	588874	10/05/22 15:51	MCR	EET DEN
Dissolved	Analysis	6020B		1			589199	10/07/22 02:34	LRD	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	588674	10/03/22 16:44	KMS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	588874	10/05/22 15:51	MCR	EET DEN
Dissolved	Analysis	6020B		1			589354	10/08/22 03:33	LRD	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	588674	10/03/22 16:44	KMS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	588874	10/05/22 15:51	MCR	EET DEN
Dissolved	Analysis	6020B		50			589509	10/10/22 19:02	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	588697	10/05/22 06:46	MAB	EET DEN
Total Recoverable	Analysis	6020B		50			589035	10/05/22 20:44	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	588697	10/05/22 06:46	MAB	EET DEN
Total Recoverable	Analysis	6020B		50			589155	10/06/22 16:24	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	588697	10/05/22 06:46	MAB	EET DEN
Total Recoverable	Analysis	6020B		1			589199	10/07/22 02:08	LRD	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	588697	10/05/22 06:46	MAB	EET DEN
Total Recoverable	Analysis	6020B		50			589801	10/12/22 14:19	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	588697	10/05/22 06:46	MAB	EET DEN
Total Recoverable	Analysis	6020B		1			589801	10/12/22 22:49	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	588756	10/05/22 11:40	CEH	EET DEN
Total/NA	Analysis	7470A		1			589052	10/05/22 17:22	PFM	EET DEN
Total/NA	Analysis	9040B		1			588713	10/03/22 14:12	KEG	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	589092	10/07/22 04:03	MEC	EET DEN
Total/NA	Analysis	9056A		500	5 mL	5 mL	589708	10/12/22 21:38	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			588714	10/03/22 18:24	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	588636	10/03/22 11:13	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	588761	10/04/22 10:48	ASP	EET DEN

Eurofins Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-1

Client Sample ID: W-10B-EB

Lab Sample ID: 280-167106-4

Date Collected: 09/30/22 10:00

Matrix: Water

Date Received: 09/30/22 15:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	588698	10/05/22 06:41	MAB	EET DEN
Total Recoverable	Analysis	6010C		1			589086	10/05/22 21:29	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	588697	10/05/22 06:46	MAB	EET DEN
Total Recoverable	Analysis	6020B		1			589035	10/05/22 20:48	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	588697	10/05/22 06:46	MAB	EET DEN
Total Recoverable	Analysis	6020B		1			589155	10/06/22 16:27	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	588697	10/05/22 06:46	MAB	EET DEN
Total Recoverable	Analysis	6020B		1			589469	10/10/22 12:36	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	588697	10/05/22 06:46	MAB	EET DEN
Total Recoverable	Analysis	6020B		1			591460	10/27/22 10:28	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	588756	10/05/22 11:40	CEH	EET DEN
Total/NA	Analysis	7470A		1			589052	10/05/22 17:30	PFM	EET DEN
Total/NA	Analysis	9040B		1			589360	10/07/22 15:18	KEG	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	589092	10/07/22 04:35	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			588714	10/03/22 18:30	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	588636	10/03/22 11:13	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	588761	10/04/22 10:48	ASP	EET DEN

Client Sample ID: W-10B

Lab Sample ID: 280-167106-5

Date Collected: 09/30/22 10:30

Matrix: Water

Date Received: 09/30/22 15:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			250 mL	250 mL	588674	10/03/22 16:44	KMS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	588865	10/06/22 01:00	MCR	EET DEN
Dissolved	Analysis	6010C		1			589196	10/06/22 17:58	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	588698	10/05/22 06:41	MAB	EET DEN
Total Recoverable	Analysis	6010C		1			589086	10/05/22 21:33	KRP	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	588674	10/03/22 16:44	KMS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	588874	10/05/22 15:51	MCR	EET DEN
Dissolved	Analysis	6020B		1			589199	10/07/22 02:53	LRD	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	588674	10/03/22 16:44	KMS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	588874	10/05/22 15:51	MCR	EET DEN
Dissolved	Analysis	6020B		1			589354	10/08/22 03:53	LRD	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	588674	10/03/22 16:44	KMS	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	588874	10/05/22 15:51	MCR	EET DEN
Dissolved	Analysis	6020B		10			589509	10/10/22 19:21	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	588697	10/05/22 06:46	MAB	EET DEN
Total Recoverable	Analysis	6020B		50			589035	10/05/22 20:52	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	588697	10/05/22 06:46	MAB	EET DEN
Total Recoverable	Analysis	6020B		50			589155	10/06/22 16:35	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	588697	10/05/22 06:46	MAB	EET DEN
Total Recoverable	Analysis	6020B		1			589199	10/07/22 02:12	LRD	EET DEN

Eurofins Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-1

Client Sample ID: W-10B

Date Collected: 09/30/22 10:30

Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	588697	10/05/22 06:46	MAB	EET DEN
Total Recoverable	Analysis	6020B		50			589801	10/12/22 14:23	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	588697	10/05/22 06:46	MAB	EET DEN
Total Recoverable	Analysis	6020B		1			589801	10/12/22 22:53	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	588756	10/05/22 11:40	CEH	EET DEN
Total/NA	Analysis	7470A		1			589052	10/05/22 17:32	PFM	EET DEN
Total/NA	Analysis	9040B		1			588713	10/03/22 14:23	KEG	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	589092	10/07/22 06:10	MEC	EET DEN
Total/NA	Analysis	9056A		20	5 mL	5 mL	589092	10/07/22 06:26	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			588714	10/03/22 18:43	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	588636	10/03/22 11:13	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	588761	10/04/22 10:48	ASP	EET DEN

Laboratory References:

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

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-1

Laboratory: Eurofins Denver

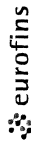
Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-23

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.

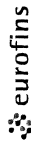
Analysis Method	Prep Method	Matrix	Analyte
6020B	3005A	Water	Calcium
6020B	3005A	Water	Magnesium
6020B	3005A	Water	Potassium
6020B	3005A	Water	Sodium
9040B		Water	Temperature

Chain of Custody Record



Client Information		Sampler: <u>F. Davis Ray</u>		Lab P/N: <u>Nicole Ryan</u>	Carrier Tracking No(s): <u>280-110862-32017.2</u>	COC No: <u>280-110862-32017.2</u>						
Client Contact: <u>Molly Reeves</u>		Phone: <u>(720) 298-3594</u>		E-Mail: <u>Nicole.Ryan@ET.EurofinsUS.com</u>	State of Origin: <u>CO</u>	Page: <u>1 of 1</u>						
Company: <u>HDR Inc</u>		PWSID: _____		Job #: _____								
Address: <u>1670 Broadway, Suite 3400</u>		Analysis Requested										
City: <u>Denver</u>	Due Date Requested: _____											
State, Zip: <u>CO, 80202</u>	TAT Requested (days): _____											
Phone: <u>734-263-7138(Tel)</u>	Compliance Project: ☐ Yes ☒ No											
Email: <u>Molly.Reeves@hdrinc.com</u>	PO #: <u>DEN-021</u>											
Project Name: <u>Xcel Energy GW CCR Monitoring - Comanche</u>	WO #: _____											
Site: <u>COLORADO</u>	Project #: <u>28014376</u>											
APP III + IV - TSS, Additional Methods	SSOW#: _____											
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/soil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9040B - pH/9056A, 28D Cl, F, SO4/Alkalinity & K	Radium-226 9135 and Radium-228 Method 9320/ Ra2226Ra2228GFPC - ETA St. Louis	2540D - TSS/2540C - TDS	Disolved Metals (Lab Filter)	Special Instructions/Note:	
<u>W-14</u>	<u>9/28/22</u>	<u>1600</u>	<u>G</u>	<u>W</u>	☒	☒	☒	☒	☒	☒	<u>5</u>	
<u>W-14-FD</u>	<u>9/28/22</u>	<u>1630</u>	<u>G</u>	<u>W</u>	☒	☒	☒	☒	☒	☒	<u>5</u>	
<u>W-682</u>	<u>9/29/22</u>	<u>1630</u>	<u>G</u>	<u>W</u>	☒	☒	☒	☒	☒	☒	<u>6</u>	<u>+ 250 mL wup for DM</u>
<u>W-108-EB</u>	<u>9/30/22</u>	<u>1000</u>	<u>G</u>	<u>W</u>	☒	☒	☒	☒	☒	☒	<u>6</u>	<u>+ 250 mL wup for DM</u>
<u>W-108</u>	<u>9/30/22</u>	<u>1030</u>	<u>G</u>	<u>W</u>	☒	☒	☒	☒	☒	☒	<u>6</u>	<u>+ 250 mL wup for DM</u>
280-167106 Chain of Custody												
Possible Hazard Identification ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological												
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months												
Deliverable Requested: I, II, III, IV, Other (specify)												
Special Instructions/QC Requirements:												
Empty Kit Relinquished by:												
Relinquished by: <u>Gavin Ray</u>		Date/Time: <u>9/30/22 1535</u>		Company: <u>HDR</u>		Received by: <u>[Signature]</u>		Date/Time: <u>9/30/22 1535</u>		Company: <u>[Signature]</u>		
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:		
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:		
Custody Seals Intact: ☒ Yes ☐ No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:								

Chain of Custody Record



Client Information		Sampler: <u>F. Davis Ray</u>		Lab Pkt: <u>Nicole Ryan</u>	Carrier Tracking No(s): <u>280-110862-32017.2</u>	COC No: <u>280-110862-32017.2</u>						
Client Contact: <u>Molly Reeves</u>		Phone: <u>(720) 298-3594</u>		E-Mail: <u>Nicole.Ryan@ET.EurofinsUS.com</u>	State of Origin: <u>CO</u>	Page: <u>1 of 1</u>						
Company: <u>HDR Inc</u>		PWSID: _____		Job #: _____								
Address: <u>1670 Broadway, Suite 3400</u>		Analysis Requested										
City: <u>Denver</u>	Due Date Requested: _____											
State, Zip: <u>CO, 80202</u>	TAT Requested (days): _____											
Phone: <u>734-263-7138(Tel)</u>	Compliance Project: ☐ Yes ☒ No											
Email: <u>Molly.Reeves@hdrinc.com</u>	PO #: <u>DEN-021</u>											
Project Name: <u>Xcel Energy GW CCR Monitoring - Comanche</u>	WO #: _____											
Site: <u>COLORADO</u>	Project #: <u>28014376</u>											
APP III + IV - TSS, Additional Methods	SSOW#: _____											
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/soil, ST=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9040B - pH/9056A, 28D Cl, FI, SO4/Alkalinity & K	Radium-226 9135 and Radium-228 Method 9320/ Ra2226Ra2228GFPC - ETA St. Louis	2540D - TSS/2540C - TDS	Disolved Metals (Lab Filter)	Special Instructions/Note:	
<u>W-14</u>	<u>9/28/22</u>	<u>1600</u>	<u>G</u>	<u>W</u>	☒	☒	☒	☒	☒	☒	<u>5</u>	
<u>W-14-FD</u>	<u>9/28/22</u>	<u>1630</u>	<u>G</u>	<u>W</u>	☒	☒	☒	☒	☒	☒	<u>5</u>	
<u>W-682</u>	<u>9/29/22</u>	<u>1630</u>	<u>G</u>	<u>W</u>	☒	☒	☒	☒	☒	☒	<u>6</u>	<u>+ 250 mL wup for DM</u>
<u>W-108-EB</u>	<u>9/30/22</u>	<u>1000</u>	<u>G</u>	<u>W</u>	☒	☒	☒	☒	☒	☒	<u>6</u>	
<u>W-108</u>	<u>9/30/22</u>	<u>1030</u>	<u>G</u>	<u>W</u>	☒	☒	☒	☒	☒	☒	<u>6</u>	<u>+ 250 mL wup for DM</u>
 280-167106 Chain of Custody												
Possible Hazard Identification ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological												
Deliverable Requested: ☐ I, II, III, IV, Other (specify) _____												
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months												
Special Instructions/QC Requirements:												
Empty Kit Relinquished by:												
Relinquished by: <u>Gavin Ray</u>		Date/Time: <u>9/30/22 1535</u>		Company: <u>HDR</u>		Received by: <u>[Signature]</u>		Date/Time: <u>9/30/22 1535</u>		Company: <u>[Signature]</u>		
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:		
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:		
Custody Seals Intact: ☐ Yes ☒ No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:								

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-167106-1

Login Number: 167106

List Number: 1

Creator: Roehsner, Karen P

List Source: Eurofins Denver

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



Environment Testing

ANALYTICAL REPORT

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-167106-2

Client Project/Site: Xcel Energy GW CCR Monitoring -
Comanche

For:

HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Attn: Molly Reeves

Authorized for release by:

11/1/2022 3:18:35 PM

Nicole Ryan, Project Manager I

(303)736-0100

Nicole.Ryan@ET.eurofinsus.com

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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-2

Qualifiers

Rad

Qualifier	Qualifier Description
G	The Sample MDC is greater than the requested RL.
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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-2

Job ID: 280-167106-2

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-167106-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

Receipt

The samples were received on 9/30/2022 3:35 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 0.7° C and 2.1° C.

RADIUM-226 (GFPC)

Samples W-14 (280-167106-1), W-14-FD (280-167106-2), W-6B1 (280-167106-3), W-10B-EB (280-167106-4) and W-10B (280-167106-5) were analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 10/06/2022 and analyzed on 10/31/2022.

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

RADIUM-228

Samples W-14 (280-167106-1), W-14-FD (280-167106-2), W-6B1 (280-167106-3), W-10B-EB (280-167106-4) and W-10B (280-167106-5) were analyzed for Radium-228 in accordance with 9320. The samples were prepared on 10/06/2022 and 10/26/2022 and analyzed on 10/24/2022 and 10/31/2022.

The following samples were prepared at a reduced aliquot due to Matrix: W-14 (280-167106-1) and W-14-FD (280-167106-2). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Radium-228 was detected in method blank MB 160-584858/1-A at a level exceeding the reporting limit. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Radium-228 was detected in method blank MB 160-587317/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

The detection goal was not met for the following sample(s). Sample was prepped at a reduced volume due to the presence of matrix interferences: W-6B1 (280-167106-3). Analytical results are reported with the detection limit achieved.

The detection goal was not met for the following sample(s). Samples were prepped at a reduced volume due to the presence of matrix interferences: W-14 (280-167106-1) and W-14-FD (280-167106-2). Analytical results are reported with the detection limit achieved.

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-2

Job ID: 280-167106-2 (Continued)

Laboratory: Eurofins Denver (Continued)

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

RADIUM-226/RADIUM-228 (GFPC)

Samples W-14 (280-167106-1), W-14-FD (280-167106-2), W-6B1 (280-167106-3), W-10B-EB (280-167106-4) and W-10B (280-167106-5) were analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 10/31/2022.

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

Method Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-2

Method	Method Description	Protocol	Laboratory
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
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL

Protocol References:

None = None

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

Sample Summary

Client: HDR Inc

Job ID: 280-167106-2

Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-167106-1	W-14	Water	09/28/22 16:00	09/30/22 15:35
280-167106-2	W-14-FD	Water	09/28/22 16:30	09/30/22 15:35
280-167106-3	W-6B1	Water	09/29/22 16:30	09/30/22 15:35
280-167106-4	W-10B-EB	Water	09/30/22 10:00	09/30/22 15:35
280-167106-5	W-10B	Water	09/30/22 10:30	09/30/22 15:35

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-2

Method: SW846 9315 - Radium-226 (GFPC)

Client Sample ID: W-14
Date Collected: 09/28/22 16:00
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	2.09		0.394	0.436	1.00	0.261	pCi/L	10/06/22 10:15	10/31/22 15:09	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.4		40 - 110					10/06/22 10:15	10/31/22 15:09	1

Client Sample ID: W-14-FD
Date Collected: 09/28/22 16:30
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.96		0.395	0.433	1.00	0.296	pCi/L	10/06/22 10:15	10/31/22 15:09	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.5		40 - 110					10/06/22 10:15	10/31/22 15:09	1

Client Sample ID: W-6B1
Date Collected: 09/29/22 16:30
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	3.57		0.487	0.583	1.00	0.218	pCi/L	10/06/22 10:15	10/31/22 15:09	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.1		40 - 110					10/06/22 10:15	10/31/22 15:09	1

Client Sample ID: W-10B-EB
Date Collected: 09/30/22 10:00
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0139	U	0.0773	0.0773	1.00	0.156	pCi/L	10/06/22 10:15	10/31/22 15:09	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.3		40 - 110					10/06/22 10:15	10/31/22 15:09	1

Client Sample ID: W-10B
Date Collected: 09/30/22 10:30
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.891		0.251	0.263	1.00	0.219	pCi/L	10/06/22 10:15	10/31/22 15:09	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.1		40 - 110					10/06/22 10:15	10/31/22 15:09	1

Eurofins Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-2

Method: SW846 9320 - Radium-228 (GFPC)

Client Sample ID: W-14
Date Collected: 09/28/22 16:00
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	3.35	G	1.12	1.16	1.00	1.46	pCi/L	10/26/22 08:11	10/31/22 12:54	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.7		40 - 110					10/26/22 08:11	10/31/22 12:54	1
Y Carrier	84.5		40 - 110					10/26/22 08:11	10/31/22 12:54	1

Client Sample ID: W-14-FD
Date Collected: 09/28/22 16:30
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	3.20	G	0.961	1.00	1.00	1.07	pCi/L	10/26/22 08:11	10/31/22 12:54	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.9		40 - 110					10/26/22 08:11	10/31/22 12:54	1
Y Carrier	84.5		40 - 110					10/26/22 08:11	10/31/22 12:54	1

Client Sample ID: W-6B1
Date Collected: 09/29/22 16:30
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	7.97	G	1.24	1.44	1.00	1.01	pCi/L	10/06/22 10:38	10/24/22 12:39	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.1		40 - 110					10/06/22 10:38	10/24/22 12:39	1
Y Carrier	89.7		40 - 110					10/06/22 10:38	10/24/22 12:39	1

Client Sample ID: W-10B-EB
Date Collected: 09/30/22 10:00
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.164	U	0.295	0.295	1.00	0.509	pCi/L	10/26/22 08:11	10/31/22 12:54	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.9		40 - 110					10/26/22 08:11	10/31/22 12:54	1
Y Carrier	86.4		40 - 110					10/26/22 08:11	10/31/22 12:54	1

Client Sample ID: W-10B
Date Collected: 09/30/22 10:30
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	5.87		1.03	1.17	1.00	0.819	pCi/L	10/06/22 10:38	10/24/22 12:39	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-2

Method: SW846 9320 - Radium-228 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	97.1		40 - 110	10/06/22 10:38	10/24/22 12:39	1
Y Carrier	90.1		40 - 110	10/06/22 10:38	10/24/22 12:39	1

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

Client Sample ID: W-14
Date Collected: 09/28/22 16:00
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	5.44		1.19	1.24	5.00	1.46	pCi/L		10/31/22 21:39	1

Client Sample ID: W-14-FD
Date Collected: 09/28/22 16:30
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	5.16		1.04	1.09	5.00	1.07	pCi/L		10/31/22 21:39	1

Client Sample ID: W-6B1
Date Collected: 09/29/22 16:30
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	11.5		1.33	1.55	5.00	1.01	pCi/L		10/31/22 21:40	1

Client Sample ID: W-10B-EB
Date Collected: 09/30/22 10:00
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.150	U	0.305	0.305	5.00	0.509	pCi/L		10/31/22 21:39	1

Client Sample ID: W-10B
Date Collected: 09/30/22 10:30
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	6.76		1.06	1.20	5.00	0.819	pCi/L		10/31/22 21:40	1

Eurofins Denver

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-2

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-584855/1-A

Matrix: Water

Analysis Batch: 587626

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 584855

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.05136	U	0.0760	0.0761	1.00	0.130	pCi/L	10/06/22 10:15	10/28/22 21:45	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.9		40 - 110					10/06/22 10:15	10/28/22 21:45	1

Lab Sample ID: LCS 160-584855/2-A

Matrix: Water

Analysis Batch: 587626

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 584855

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226		11.3	10.99		1.18	1.00	0.122	pCi/L	97	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits							
Ba Carrier	92.6		40 - 110							

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-584858/1-A

Matrix: Water

Analysis Batch: 587142

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 584858

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.086		0.411	0.423	1.00	0.515	pCi/L	10/06/22 10:38	10/24/22 12:35	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.9		40 - 110					10/06/22 10:38	10/24/22 12:35	1
Y Carrier	80.4		40 - 110					10/06/22 10:38	10/24/22 12:35	1

Lab Sample ID: LCS 160-584858/2-A

Matrix: Water

Analysis Batch: 587142

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 584858

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-228		8.50	10.25		1.35	1.00	0.443	pCi/L	121	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits							
Ba Carrier	92.6		40 - 110							
Y Carrier	82.2		40 - 110							

Eurofins Denver

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-2

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

Lab Sample ID: MB 160-587317/1-A

Matrix: Water

Analysis Batch: 587908

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 587317

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.7798		0.396	0.402	1.00	0.548	pCi/L	10/26/22 08:11	10/31/22 12:50	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	97.1		40 - 110	10/26/22 08:11	10/31/22 12:50	1
Y Carrier	80.4		40 - 110	10/26/22 08:11	10/31/22 12:50	1

Lab Sample ID: LCS 160-587317/2-A

Matrix: Water

Analysis Batch: 587905

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 587317

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-228	8.48	9.986		1.38	1.00	0.609	pCi/L	118	75 - 125

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	90.9		40 - 110
Y Carrier	81.1		40 - 110

Lab Sample ID: LCSD 160-587317/3-A

Matrix: Water

Analysis Batch: 587905

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 587317

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-228	8.48	9.305		1.30	1.00	0.604	pCi/L	110	75 - 125	0.25	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	92.9		40 - 110
Y Carrier	81.5		40 - 110

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-2

Rad

Prep Batch: 584855

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167106-1	W-14	Total/NA	Water	PrecSep-21	
280-167106-2	W-14-FD	Total/NA	Water	PrecSep-21	
280-167106-3	W-6B1	Total/NA	Water	PrecSep-21	
280-167106-4	W-10B-EB	Total/NA	Water	PrecSep-21	
280-167106-5	W-10B	Total/NA	Water	PrecSep-21	
MB 160-584855/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-584855/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 584858

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167106-3	W-6B1	Total/NA	Water	PrecSep_0	
280-167106-5	W-10B	Total/NA	Water	PrecSep_0	
MB 160-584858/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-584858/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Prep Batch: 587317

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167106-1	W-14	Total/NA	Water	PrecSep_0	
280-167106-2	W-14-FD	Total/NA	Water	PrecSep_0	
280-167106-4	W-10B-EB	Total/NA	Water	PrecSep_0	
MB 160-587317/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-587317/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-587317/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-2

Client Sample ID: W-14

Lab Sample ID: 280-167106-1

Date Collected: 09/28/22 16:00

Matrix: Water

Date Received: 09/30/22 15:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			503.44 mL	1.0 g	584855	10/06/22 10:15	BMP	EET SL
Total/NA	Analysis	9315		1			587905	10/31/22 15:09	JCB	EET SL
Total/NA	Prep	PrecSep_0			503.06 mL	1.0 g	587317	10/26/22 08:11	BMP	EET SL
Total/NA	Analysis	9320		1			587905	10/31/22 12:54	JCB	EET SL
Total/NA	Analysis	Ra226_Ra228		1			587920	10/31/22 21:39	EMH	EET SL

Client Sample ID: W-14-FD

Lab Sample ID: 280-167106-2

Date Collected: 09/28/22 16:30

Matrix: Water

Date Received: 09/30/22 15:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			497.43 mL	1.0 g	584855	10/06/22 10:15	BMP	EET SL
Total/NA	Analysis	9315		1			587905	10/31/22 15:09	JCB	EET SL
Total/NA	Prep	PrecSep_0			498.53 mL	1.0 g	587317	10/26/22 08:11	BMP	EET SL
Total/NA	Analysis	9320		1			587905	10/31/22 12:54	JCB	EET SL
Total/NA	Analysis	Ra226_Ra228		1			587920	10/31/22 21:39	EMH	EET SL

Client Sample ID: W-6B1

Lab Sample ID: 280-167106-3

Date Collected: 09/29/22 16:30

Matrix: Water

Date Received: 09/30/22 15:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			503.14 mL	1.0 g	584855	10/06/22 10:15	BMP	EET SL
Total/NA	Analysis	9315		1			587905	10/31/22 15:09	JCB	EET SL
Total/NA	Prep	PrecSep_0			503.14 mL	1.0 g	584858	10/06/22 10:38	BMP	EET SL
Total/NA	Analysis	9320		1			587141	10/24/22 12:39	CLP	EET SL
Total/NA	Analysis	Ra226_Ra228		1			587921	10/31/22 21:40	EMH	EET SL

Client Sample ID: W-10B-EB

Lab Sample ID: 280-167106-4

Date Collected: 09/30/22 10:00

Matrix: Water

Date Received: 09/30/22 15:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1003.30 mL	1.0 g	584855	10/06/22 10:15	BMP	EET SL
Total/NA	Analysis	9315		1			587905	10/31/22 15:09	JCB	EET SL
Total/NA	Prep	PrecSep_0			1001.79 mL	1.0 g	587317	10/26/22 08:11	BMP	EET SL
Total/NA	Analysis	9320		1			587905	10/31/22 12:54	JCB	EET SL
Total/NA	Analysis	Ra226_Ra228		1			587920	10/31/22 21:39	EMH	EET SL

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-2

Client Sample ID: W-10B

Date Collected: 09/30/22 10:30

Date Received: 09/30/22 15:35

Lab Sample ID: 280-167106-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			517.69 mL	1.0 g	584855	10/06/22 10:15	BMP	EET SL
Total/NA	Analysis	9315		1			587905	10/31/22 15:09	JCB	EET SL
Total/NA	Prep	PrecSep_0			517.69 mL	1.0 g	584858	10/06/22 10:38	BMP	EET SL
Total/NA	Analysis	9320		1			587141	10/24/22 12:39	CLP	EET SL
Total/NA	Analysis	Ra226_Ra228		1			587921	10/31/22 21:40	EMH	EET SL

Laboratory References:

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

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-2

Laboratory: Eurofins St. Louis

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

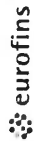
Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-22
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	07-01-22 *
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-23
Iowa	State	373	12-01-22
Kansas	NELAP	E-10236	10-31-22
Kentucky (DW)	State	KY90125	12-31-22
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-22
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-22
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	04-01-23
North Dakota	State	R-207	06-30-23
NRC	NRC	24-24817-01	12-31-22
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-23
South Carolina	State	85002001	06-30-23
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	10-31-22
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-22

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

Eurofins Denver

Ver: 01/16/2019

Chain of Custody Record



**Environment Testing
America**

Client Information (Sub Contract Lab)	Sampler	Lab PM Ryan, Nicole C	COC No: 280-630784.1								
Client Contact Shipping/Receiving	Phone	E-Mail: Nicole.Ryan@ET.eurofins.com	Page Page 1 of 1								
Company TestAmerica Laboratories, Inc.	Address:	Accreditations Required (See note) DoD - A2LA	Job # 280-167106-1								
City 13715 Rider Trail North,	TAT Requested (days): 10/13/2022	Analysis Requested									
State Zip: MO. 63045	PO #										
Phone 314-298-8566(Tel) 314-298-8757(Fax)	WO #										
Email	Project # 28014376										
Site Xcel Energy CCR - Comanche Station	SSOW#										
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=other)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226/PrecSep_21 Ra226 (1/3) - SUB	9320_Ra228/PrecSep_0 Ra228 (2/3) - SUB	Ra226Ra228_GFP/C/Ra226/Ra228 Calc (3/3) - SUB	Total Number of Containers	Special Instructions/Note:
W-14 (280-167106-1)	9/28/22	16:00 Mountain		Water	X		X	X	X	2	
W-14-FD (280-167106-2)	9/28/22	16:30 Mountain		Water	X		X	X	X	2	
W-6B1 (280-167106-3)	9/29/22	16:30 Mountain		Water	X		X	X	X	2	
W-10B-EB (280-167106-4)	9/30/22	10:00 Mountain		Water	X		X	X	X	2	
W-10B (280-167106-5)	9/30/22	10:30 Mountain		Water	X		X	X	X	2	

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

Possible Hazard Identification	Unconfirmed	Deliverable Requested: I, II, III, IV, Other (specify)	Primary Deliverable Rank: 2	Date: _____	Time: _____
Empty Kit Relinquished by: _____	Relinquished by: _____	Relinquished by: _____	Relinquished by: _____	Received by: _____	Received by: _____
Signature	Signature	Signature	Signature	Signature	Signature
Date/Time: 10/13/22 14:15	Date/Time: 10/13/22 14:15	Date/Time: 10/13/22 14:15	Date/Time: 10/13/22 14:15	Date/Time: 10/13/22 14:15	Date/Time: 10/13/22 14:15
FED EX	FED EX	FED EX	FED EX	FED EX	FED EX
Company	Company	Company	Company	Company	Company
Method of Shipment	Return To Client ☐ Disposal By Lab ☒	Archive For _____ Months	Special Instructions/QC Requirements:	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	_____
Cooler Temperature(s) °C and Other Remarks:					

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-167106-2

Login Number: 167106

List Number: 1

Creator: Roehsner, Karen P

List Source: Eurofins Denver

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

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-167106-2

Login Number: 167106

List Number: 2

Creator: Worthington, Sierra M

List Source: Eurofins St. Louis

List Creation: 10/04/22 11:22 AM

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

Tracer/Carrier Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167106-2

Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	
280-167106-1	W-14	90.4	
280-167106-2	W-14-FD	87.5	
280-167106-3	W-6B1	95.1	
280-167106-4	W-10B-EB	99.3	
280-167106-5	W-10B	97.1	
LCS 160-584855/2-A	Lab Control Sample	92.6	
MB 160-584855/1-A	Method Blank	91.9	
Tracer/Carrier Legend			
Ba = Ba Carrier			

Method: 9320 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)
280-167106-1	W-14	90.7	84.5
280-167106-2	W-14-FD	91.9	84.5
280-167106-3	W-6B1	95.1	89.7
280-167106-4	W-10B-EB	94.9	86.4
280-167106-5	W-10B	97.1	90.1
LCS 160-584858/2-A	Lab Control Sample	92.6	82.2
LCS 160-587317/2-A	Lab Control Sample	90.9	81.1
LCSD 160-587317/3-A	Lab Control Sample Dup	92.9	81.5
MB 160-584858/1-A	Method Blank	91.9	80.4
MB 160-587317/1-A	Method Blank	97.1	80.4
Tracer/Carrier Legend			
Ba = Ba Carrier			
Y = Y Carrier			

ANALYTICAL REPORT

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-167107-1

Client Project/Site: Xcel Energy GW CCR Monitoring -
Comanche

For:

HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Attn: Molly Reeves



Authorized for release by:

10/14/2022 5:27:02 PM

Nicole Ryan, Project Manager I

(303)736-0100

Nicole.Ryan@ET.eurofinsus.com

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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167107-1

Qualifiers

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167107-1

Job ID: 280-167107-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-167107-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

The presence of the '4' qualifier indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount.

Receipt

The samples were received on 9/30/2022 3:35 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 0.7° C and 2.1° C.

TOTAL RECOVERABLE METALS

Sample W-16 (280-167107-1) was analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared and analyzed on 10/05/2022.

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

TOTAL RECOVERABLE METALS (ICP/MS)

Sample W-16 (280-167107-1) was analyzed for Total Recoverable Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 10/05/2022 and analyzed on 10/05/2022, 10/06/2022, 10/07/2022 and 10/12/2022.

The instrument blank for analytical batch 280-589155 contained 77.5 ppb Na which is greater than one-half the reporting limit (RL) of 150 ppb, and were not re-analyzed because the sample is >10x the blank. The data have been qualified and reported.

The instrument blank for analytical batch 280-589155 contained 182 ppb Na which is greater than the reporting limit (RL) of 150 ppb, and were not reanalyzed because the sample is >10x the blank. The data have been qualified and reported.

The instrument blank for analytical batch 280-589801 contained 61 ppb K which is greater than one-half the reporting limit (RL) of 120 ppb, and were not re-analyzed because the sample was >10x the blank. The data have been qualified and reported.

Sodium was detected in method blank MB 280-588697/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Cobalt and Sodium failed the recovery criteria low for the MS of sample 280-167094-1 in batch 280-589801. Magnesium, Calcium and Potassium failed the recovery criteria high.

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167107-1

Job ID: 280-167107-1 (Continued)

Laboratory: Eurofins Denver (Continued)

Calcium failed the recovery criteria low for the MSD of sample 280-167094-1 in batch 280-589801. Magnesium, Sodium and Potassium failed the recovery criteria high.

Sample W-16 (280-167107-1)[50X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

ALKALINITY

Sample W-16 (280-167107-1) was analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 10/03/2022.

The method blank (MB) and continuing calibration blank (CCB) for analytical batch 280-588714 contained Alkalinity, Bicarbonate Alkalinity as CaCO₃ and Carbonate Alkalinity as CaCO₃ above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-analysis of samples was not performed.

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

TOTAL DISSOLVED SOLIDS

Sample W-16 (280-167107-1) was analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 10/03/2022.

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

TOTAL SUSPENDED SOLIDS

Sample W-16 (280-167107-1) was analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 10/04/2022.

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

CORROSIVITY (PH)

Sample W-16 (280-167107-1) was analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 10/03/2022.

pH adj. to 25 deg C exceeded the RPD limit for the duplicate of sample 280-167102-1. Refer to the QC report for details.

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

ANIONS (28 DAYS)

Sample W-16 (280-167107-1) was analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days). The samples were analyzed on 10/07/2022.

Samples W-16 (280-167107-1)[100X] and W-16 (280-167107-1)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167107-1

Job ID: 280-167107-1 (Continued)

Laboratory: Eurofins Denver (Continued)

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Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167107-1

Client Sample ID: W-16

Lab Sample ID: 280-167107-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Boron	0.72		0.10	0.0015	mg/L	1			6010C	Total
										Recoverable
Calcium	480		10	1.9	mg/L	50			6020B	Total
										Recoverable
Cobalt	0.018		0.0010	0.000092	mg/L	1			6020B	Total
										Recoverable
Magnesium	2300		2.5	1.1	mg/L	50			6020B	Total
										Recoverable
Sodium	2000	B	7.5	3.2	mg/L	50			6020B	Total
										Recoverable
Potassium	31		6.0	2.6	mg/L	50			6020B	Total
										Recoverable
pH adj. to 25 deg C	6.9	HF	0.1	0.1	SU	1			9040B	Total/NA
Temperature	19.5	HF	1.0	1.0	Degrees C	1			9040B	Total/NA
Chloride	230		15	5.1	mg/L	5			9056A	Total/NA
Sulfate	13000		500	100	mg/L	100			9056A	Total/NA
Alkalinity	920		10	3.1	mg/L	1			SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	920		10	3.1	mg/L	1			SM 2320B	Total/NA
Total Dissolved Solids (TDS)	17000		1000	470	mg/L	1			SM 2540C	Total/NA
Total Suspended Solids	2.0	J	4.0	1.1	mg/L	1			SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Method Summary

Client: HDR Inc

Job ID: 280-167107-1

Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	EET DEN
6020B	Metals (ICP/MS)	SW846	EET DEN
9040B	pH	SW846	EET DEN
9056A	Anions, Ion Chromatography	SW846	EET DEN
SM 2320B	Alkalinity	SM	EET DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET DEN
SM 2540D	Solids, Total Suspended (TSS)	SM	EET DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET DEN

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

Sample Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167107-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-167107-1	W-16	Water	09/29/22 11:30	09/30/22 15:35

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167107-1

Method: SW846 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: W-16
Date Collected: 09/29/22 11:30
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167107-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.72		0.10	0.0015	mg/L		10/05/22 06:41	10/05/22 21:37	1

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

Client Sample ID: W-16
Date Collected: 09/29/22 11:30
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167107-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	480		10	1.9	mg/L		10/05/22 06:46	10/06/22 16:38	50
Cobalt	0.018		0.0010	0.000092	mg/L		10/05/22 06:46	10/07/22 02:15	1
Magnesium	2300		2.5	1.1	mg/L		10/05/22 06:46	10/05/22 20:56	50
Sodium	2000	B	7.5	3.2	mg/L		10/05/22 06:46	10/06/22 16:38	50
Potassium	31		6.0	2.6	mg/L		10/05/22 06:46	10/12/22 14:26	50

General Chemistry

Client Sample ID: W-16
Date Collected: 09/29/22 11:30
Date Received: 09/30/22 15:35

Lab Sample ID: 280-167107-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C (SW846 9040B)	6.9	HF	0.1	0.1	SU			10/03/22 13:26	1
Temperature (SW846 9040B)	19.5	HF	1.0	1.0	Degrees C			10/03/22 13:26	1
Chloride (SW846 9056A)	230		15	5.1	mg/L			10/07/22 01:09	5
Sulfate (SW846 9056A)	13000		500	100	mg/L			10/07/22 01:25	100
Alkalinity (SM 2320B)	920		10	3.1	mg/L			10/03/22 16:56	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	920		10	3.1	mg/L			10/03/22 16:56	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			10/03/22 16:56	1
Total Dissolved Solids (TDS) (SM 2540C)	17000		1000	470	mg/L			10/03/22 11:13	1
Total Suspended Solids (SM 2540D)	2.0	J	4.0	1.1	mg/L			10/04/22 10:48	1

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167107-1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-588698/1-A
Matrix: Water
Analysis Batch: 589086

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 588698

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.0015	mg/L		10/05/22 06:41	10/05/22 20:12	1

Lab Sample ID: LCS 280-588698/2-A
Matrix: Water
Analysis Batch: 589086

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 588698

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	1.99		mg/L		99	86 - 110

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-588697/1-A
Matrix: Water
Analysis Batch: 589035

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 588697

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	ND		0.0010	0.000092	mg/L		10/05/22 06:46	10/05/22 19:10	1
Magnesium	ND		0.050	0.021	mg/L		10/05/22 06:46	10/05/22 19:10	1

Lab Sample ID: MB 280-588697/1-A
Matrix: Water
Analysis Batch: 589155

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 588697

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		0.20	0.038	mg/L		10/05/22 06:46	10/06/22 15:59	1
Sodium	0.0980	J	0.15	0.065	mg/L		10/05/22 06:46	10/06/22 15:59	1

Lab Sample ID: MB 280-588697/1-A
Matrix: Water
Analysis Batch: 589871

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 588697

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium	ND		0.12	0.052	mg/L		10/05/22 06:46	10/13/22 12:29	1

Lab Sample ID: LCS 280-588697/2-A
Matrix: Water
Analysis Batch: 589035

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 588697

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cobalt	0.0400	0.0395		mg/L		99	85 - 120
Magnesium	0.800	0.891		mg/L		111	80 - 120

Lab Sample ID: LCS 280-588697/2-A
Matrix: Water
Analysis Batch: 589155

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 588697

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	0.800	0.885		mg/L		111	80 - 120
Sodium	0.800	0.933		mg/L		117	80 - 120

Eurofins Denver

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167107-1

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

Lab Sample ID: LCS 280-588697/2-A
Matrix: Water
Analysis Batch: 589871

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 588697

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Potassium	0.800	0.908		mg/L		114	80 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-588713/4
Matrix: Water
Analysis Batch: 588713

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH adj. to 25 deg C	7.00	7.1		SU		101	99 - 101

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-589092/13
Matrix: Water
Analysis Batch: 589092

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			10/06/22 16:26	1
Sulfate	ND		5.0	1.0	mg/L			10/06/22 16:26	1

Lab Sample ID: LCS 280-589092/11
Matrix: Water
Analysis Batch: 589092

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	100	98.1		mg/L		98	90 - 110
Sulfate	100	95.1		mg/L		95	90 - 110

Lab Sample ID: LCSD 280-589092/12
Matrix: Water
Analysis Batch: 589092

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100	98.2		mg/L		98	90 - 110	0	10
Sulfate	100	95.3		mg/L		95	90 - 110	0	10

Lab Sample ID: MRL 280-589092/10
Matrix: Water
Analysis Batch: 589092

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.00	3.89		mg/L		78	50 - 150
Sulfate	5.00	4.07	J	mg/L		81	50 - 150

Eurofins Denver

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167107-1

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-588714/32

Matrix: Water

Analysis Batch: 588714

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	ND		10	3.1	mg/L			10/03/22 15:47	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			10/03/22 15:47	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			10/03/22 15:47	1

Lab Sample ID: LCS 280-588714/31

Matrix: Water

Analysis Batch: 588714

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	200	205		mg/L		103	89 - 109

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

Lab Sample ID: MB 280-588636/1

Matrix: Water

Analysis Batch: 588636

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 (TDS)	ND		10	4.7	mg/L			10/03/22 11:13	1

Lab Sample ID: LCS 280-588636/2

Matrix: Water

Analysis Batch: 588636

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 (TDS)	501	486		mg/L		97	88 - 114

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 280-588761/3

Matrix: Water

Analysis Batch: 588761

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			10/04/22 10:48	1

Lab Sample ID: LCS 280-588761/1

Matrix: Water

Analysis Batch: 588761

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	500	445		mg/L		89	79 - 114

Lab Sample ID: LCSD 280-588761/2

Matrix: Water

Analysis Batch: 588761

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	500	470		mg/L		94	79 - 114	6	20

Eurofins Denver

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167107-1

Metals

Prep Batch: 588697

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167107-1	W-16	Total Recoverable	Water	3005A	
MB 280-588697/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-588697/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 588698

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167107-1	W-16	Total Recoverable	Water	3005A	
MB 280-588698/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-588698/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 589035

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167107-1	W-16	Total Recoverable	Water	6020B	588697
MB 280-588697/1-A	Method Blank	Total Recoverable	Water	6020B	588697
LCS 280-588697/2-A	Lab Control Sample	Total Recoverable	Water	6020B	588697

Analysis Batch: 589086

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167107-1	W-16	Total Recoverable	Water	6010C	588698
MB 280-588698/1-A	Method Blank	Total Recoverable	Water	6010C	588698
LCS 280-588698/2-A	Lab Control Sample	Total Recoverable	Water	6010C	588698

Analysis Batch: 589155

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167107-1	W-16	Total Recoverable	Water	6020B	588697
MB 280-588697/1-A	Method Blank	Total Recoverable	Water	6020B	588697
LCS 280-588697/2-A	Lab Control Sample	Total Recoverable	Water	6020B	588697

Analysis Batch: 589199

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167107-1	W-16	Total Recoverable	Water	6020B	588697

Analysis Batch: 589801

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167107-1	W-16	Total Recoverable	Water	6020B	588697

Analysis Batch: 589871

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-588697/1-A	Method Blank	Total Recoverable	Water	6020B	588697
LCS 280-588697/2-A	Lab Control Sample	Total Recoverable	Water	6020B	588697

General Chemistry

Analysis Batch: 588636

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167107-1	W-16	Total/NA	Water	SM 2540C	
MB 280-588636/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-588636/2	Lab Control Sample	Total/NA	Water	SM 2540C	

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167107-1

General Chemistry

Analysis Batch: 588713

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167107-1	W-16	Total/NA	Water	9040B	
LCS 280-588713/4	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 588714

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167107-1	W-16	Total/NA	Water	SM 2320B	
MB 280-588714/32	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-588714/31	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 588761

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167107-1	W-16	Total/NA	Water	SM 2540D	
MB 280-588761/3	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-588761/1	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-588761/2	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 589092

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-167107-1	W-16	Total/NA	Water	9056A	
280-167107-1	W-16	Total/NA	Water	9056A	
MB 280-589092/13	Method Blank	Total/NA	Water	9056A	
LCS 280-589092/11	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-589092/12	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-589092/10	Lab Control Sample	Total/NA	Water	9056A	

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167107-1

Client Sample ID: W-16

Lab Sample ID: 280-167107-1

Date Collected: 09/29/22 11:30

Matrix: Water

Date Received: 09/30/22 15:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	588698	10/05/22 06:41	MAB	EET DEN
Total Recoverable	Analysis	6010C		1			589086	10/05/22 21:37	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	588697	10/05/22 06:46	MAB	EET DEN
Total Recoverable	Analysis	6020B		50			589035	10/05/22 20:56	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	588697	10/05/22 06:46	MAB	EET DEN
Total Recoverable	Analysis	6020B		50			589155	10/06/22 16:38	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	588697	10/05/22 06:46	MAB	EET DEN
Total Recoverable	Analysis	6020B		1			589199	10/07/22 02:15	LRD	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	588697	10/05/22 06:46	MAB	EET DEN
Total Recoverable	Analysis	6020B		50			589801	10/12/22 14:26	LMT	EET DEN
Total/NA	Analysis	9040B		1			588713	10/03/22 13:26	KEG	EET DEN
Total/NA	Analysis	9056A		5	5 mL	5 mL	589092	10/07/22 01:09	MEC	EET DEN
Total/NA	Analysis	9056A		100	5 mL	5 mL	589092	10/07/22 01:25	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			588714	10/03/22 16:56	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	588636	10/03/22 11:13	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	588761	10/04/22 10:48	ASP	EET DEN

Laboratory References:

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

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-167107-1

Laboratory: Eurofins Denver

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

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-23

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	Calcium
6020B	3005A	Water	Magnesium
6020B	3005A	Water	Potassium
6020B	3005A	Water	Sodium
9040B		Water	Temperature

[illegible]

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-167107-1

Login Number: 167107

List Number: 1

Creator: Roehsner, Karen P

List Source: Eurofins Denver

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

ANALYTICAL REPORT

PREPARED FOR

Attn: Molly Reeves
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Generated 12/7/2022 3:45:00 PM

JOB DESCRIPTION

Xcel Energy GW CCR Monitoring - Comanche

JOB NUMBER

280-168611-1

Eurofins Denver

Job Notes

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the Eurofins TestAmerica Denver Project Manager.

The Lab Certification ID# is 4025.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

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 TestAmerica Project Manager.

Authorization



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Authorized for release by
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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168611-1

Qualifiers

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
^	Continuing Calibration Verification (CCV) is outside acceptance limits, low biased.
B	Compound was found in the blank and sample.
E	Result exceeded calibration range.
H	Sample was prepped or analyzed beyond the specified holding time
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168611-1

Job ID: 280-168611-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-168611-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

The presence of the '4' qualifier indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount.

Receipt

The sample was received on 11/3/2022 9:30 AM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.7° C.

TOTAL RECOVERABLE METALS

Sample W-16 (280-168611-1) was analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 11/08/2022 and analyzed on 11/12/2022.

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

TOTAL RECOVERABLE METALS (ICP/MS)

Sample W-16 (280-168611-1) was analyzed for Total Recoverable Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 11/04/2022 and analyzed on 11/07/2022 and 11/08/2022.

Calcium, Magnesium and Sodium were detected in method blank MB 280-592417/1-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Cobalt, Calcium, Magnesium and Sodium failed the recovery criteria low for the MS of sample 280-168612-3 in batch 280-592825.

Cobalt and Sodium failed the recovery criteria low for the MSD of sample 280-168612-3 in batch 280-592825. Potassium, Calcium and Magnesium failed the recovery criteria high.

Sample W-16 (280-168611-1)[50X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

ALKALINITY

Sample W-16 (280-168611-1) was analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 11/04/2022.

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168611-1

Job ID: 280-168611-1 (Continued)

Laboratory: Eurofins Denver (Continued)

Alkalinity was detected in method blank MB 280-592471/6 at a level exceeding the reporting limit. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

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

TOTAL DISSOLVED SOLIDS

Sample W-16 (280-168611-1) was analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 11/04/2022.

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

TOTAL SUSPENDED SOLIDS

Sample W-16 (280-168611-1) was analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 11/04/2022.

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

CORROSIVITY (PH)

Sample W-16 (280-168611-1) was analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 11/09/2022.

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

ANIONS (28 DAYS)

Sample W-16 (280-168611-1) was analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days). The samples were analyzed on 11/18/2022 and 12/03/2022.

Reanalysis of the following samples was performed outside of the analytical holding time due to the sample requiring further dilution :
W-16 (280-168611-1).

Chloride failed the recovery criteria high for the MS of sample 280-168612-3 in batch 280-594088.

Samples W-16 (280-168611-1)[20X] and W-16 (280-168611-1)[200X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168611-1

Client Sample ID: W-16

Lab Sample ID: 280-168611-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.72		0.10	0.0015	mg/L	1		6010C	Total
									Recoverable
Calcium	470	B	10	1.9	mg/L	50		6020B	Total
									Recoverable
Cobalt	0.017		0.0010	0.000092	mg/L	1		6020B	Total
									Recoverable
Magnesium	2200	B	2.5	1.1	mg/L	50		6020B	Total
									Recoverable
Sodium	1700	B	7.5	3.2	mg/L	50		6020B	Total
									Recoverable
Potassium	31		6.0	2.6	mg/L	50		6020B	Total
									Recoverable
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	19.9	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	270		60	20	mg/L	20		9056A	Total/NA
Sulfate	11000	E	100	21	mg/L	20		9056A	Total/NA
Sulfate	13000	H	1000	210	mg/L	200		9056A	Total/NA
Fluoride	0.32	J H	0.50	0.17	mg/L	1		9056A	Total/NA
Alkalinity	930	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	930		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	16000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	1.6	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

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Method Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168611-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	EET DEN
6020B	Metals (ICP/MS)	SW846	EET DEN
9040B	pH	SW846	EET DEN
9056A	Anions, Ion Chromatography	SW846	EET DEN
SM 2320B	Alkalinity	SM	EET DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET DEN
SM 2540D	Solids, Total Suspended (TSS)	SM	EET DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET DEN

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

Sample Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168611-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-168611-1	W-16	Water	10/31/22 14:30	11/03/22 09:30

1

2

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168611-1

Method: SW846 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: W-16
Date Collected: 10/31/22 14:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168611-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.72		0.10	0.0015	mg/L		11/08/22 08:51	11/12/22 13:41	1

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

Client Sample ID: W-16
Date Collected: 10/31/22 14:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168611-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	470	B	10	1.9	mg/L		11/04/22 14:50	11/08/22 14:48	50
Cobalt	0.017		0.0010	0.000092	mg/L		11/04/22 14:50	11/07/22 18:00	1
Magnesium	2200	B	2.5	1.1	mg/L		11/04/22 14:50	11/08/22 14:48	50
Sodium	1700	B	7.5	3.2	mg/L		11/04/22 14:50	11/08/22 14:48	50
Potassium	31		6.0	2.6	mg/L		11/04/22 14:50	11/07/22 16:37	50

General Chemistry

Client Sample ID: W-16
Date Collected: 10/31/22 14:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168611-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C (SW846 9040B)	7.0	HF	0.1	0.1	SU			11/09/22 15:00	1
Temperature (SW846 9040B)	19.9	HF	1.0	1.0	Degrees C			11/09/22 15:00	1
Chloride (SW846 9056A)	270		60	20	mg/L			11/18/22 20:32	20
Sulfate (SW846 9056A)	11000	E	100	21	mg/L			11/18/22 20:32	20
Sulfate (SW846 9056A)	13000	H	1000	210	mg/L			12/03/22 05:34	200
Fluoride (SW846 9056A)	0.32	J H	0.50	0.17	mg/L			12/03/22 05:17	1
Alkalinity (SM 2320B)	930	B	10	3.1	mg/L			11/04/22 13:08	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	930		10	3.1	mg/L			11/04/22 13:08	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			11/04/22 13:08	1
Total Dissolved Solids (TDS) (SM 2540C)	16000		1000	470	mg/L			11/04/22 12:15	1
Total Suspended Solids (SM 2540D)	1.6	J	4.0	1.1	mg/L			11/04/22 12:17	1

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168611-1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-592627/1-A
Matrix: Water
Analysis Batch: 593281

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 592627

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.0015	mg/L		11/08/22 08:51	11/12/22 13:32	1

Lab Sample ID: LCS 280-592627/2-A
Matrix: Water
Analysis Batch: 593281

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 592627

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	2.02		mg/L		101	86 - 110

Lab Sample ID: 280-168611-1 MS
Matrix: Water
Analysis Batch: 593281

Client Sample ID: W-16
Prep Type: Total Recoverable
Prep Batch: 592627

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	0.72		2.00	2.88		mg/L		108	87 - 113

Lab Sample ID: 280-168611-1 MSD
Matrix: Water
Analysis Batch: 593281

Client Sample ID: W-16
Prep Type: Total Recoverable
Prep Batch: 592627

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	0.72		2.00	2.90		mg/L		109	87 - 113	0	20

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-592417/1-A
Matrix: Water
Analysis Batch: 592687

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 592417

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	ND		0.0010	0.000092	mg/L		11/04/22 14:50	11/07/22 16:30	1
Potassium	ND		0.12	0.052	mg/L		11/04/22 14:50	11/07/22 16:30	1

Lab Sample ID: MB 280-592417/1-A
Matrix: Water
Analysis Batch: 592825

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 592417

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	0.0781	J	0.20	0.038	mg/L		11/04/22 14:50	11/08/22 14:40	1
Magnesium	0.0342	J	0.050	0.021	mg/L		11/04/22 14:50	11/08/22 14:40	1
Sodium	0.0870	J	0.15	0.065	mg/L		11/04/22 14:50	11/08/22 14:40	1

Lab Sample ID: LCS 280-592417/2-A
Matrix: Water
Analysis Batch: 592687

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 592417

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cobalt	0.0400	0.0392		mg/L		98	85 - 120
Potassium	0.800	0.809		mg/L		101	80 - 120

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168611-1

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

Lab Sample ID: LCS 280-592417/2-A
Matrix: Water
Analysis Batch: 592825

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 592417

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	0.800	0.917		mg/L		115	80 - 120
Magnesium	0.800	0.837		mg/L		105	80 - 120
Sodium	0.800	0.896		mg/L		112	80 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-592975/4
Matrix: Water
Analysis Batch: 592975

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH adj. to 25 deg C	7.00	7.1		SU		101	99 - 101

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-594088/6
Matrix: Water
Analysis Batch: 594088

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			11/18/22 17:59	1

Lab Sample ID: LCS 280-594088/4
Matrix: Water
Analysis Batch: 594088

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	52.0		mg/L		104	90 - 110

Lab Sample ID: LCSD 280-594088/5
Matrix: Water
Analysis Batch: 594088

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	51.9		mg/L		104	90 - 110	0	10

Lab Sample ID: MRL 280-594088/3
Matrix: Water
Analysis Batch: 594088

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	2.50	2.39	J	mg/L		96	50 - 150

Lab Sample ID: MB 280-595327/6
Matrix: Water
Analysis Batch: 595327

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		5.0	1.0	mg/L			12/02/22 10:15	1

Eurofins Denver

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168611-1

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

Lab Sample ID: LCS 280-595327/4

Matrix: Water

Analysis Batch: 595327

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	50.0	51.9		mg/L		104	90 - 110
Fluoride	2.50	2.33	^	mg/L		93	90 - 110

Lab Sample ID: LCSD 280-595327/5

Matrix: Water

Analysis Batch: 595327

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	50.0	51.9		mg/L		104	90 - 110	0	10
Fluoride	2.50	2.38	^	mg/L		95	90 - 110	2	10

Lab Sample ID: MRL 280-595327/3

Matrix: Water

Analysis Batch: 595327

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	2.50	2.22	J	mg/L		89	50 - 150
Fluoride	0.250	0.212	J	mg/L		85	50 - 150

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-592471/6

Matrix: Water

Analysis Batch: 592471

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	3.30	J	10	3.1	mg/L			11/04/22 11:32	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			11/04/22 11:32	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			11/04/22 11:32	1

Lab Sample ID: LCS 280-592471/4

Matrix: Water

Analysis Batch: 592471

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	200	195		mg/L		98	89 - 109

Lab Sample ID: LCSD 280-592471/5

Matrix: Water

Analysis Batch: 592471

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Alkalinity	200	200		mg/L		100	89 - 109	2	10

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168611-1

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

Lab Sample ID: MB 280-592428/1

Matrix: Water

Analysis Batch: 592428

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 (TDS)	ND		10	4.7	mg/L			11/04/22 12:15	1

Lab Sample ID: LCS 280-592428/2

Matrix: Water

Analysis Batch: 592428

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 (TDS)	501	470		mg/L		94	88 - 114

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 280-592430/2

Matrix: Water

Analysis Batch: 592430

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			11/04/22 12:17	1

Lab Sample ID: LCS 280-592430/1

Matrix: Water

Analysis Batch: 592430

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	501	452		mg/L		90	79 - 114

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168611-1

Metals

Prep Batch: 592417

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168611-1	W-16	Total Recoverable	Water	3005A	
MB 280-592417/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-592417/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 592627

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168611-1	W-16	Total Recoverable	Water	3005A	
MB 280-592627/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-592627/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-168611-1 MS	W-16	Total Recoverable	Water	3005A	
280-168611-1 MSD	W-16	Total Recoverable	Water	3005A	

Analysis Batch: 592687

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168611-1	W-16	Total Recoverable	Water	6020B	592417
280-168611-1	W-16	Total Recoverable	Water	6020B	592417
MB 280-592417/1-A	Method Blank	Total Recoverable	Water	6020B	592417
LCS 280-592417/2-A	Lab Control Sample	Total Recoverable	Water	6020B	592417

Analysis Batch: 592825

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168611-1	W-16	Total Recoverable	Water	6020B	592417
MB 280-592417/1-A	Method Blank	Total Recoverable	Water	6020B	592417
LCS 280-592417/2-A	Lab Control Sample	Total Recoverable	Water	6020B	592417

Analysis Batch: 593281

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168611-1	W-16	Total Recoverable	Water	6010C	592627
MB 280-592627/1-A	Method Blank	Total Recoverable	Water	6010C	592627
LCS 280-592627/2-A	Lab Control Sample	Total Recoverable	Water	6010C	592627
280-168611-1 MS	W-16	Total Recoverable	Water	6010C	592627
280-168611-1 MSD	W-16	Total Recoverable	Water	6010C	592627

General Chemistry

Analysis Batch: 592428

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168611-1	W-16	Total/NA	Water	SM 2540C	
MB 280-592428/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-592428/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 592430

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168611-1	W-16	Total/NA	Water	SM 2540D	
MB 280-592430/2	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-592430/1	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 592471

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168611-1	W-16	Total/NA	Water	SM 2320B	
MB 280-592471/6	Method Blank	Total/NA	Water	SM 2320B	

Eurofins Denver

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168611-1

General Chemistry (Continued)

Analysis Batch: 592471 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 280-592471/4	Lab Control Sample	Total/NA	Water	SM 2320B	
LCSD 280-592471/5	Lab Control Sample Dup	Total/NA	Water	SM 2320B	

Analysis Batch: 592975

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168611-1	W-16	Total/NA	Water	9040B	
LCS 280-592975/4	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 594088

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168611-1	W-16	Total/NA	Water	9056A	
MB 280-594088/6	Method Blank	Total/NA	Water	9056A	
LCS 280-594088/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-594088/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-594088/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 595327

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168611-1	W-16	Total/NA	Water	9056A	
280-168611-1	W-16	Total/NA	Water	9056A	
MB 280-595327/6	Method Blank	Total/NA	Water	9056A	
LCS 280-595327/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-595327/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-595327/3	Lab Control Sample	Total/NA	Water	9056A	

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168611-1

Client Sample ID: W-16

Lab Sample ID: 280-168611-1

Date Collected: 10/31/22 14:30

Matrix: Water

Date Received: 11/03/22 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	592627	11/08/22 08:51	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			593281	11/12/22 13:41	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592417	11/04/22 14:50	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			592687	11/07/22 16:37	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592417	11/04/22 14:50	MCR	EET DEN
Total Recoverable	Analysis	6020B		1			592687	11/07/22 18:00	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592417	11/04/22 14:50	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			592825	11/08/22 14:48	LMT	EET DEN
Total/NA	Analysis	9040B		1			592975	11/09/22 15:00	KEG	EET DEN
Total/NA	Analysis	9056A		20	10 mL	10 mL	594088	11/18/22 20:32	MEC	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	595327	12/03/22 05:17	MEC	EET DEN
Total/NA	Analysis	9056A		200	10 mL	10 mL	595327	12/03/22 05:34	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			592471	11/04/22 13:08	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	592428	11/04/22 12:15	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	592430	11/04/22 12:17	ASP	EET DEN

Laboratory References:

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

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168611-1

Laboratory: Eurofins Denver

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

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-23

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	Calcium
6020B	3005A	Water	Magnesium
6020B	3005A	Water	Potassium
6020B	3005A	Water	Sodium
9040B		Water	Temperature

[illegible]

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-168611-1

Login Number: 168611

List Number: 1

Creator: Roehsner, Karen P

List Source: Eurofins Denver

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



ANALYTICAL REPORT

PREPARED FOR

Attn: Molly Reeves
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

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JOB DESCRIPTION

Xcel Energy GW CCR Monitoring - Comanche

JOB NUMBER

280-168612-1

Eurofins Denver

Job Notes

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the Eurofins TestAmerica Denver Project Manager.

The Lab Certification ID# is 4025.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

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 TestAmerica Project Manager.

Authorization



Authorized for release by
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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-1

Qualifiers

Metals

Qualifier	Qualifier Description
^6+	Interference Check Standard (ICSA and/or ICSAB) is outside acceptance limits, high biased.
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.
B	Compound was found in the blank and sample.
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
^-	Continuing Calibration Verification (CCV) is outside acceptance limits, low biased.
^+	Continuing Calibration Verification (CCV) is outside acceptance limits, high biased.
E	Result exceeded calibration range.
F1	MS and/or MSD recovery exceeds control limits.
H	Sample was prepped or analyzed beyond the specified holding time
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Eurofins Denver

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-1

Job ID: 280-168612-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-168612-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

The presence of the '4' qualifier indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount.

Receipt

The samples were received on 11/3/2022 9:30 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 was 2.4° C.

Receipt Exceptions

The sample collection time was not recorded on the sample container received. Logged per the COC: W-17 (280-168612-2).

DISSOLVED METALS

Samples W-14 (280-168612-1), W-17 (280-168612-2) and W-14D (280-168612-3) were analyzed for Dissolved Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 11/10/2022 and analyzed on 11/11/2022.

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

TOTAL RECOVERABLE METALS

Samples W-14 (280-168612-1), W-17 (280-168612-2) and W-14D (280-168612-3) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 11/13/2022 and analyzed on 11/14/2022.

Lithium failed the recovery criteria high for the MS and MSD of sample 280-168613-1 in batch 280-593456.

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

DISSOLVED METALS (ICP/MS)

Samples W-14 (280-168612-1), W-17 (280-168612-2) and W-14D (280-168612-3) were analyzed for Dissolved Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 11/10/2022 and analyzed on 11/11/2022.

The continuing calibration verification (CCV) associated with batch 280-593310 recovered (111%&112%) for As and Be which is above the upper control limit (110%) . The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: (CCV 280-593310/104), (280-168613-F-8-D), (280-168613-F-8-E MS), (280-168613-F-8-F MSD), (280-168613-F-8-D PDS) and (280-168613-F-8-D SD ^5).

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-1

Job ID: 280-168612-1 (Continued)

Laboratory: Eurofins Denver (Continued)

Several analytes failed the recovery criteria low for the MS of sample 280-168613-8 in batch 280-593310. Arsenic and Beryllium failed the recovery criteria high.

Calcium, Cadmium, Lead and Thallium failed the recovery criteria low for the MSD of sample 280-168613-8 in batch 280-593310. Arsenic and Beryllium failed the recovery criteria high.

Sodium failed the recovery criteria high for the MS of sample 280-168729-2 in batch 280-593632.

Samples W-14 (280-168612-1)[50X], W-17 (280-168612-2)[50X] and W-14D (280-168612-3)[50X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

TOTAL RECOVERABLE METALS (ICP/MS)

Samples W-14 (280-168612-1), W-17 (280-168612-2) and W-14D (280-168612-3) were analyzed for Total Recoverable Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 11/04/2022 and 11/10/2022 and analyzed on 11/07/2022, 11/08/2022, 11/14/2022, 11/15/2022 and 11/16/2022.

The interference check standard solution (ICSA) associated with batch 280-592687 had results for one or more elements at a level greater than 2x the Reporting Limit. The ICSA result (2.17 ppb) was >2x the RL (1 ppb) for Ba. The vendor acknowledges that these elements are trace impurities in the ICSA standard. These results are not indicative of a matrix interference.

Calcium was detected in method blank MB 280-592417/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Cobalt, Lead, Thallium and Calcium failed the recovery criteria low for the MS of sample W-14DMS (280-168612-3) in batch 280-592825. Selenium failed the recovery criteria high.

Cadmium, Cobalt, Lead and Thallium failed the recovery criteria low for the MSD of sample W-14DMSD (280-168612-3) in batch 280-592825. Selenium and Calcium failed the recovery criteria high.

Samples W-14 (280-168612-1)[50X], W-14 (280-168612-1)[500X], W-17 (280-168612-2)[50X], W-17 (280-168612-2)[500X], W-14D (280-168612-3)[50X] and W-14D (280-168612-3)[500X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

DISSOLVED MERCURY

Samples W-14 (280-168612-1), W-17 (280-168612-2) and W-14D (280-168612-3) were analyzed for dissolved mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared on 11/15/2022 and analyzed on 11/16/2022.

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

TOTAL MERCURY

Samples W-14 (280-168612-1), W-17 (280-168612-2) and W-14D (280-168612-3) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared on 11/04/2022 and analyzed on 11/08/2022.

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

ALKALINITY

Samples W-14 (280-168612-1), W-17 (280-168612-2) and W-14D (280-168612-3) were analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 11/09/2022.

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-1

Job ID: 280-168612-1 (Continued)

Laboratory: Eurofins Denver (Continued)

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

TOTAL DISSOLVED SOLIDS

Samples W-14 (280-168612-1), W-17 (280-168612-2) and W-14D (280-168612-3) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 11/04/2022 and 11/07/2022.

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

TOTAL SUSPENDED SOLIDS

Samples W-14 (280-168612-1), W-17 (280-168612-2) and W-14D (280-168612-3) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 11/04/2022.

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

CORROSIVITY (PH)

Samples W-14 (280-168612-1), W-17 (280-168612-2) and W-14D (280-168612-3) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 11/09/2022.

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

ANIONS (28 DAYS)

Samples W-14 (280-168612-1), W-17 (280-168612-2) and W-14D (280-168612-3) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days). The samples were analyzed on 11/18/2022 and 12/03/2022.

The following sample was analyzed 15 minutes outside of analytical holding time due to a high volume of samples being analyzed on the instrument. The hold time expired at 24:00 and the sample was analyzed at 00:15: W-17 (280-168612-2).

Reanalysis of the following samples was performed outside of the analytical holding time due to further dilution required for sulfate alongside quality control failures for fluoride : W-14 (280-168612-1), W-17 (280-168612-2) and W-14D (280-168612-3).

Chloride failed the recovery criteria high for the MS of sample W-14DMS (280-168612-3) in batch 280-594088.

Samples W-14 (280-168612-1)[200X], W-14 (280-168612-1)[50X], W-17 (280-168612-2)[100X], W-17 (280-168612-2)[20X], W-14D (280-168612-3)[20X] and W-14D (280-168612-3)[200X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-1

Client Sample ID: W-14

Lab Sample ID: 280-168612-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.61		0.10	0.0015	mg/L	1		6010C	Total
Lithium	3.5		0.020	0.0091	mg/L	1		6010C	Recoverable
Boron	0.62		0.10	0.0015	mg/L	1		6010C	Total
Lithium	2.9		0.020	0.0091	mg/L	1		6010C	Recoverable
Antimony	0.00042	J	0.0020	0.00040	mg/L	1		6020B	Dissolved
Magnesium	1500		2.5	1.1	mg/L	50		6020B	Total
Sodium	6000		75	32	mg/L	500		6020B	Recoverable
Barium	0.014	^6+	0.0010	0.00029	mg/L	1		6020B	Total
Potassium	51		6.0	2.6	mg/L	50		6020B	Recoverable
Beryllium	0.00018	J	0.0010	0.000080	mg/L	1		6020B	Total
Cadmium	0.0011		0.0010	0.00027	mg/L	1		6020B	Recoverable
Chromium	0.00075	J	0.0020	0.00050	mg/L	1		6020B	Total
Cobalt	0.011		0.0010	0.000092	mg/L	1		6020B	Recoverable
Molybdenum	0.015		0.0020	0.00014	mg/L	1		6020B	Total
Selenium	1.2		0.0050	0.00037	mg/L	1		6020B	Recoverable
Thallium	0.0021		0.0010	0.000089	mg/L	1		6020B	Total
Calcium	430	B	10	1.9	mg/L	50		6020B	Recoverable
Arsenic	0.00033	J	0.0050	0.00033	mg/L	1		6020B	Total
Barium	0.014		0.0010	0.00029	mg/L	1		6020B	Dissolved
Cadmium	0.0010		0.0010	0.00027	mg/L	1		6020B	Dissolved
Chromium	0.0010	J	0.0020	0.00050	mg/L	1		6020B	Dissolved
Cobalt	0.011		0.0010	0.000092	mg/L	1		6020B	Dissolved
Calcium	430		10	1.9	mg/L	50		6020B	Dissolved
Molybdenum	0.015		0.0020	0.00014	mg/L	1		6020B	Dissolved
Selenium	1.2		0.0050	0.00037	mg/L	1		6020B	Dissolved
Thallium	0.0021		0.0010	0.000089	mg/L	1		6020B	Dissolved
pH adj. to 25 deg C	7.3	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	21.7	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	660		150	51	mg/L	50		9056A	Total/NA
Fluoride	0.29	J H	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	15000	E	250	52	mg/L	50		9056A	Total/NA
Sulfate	19000	H	1000	210	mg/L	200		9056A	Total/NA
Alkalinity	1100		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	1100		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	24000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	3.2	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-1

Client Sample ID: W-17

Lab Sample ID: 280-168612-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.64		0.10	0.0015	mg/L	1		6010C	Total
Lithium	0.64		0.020	0.0091	mg/L	1		6010C	Recoverable
Boron	0.63		0.10	0.0015	mg/L	1		6010C	Total
Lithium	0.62		0.020	0.0091	mg/L	1		6010C	Recoverable
Antimony	0.0063		0.0020	0.00040	mg/L	1		6020B	Dissolved
Magnesium	580		2.5	1.1	mg/L	50		6020B	Total
Arsenic	0.0013	J	0.0050	0.00033	mg/L	1		6020B	Recoverable
Sodium	990		75	32	mg/L	500		6020B	Total
Barium	0.017	^6+	0.0010	0.00029	mg/L	1		6020B	Recoverable
Potassium	19		6.0	2.6	mg/L	50		6020B	Total
Cadmium	0.0056		0.0010	0.00027	mg/L	1		6020B	Recoverable
Chromium	0.0024		0.0020	0.00050	mg/L	1		6020B	Total
Cobalt	0.0090		0.0010	0.000092	mg/L	1		6020B	Recoverable
Lead	0.00064	J	0.0010	0.00018	mg/L	1		6020B	Total
Molybdenum	0.087		0.0020	0.00014	mg/L	1		6020B	Recoverable
Selenium	2.2		0.0050	0.00037	mg/L	1		6020B	Total
Thallium	0.0029		0.0010	0.000089	mg/L	1		6020B	Recoverable
Calcium	500	B	10	1.9	mg/L	50		6020B	Total
Antimony	0.0059		0.0020	0.00040	mg/L	1		6020B	Recoverable
Arsenic	0.00088	J	0.0050	0.00033	mg/L	1		6020B	Dissolved
Barium	0.014		0.0010	0.00029	mg/L	1		6020B	Dissolved
Cadmium	0.0058		0.0010	0.00027	mg/L	1		6020B	Dissolved
Chromium	0.00069	J	0.0020	0.00050	mg/L	1		6020B	Dissolved
Cobalt	0.0084		0.0010	0.000092	mg/L	1		6020B	Dissolved
Calcium	470		10	1.9	mg/L	50		6020B	Dissolved
Molybdenum	0.081		0.0020	0.00014	mg/L	1		6020B	Dissolved
Selenium	2.3		0.0050	0.00037	mg/L	1		6020B	Dissolved
Thallium	0.0027		0.0010	0.000089	mg/L	1		6020B	Dissolved
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	88		60	20	mg/L	20		9056A	Total/NA
Fluoride	0.27	J H	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	5200	E	100	21	mg/L	20		9056A	Total/NA
Sulfate	5300	H	500	100	mg/L	100		9056A	Total/NA
Alkalinity	820		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	820		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	7400		100	47	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	6.8		4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-1

Client Sample ID: W-14D

Lab Sample ID: 280-168612-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Boron	0.63		0.10	0.0015	mg/L	1			6010C	Total
Lithium	3.5		0.020	0.0091	mg/L	1			6010C	Recoverable Total
Boron	0.59		0.10	0.0015	mg/L	1			6010C	Recoverable Dissolved
Lithium	2.8		0.020	0.0091	mg/L	1			6010C	Dissolved
Magnesium	1500		2.5	1.1	mg/L	50			6020B	Total
Arsenic	0.00036	J	0.0050	0.00033	mg/L	1			6020B	Recoverable Total
Sodium	5400		75	32	mg/L	500			6020B	Recoverable Total
Barium	0.012	^6+	0.0010	0.00029	mg/L	1			6020B	Recoverable Total
Potassium	44		6.0	2.6	mg/L	50			6020B	Recoverable Total
Cadmium	0.0010	F1	0.0010	0.00027	mg/L	1			6020B	Recoverable Total
Chromium	0.00054	J	0.0020	0.00050	mg/L	1			6020B	Recoverable Total
Cobalt	0.010	F1	0.0010	0.000092	mg/L	1			6020B	Recoverable Total
Molybdenum	0.014		0.0020	0.00014	mg/L	1			6020B	Recoverable Total
Selenium	1.2		0.0050	0.00037	mg/L	1			6020B	Recoverable Total
Thallium	0.0020	F1	0.0010	0.000089	mg/L	1			6020B	Recoverable Total
Calcium	450	B	10	1.9	mg/L	50			6020B	Recoverable Total
Arsenic	0.00034	J	0.0050	0.00033	mg/L	1			6020B	Dissolved
Barium	0.013		0.0010	0.00029	mg/L	1			6020B	Dissolved
Cadmium	0.0010		0.0010	0.00027	mg/L	1			6020B	Dissolved
Chromium	0.00071	J	0.0020	0.00050	mg/L	1			6020B	Dissolved
Cobalt	0.011		0.0010	0.000092	mg/L	1			6020B	Dissolved
Calcium	420		10	1.9	mg/L	50			6020B	Dissolved
Molybdenum	0.014		0.0020	0.00014	mg/L	1			6020B	Dissolved
Selenium	1.2		0.0050	0.00037	mg/L	1			6020B	Dissolved
Thallium	0.0020		0.0010	0.000089	mg/L	1			6020B	Dissolved
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU	1			9040B	Total/NA
Temperature	22.8	HF	1.0	1.0	Degrees C	1			9040B	Total/NA
Chloride	700	F1	60	20	mg/L	20			9056A	Total/NA
Fluoride	0.28	J H	0.50	0.17	mg/L	1			9056A	Total/NA
Sulfate	15000	E	100	21	mg/L	20			9056A	Total/NA
Sulfate	18000	H	1000	210	mg/L	200			9056A	Total/NA
Alkalinity	1100		10	3.1	mg/L	1			SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	1100		10	3.1	mg/L	1			SM 2320B	Total/NA
Total Dissolved Solids (TDS)	24000		1000	470	mg/L	1			SM 2540C	Total/NA
Total Suspended Solids	5.2		4.0	1.1	mg/L	1			SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Method Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	EET DEN
6020B	Metals (ICP/MS)	SW846	EET DEN
7470A	Mercury (CVAA)	SW846	EET DEN
9040B	pH	SW846	EET DEN
9056A	Anions, Ion Chromatography	SW846	EET DEN
SM 2320B	Alkalinity	SM	EET DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET DEN
SM 2540D	Solids, Total Suspended (TSS)	SM	EET DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET DEN
7470A	Preparation, Mercury	SW846	EET DEN
FILTRATION	Sample Filtration	None	EET DEN

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.

Laboratory References:

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

Sample Summary

Client: HDR Inc

Job ID: 280-168612-1

Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-168612-1	W-14	Water	10/31/22 12:45	11/03/22 09:30
280-168612-2	W-17	Water	11/02/22 09:30	11/03/22 09:30
280-168612-3	W-14D	Water	10/31/22 13:00	11/03/22 09:30

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-1

Method: SW846 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: W-14
Date Collected: 10/31/22 12:45
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.61		0.10	0.0015	mg/L		11/13/22 17:20	11/14/22 15:01	1
Lithium	3.5		0.020	0.0091	mg/L		11/13/22 17:20	11/14/22 15:01	1

Client Sample ID: W-17
Date Collected: 11/02/22 09:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.64		0.10	0.0015	mg/L		11/13/22 17:20	11/14/22 15:05	1
Lithium	0.64		0.020	0.0091	mg/L		11/13/22 17:20	11/14/22 15:05	1

Client Sample ID: W-14D
Date Collected: 10/31/22 13:00
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.63		0.10	0.0015	mg/L		11/13/22 17:20	11/14/22 15:09	1
Lithium	3.5		0.020	0.0091	mg/L		11/13/22 17:20	11/14/22 15:09	1

Method: SW846 6010C - Metals (ICP) - Dissolved

Client Sample ID: W-14
Date Collected: 10/31/22 12:45
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.62		0.10	0.0015	mg/L		11/10/22 09:07	11/11/22 04:44	1
Lithium	2.9		0.020	0.0091	mg/L		11/10/22 09:07	11/11/22 04:44	1

Client Sample ID: W-17
Date Collected: 11/02/22 09:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.63		0.10	0.0015	mg/L		11/10/22 09:07	11/11/22 04:49	1
Lithium	0.62		0.020	0.0091	mg/L		11/10/22 09:07	11/11/22 04:49	1

Client Sample ID: W-14D
Date Collected: 10/31/22 13:00
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.59		0.10	0.0015	mg/L		11/10/22 09:07	11/11/22 04:54	1
Lithium	2.8		0.020	0.0091	mg/L		11/10/22 09:07	11/11/22 04:54	1

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

Client Sample ID: W-14
Date Collected: 10/31/22 12:45
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00042	J	0.0020	0.00040	mg/L		11/04/22 14:50	11/07/22 18:03	1
Magnesium	1500		2.5	1.1	mg/L		11/10/22 15:24	11/15/22 22:20	50
Arsenic	ND		0.0050	0.00033	mg/L		11/04/22 14:50	11/07/22 18:03	1
Sodium	6000		75	32	mg/L		11/10/22 15:24	11/16/22 17:48	500
Barium	0.014	^6+	0.0010	0.00029	mg/L		11/04/22 14:50	11/07/22 18:03	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-1

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

Client Sample ID: W-14
Date Collected: 10/31/22 12:45
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium	51		6.0	2.6	mg/L		11/10/22 15:24	11/14/22 20:10	50
Beryllium	0.00018	J	0.0010	0.000080	mg/L		11/04/22 14:50	11/08/22 19:58	1
Cadmium	0.0011		0.0010	0.00027	mg/L		11/04/22 14:50	11/07/22 18:03	1
Chromium	0.00075	J	0.0020	0.00050	mg/L		11/04/22 14:50	11/07/22 18:03	1
Cobalt	0.011		0.0010	0.000092	mg/L		11/04/22 14:50	11/07/22 18:03	1
Lead	ND		0.0010	0.00018	mg/L		11/04/22 14:50	11/07/22 18:03	1
Molybdenum	0.015		0.0020	0.00014	mg/L		11/04/22 14:50	11/07/22 18:03	1
Selenium	1.2		0.0050	0.00037	mg/L		11/04/22 14:50	11/07/22 18:03	1
Thallium	0.0021		0.0010	0.000089	mg/L		11/04/22 14:50	11/07/22 18:03	1
Calcium	430	B	10	1.9	mg/L		11/04/22 14:50	11/08/22 14:52	50

Client Sample ID: W-17
Date Collected: 11/02/22 09:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0063		0.0020	0.00040	mg/L		11/04/22 14:50	11/07/22 18:07	1
Magnesium	580		2.5	1.1	mg/L		11/10/22 15:24	11/15/22 22:24	50
Arsenic	0.0013	J	0.0050	0.00033	mg/L		11/04/22 14:50	11/07/22 18:07	1
Sodium	990		75	32	mg/L		11/10/22 15:24	11/16/22 17:52	500
Barium	0.017	^6+	0.0010	0.00029	mg/L		11/04/22 14:50	11/07/22 18:07	1
Potassium	19		6.0	2.6	mg/L		11/10/22 15:24	11/14/22 20:14	50
Beryllium	ND		0.0010	0.000080	mg/L		11/04/22 14:50	11/08/22 20:01	1
Cadmium	0.0056		0.0010	0.00027	mg/L		11/04/22 14:50	11/07/22 18:07	1
Chromium	0.0024		0.0020	0.00050	mg/L		11/04/22 14:50	11/07/22 18:07	1
Cobalt	0.0090		0.0010	0.000092	mg/L		11/04/22 14:50	11/07/22 18:07	1
Lead	0.00064	J	0.0010	0.00018	mg/L		11/04/22 14:50	11/07/22 18:07	1
Molybdenum	0.087		0.0020	0.00014	mg/L		11/04/22 14:50	11/07/22 18:07	1
Selenium	2.2		0.0050	0.00037	mg/L		11/04/22 14:50	11/07/22 18:07	1
Thallium	0.0029		0.0010	0.000089	mg/L		11/04/22 14:50	11/07/22 18:07	1
Calcium	500	B	10	1.9	mg/L		11/04/22 14:50	11/08/22 14:55	50

Client Sample ID: W-14D
Date Collected: 10/31/22 13:00
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		11/04/22 14:50	11/07/22 18:11	1
Magnesium	1500		2.5	1.1	mg/L		11/10/22 15:24	11/15/22 22:28	50
Arsenic	0.00036	J	0.0050	0.00033	mg/L		11/04/22 14:50	11/07/22 18:11	1
Sodium	5400		75	32	mg/L		11/10/22 15:24	11/16/22 17:56	500
Barium	0.012	^6+	0.0010	0.00029	mg/L		11/04/22 14:50	11/07/22 18:11	1
Potassium	44		6.0	2.6	mg/L		11/10/22 15:24	11/14/22 20:17	50
Beryllium	ND		0.0010	0.000080	mg/L		11/04/22 14:50	11/08/22 20:05	1
Cadmium	0.0010	F1	0.0010	0.00027	mg/L		11/04/22 14:50	11/07/22 18:11	1
Chromium	0.00054	J	0.0020	0.00050	mg/L		11/04/22 14:50	11/07/22 18:11	1
Cobalt	0.010	F1	0.0010	0.000092	mg/L		11/04/22 14:50	11/07/22 18:11	1
Lead	ND	F1	0.0010	0.00018	mg/L		11/04/22 14:50	11/07/22 18:11	1
Molybdenum	0.014		0.0020	0.00014	mg/L		11/04/22 14:50	11/07/22 18:11	1
Selenium	1.2		0.0050	0.00037	mg/L		11/04/22 14:50	11/07/22 18:11	1
Thallium	0.0020	F1	0.0010	0.000089	mg/L		11/04/22 14:50	11/07/22 18:11	1
Calcium	450	B	10	1.9	mg/L		11/04/22 14:50	11/08/22 15:18	50

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-1

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

Client Sample ID: W-14
Date Collected: 10/31/22 12:45
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		11/10/22 07:50	11/11/22 13:24	1
Arsenic	0.00033	J	0.0050	0.00033	mg/L		11/10/22 07:50	11/11/22 13:24	1
Barium	0.014		0.0010	0.00029	mg/L		11/10/22 07:50	11/11/22 13:24	1
Beryllium	ND		0.0010	0.000080	mg/L		11/10/22 07:50	11/11/22 13:24	1
Cadmium	0.0010		0.0010	0.00027	mg/L		11/10/22 07:50	11/11/22 13:24	1
Chromium	0.0010	J	0.0020	0.00050	mg/L		11/10/22 07:50	11/11/22 13:24	1
Cobalt	0.011		0.0010	0.000092	mg/L		11/10/22 07:50	11/11/22 13:24	1
Lead	ND		0.0010	0.00018	mg/L		11/10/22 07:50	11/11/22 13:24	1
Calcium	430		10	1.9	mg/L		11/10/22 07:50	11/11/22 11:08	50
Molybdenum	0.015		0.0020	0.00014	mg/L		11/10/22 07:50	11/11/22 13:24	1
Selenium	1.2		0.0050	0.00037	mg/L		11/10/22 07:50	11/11/22 13:24	1
Thallium	0.0021		0.0010	0.000089	mg/L		11/10/22 07:50	11/11/22 13:24	1

Client Sample ID: W-17
Date Collected: 11/02/22 09:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0059		0.0020	0.00040	mg/L		11/10/22 07:50	11/11/22 13:28	1
Arsenic	0.00088	J	0.0050	0.00033	mg/L		11/10/22 07:50	11/11/22 13:28	1
Barium	0.014		0.0010	0.00029	mg/L		11/10/22 07:50	11/11/22 13:28	1
Beryllium	ND		0.0010	0.000080	mg/L		11/10/22 07:50	11/11/22 13:28	1
Cadmium	0.0058		0.0010	0.00027	mg/L		11/10/22 07:50	11/11/22 13:28	1
Chromium	0.00069	J	0.0020	0.00050	mg/L		11/10/22 07:50	11/11/22 13:28	1
Cobalt	0.0084		0.0010	0.000092	mg/L		11/10/22 07:50	11/11/22 13:28	1
Lead	ND		0.0010	0.00018	mg/L		11/10/22 07:50	11/11/22 13:28	1
Calcium	470		10	1.9	mg/L		11/10/22 07:50	11/11/22 11:12	50
Molybdenum	0.081		0.0020	0.00014	mg/L		11/10/22 07:50	11/11/22 13:28	1
Selenium	2.3		0.0050	0.00037	mg/L		11/10/22 07:50	11/11/22 13:28	1
Thallium	0.0027		0.0010	0.000089	mg/L		11/10/22 07:50	11/11/22 13:28	1

Client Sample ID: W-14D
Date Collected: 10/31/22 13:00
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		11/10/22 07:50	11/11/22 13:32	1
Arsenic	0.00034	J	0.0050	0.00033	mg/L		11/10/22 07:50	11/11/22 13:32	1
Barium	0.013		0.0010	0.00029	mg/L		11/10/22 07:50	11/11/22 13:32	1
Beryllium	ND		0.0010	0.000080	mg/L		11/10/22 07:50	11/11/22 13:32	1
Cadmium	0.0010		0.0010	0.00027	mg/L		11/10/22 07:50	11/11/22 13:32	1
Chromium	0.00071	J	0.0020	0.00050	mg/L		11/10/22 07:50	11/11/22 13:32	1
Cobalt	0.011		0.0010	0.000092	mg/L		11/10/22 07:50	11/11/22 13:32	1
Lead	ND		0.0010	0.00018	mg/L		11/10/22 07:50	11/11/22 13:32	1
Calcium	420		10	1.9	mg/L		11/10/22 07:50	11/11/22 11:16	50
Molybdenum	0.014		0.0020	0.00014	mg/L		11/10/22 07:50	11/11/22 13:32	1
Selenium	1.2		0.0050	0.00037	mg/L		11/10/22 07:50	11/11/22 13:32	1
Thallium	0.0020		0.0010	0.000089	mg/L		11/10/22 07:50	11/11/22 13:32	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-1

Method: SW846 7470A - Mercury (CVAA)

Client Sample ID: W-14
Date Collected: 10/31/22 12:45
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		11/04/22 10:59	11/08/22 20:01	1

Client Sample ID: W-17
Date Collected: 11/02/22 09:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		11/04/22 10:59	11/08/22 20:04	1

Client Sample ID: W-14D
Date Collected: 10/31/22 13:00
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		11/04/22 11:01	11/08/22 20:06	1

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

Client Sample ID: W-14
Date Collected: 10/31/22 12:45
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		11/15/22 16:50	11/16/22 15:25	1

Client Sample ID: W-17
Date Collected: 11/02/22 09:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		11/15/22 16:50	11/16/22 15:27	1

Client Sample ID: W-14D
Date Collected: 10/31/22 13:00
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		11/15/22 16:50	11/16/22 15:30	1

General Chemistry

Client Sample ID: W-14
Date Collected: 10/31/22 12:45
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C (SW846 9040B)	7.3	HF	0.1	0.1	SU			11/09/22 16:42	1
Temperature (SW846 9040B)	21.7	HF	1.0	1.0	Degrees C			11/09/22 16:42	1
Chloride (SW846 9056A)	660		150	51	mg/L			11/18/22 21:57	50
Fluoride (SW846 9056A)	0.29	J H	0.50	0.17	mg/L			12/03/22 05:51	1
Sulfate (SW846 9056A)	15000	E	250	52	mg/L			11/18/22 21:57	50
Sulfate (SW846 9056A)	19000	H	1000	210	mg/L			12/03/22 06:08	200
Alkalinity (SM 2320B)	1100		10	3.1	mg/L			11/09/22 17:31	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	1100		10	3.1	mg/L			11/09/22 17:31	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			11/09/22 17:31	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-1

General Chemistry (Continued)

Client Sample ID: W-14
Date Collected: 10/31/22 12:45
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (TDS) (SM 2540C)	24000		1000	470	mg/L			11/04/22 12:15	1
Total Suspended Solids (SM 2540D)	3.2	J	4.0	1.1	mg/L			11/04/22 12:17	1

Client Sample ID: W-17
Date Collected: 11/02/22 09:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C (SW846 9040B)	7.0	HF	0.1	0.1	SU			11/09/22 16:46	1
Temperature (SW846 9040B)	22.0	HF	1.0	1.0	Degrees C			11/09/22 16:46	1
Chloride (SW846 9056A)	88		60	20	mg/L			11/18/22 22:14	20
Fluoride (SW846 9056A)	0.27	J H	0.50	0.17	mg/L			12/03/22 06:25	1
Sulfate (SW846 9056A)	5200	E	100	21	mg/L			11/18/22 22:14	20
Sulfate (SW846 9056A)	5300	H	500	100	mg/L			12/03/22 06:42	100
Alkalinity (SM 2320B)	820		10	3.1	mg/L			11/09/22 17:42	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	820		10	3.1	mg/L			11/09/22 17:42	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			11/09/22 17:42	1
Total Dissolved Solids (TDS) (SM 2540C)	7400		100	47	mg/L			11/07/22 12:02	1
Total Suspended Solids (SM 2540D)	6.8		4.0	1.1	mg/L			11/04/22 12:17	1

Client Sample ID: W-14D
Date Collected: 10/31/22 13:00
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C (SW846 9040B)	7.2	HF	0.1	0.1	SU			11/09/22 16:55	1
Temperature (SW846 9040B)	22.8	HF	1.0	1.0	Degrees C			11/09/22 16:55	1
Chloride (SW846 9056A)	700	F1	60	20	mg/L			11/18/22 22:32	20
Fluoride (SW846 9056A)	0.28	J H	0.50	0.17	mg/L			12/03/22 08:23	1
Sulfate (SW846 9056A)	15000	E	100	21	mg/L			11/18/22 22:32	20
Sulfate (SW846 9056A)	18000	H	1000	210	mg/L			12/03/22 08:40	200
Alkalinity (SM 2320B)	1100		10	3.1	mg/L			11/09/22 17:55	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	1100		10	3.1	mg/L			11/09/22 17:55	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			11/09/22 17:55	1
Total Dissolved Solids (TDS) (SM 2540C)	24000		1000	470	mg/L			11/04/22 12:15	1
Total Suspended Solids (SM 2540D)	5.2		4.0	1.1	mg/L			11/04/22 12:17	1

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-592625/1-A
Matrix: Water
Analysis Batch: 593456

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 592625

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.0015	mg/L		11/13/22 17:20	11/14/22 14:53	1
Lithium	ND		0.020	0.0091	mg/L		11/13/22 17:20	11/14/22 14:53	1

Lab Sample ID: LCS 280-592625/2-A
Matrix: Water
Analysis Batch: 593456

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 592625

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	2.03		mg/L		102	86 - 110
Lithium	1.00	1.02		mg/L		102	90 - 112

Lab Sample ID: MB 280-592771/1-C
Matrix: Water
Analysis Batch: 593129

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 592873

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.0015	mg/L		11/10/22 09:07	11/11/22 03:53	1
Lithium	ND		0.020	0.0091	mg/L		11/10/22 09:07	11/11/22 03:53	1

Lab Sample ID: LCS 280-592771/2-C
Matrix: Water
Analysis Batch: 593129

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 592873

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	2.05		mg/L		102	86 - 110
Lithium	2.00	1.96		mg/L		98	90 - 112

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-592417/1-A
Matrix: Water
Analysis Batch: 592687

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 592417

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		11/04/22 14:50	11/07/22 16:30	1
Arsenic	ND		0.0050	0.00033	mg/L		11/04/22 14:50	11/07/22 16:30	1
Barium	ND	^6+	0.0010	0.00029	mg/L		11/04/22 14:50	11/07/22 16:30	1
Beryllium	ND		0.0010	0.000080	mg/L		11/04/22 14:50	11/07/22 16:30	1
Cadmium	ND		0.0010	0.00027	mg/L		11/04/22 14:50	11/07/22 16:30	1
Chromium	ND		0.0020	0.00050	mg/L		11/04/22 14:50	11/07/22 16:30	1
Cobalt	ND		0.0010	0.000092	mg/L		11/04/22 14:50	11/07/22 16:30	1
Lead	ND		0.0010	0.00018	mg/L		11/04/22 14:50	11/07/22 16:30	1
Molybdenum	ND		0.0020	0.00014	mg/L		11/04/22 14:50	11/07/22 16:30	1
Selenium	ND		0.0050	0.00037	mg/L		11/04/22 14:50	11/07/22 16:30	1
Thallium	ND		0.0010	0.000089	mg/L		11/04/22 14:50	11/07/22 16:30	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-1

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

Lab Sample ID: MB 280-592417/1-A

Matrix: Water

Analysis Batch: 592825

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 592417

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	0.0781	J	0.20	0.038	mg/L		11/04/22 14:50	11/08/22 14:40	1

Lab Sample ID: LCS 280-592417/2-A

Matrix: Water

Analysis Batch: 592687

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 592417

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0409		mg/L		102	85 - 115
Arsenic	0.0400	0.0395		mg/L		99	85 - 117
Barium	0.0400	0.0400	^6+	mg/L		100	85 - 118
Beryllium	0.0400	0.0397		mg/L		99	80 - 125
Cadmium	0.0400	0.0399		mg/L		100	85 - 115
Chromium	0.0400	0.0397		mg/L		99	84 - 121
Cobalt	0.0400	0.0392		mg/L		98	85 - 120
Lead	0.0400	0.0401		mg/L		100	85 - 118
Molybdenum	0.0400	0.0399		mg/L		100	85 - 119
Selenium	0.0400	0.0392		mg/L		98	77 - 122
Thallium	0.0400	0.0396		mg/L		99	85 - 118

Lab Sample ID: LCS 280-592417/2-A

Matrix: Water

Analysis Batch: 592825

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 592417

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	0.800	0.917		mg/L		115	80 - 120

Lab Sample ID: 280-168612-3 MS

Matrix: Water

Analysis Batch: 592687

Client Sample ID: W-14D

Prep Type: Total Recoverable

Prep Batch: 592417

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	ND		0.0400	0.0409		mg/L		102	80 - 111
Arsenic	0.00036	J	0.0400	0.0407		mg/L		101	92 - 112
Barium	0.012	^6+	0.0400	0.0518	^6+	mg/L		98	92 - 117
Cadmium	0.0010	F1	0.0400	0.0374		mg/L		91	91 - 114
Chromium	0.00054	J	0.0400	0.0383		mg/L		94	91 - 114
Cobalt	0.010	F1	0.0400	0.0478	F1	mg/L		93	94 - 115
Lead	ND	F1	0.0400	0.0343	F1	mg/L		86	95 - 116
Molybdenum	0.014		0.0400	0.0535		mg/L		98	84 - 117
Selenium	1.2		0.0400	1.28	4	mg/L		242	90 - 115
Thallium	0.0020	F1	0.0400	0.0361	F1	mg/L		85	94 - 115

Lab Sample ID: 280-168612-3 MS

Matrix: Water

Analysis Batch: 592825

Client Sample ID: W-14D

Prep Type: Total Recoverable

Prep Batch: 592417

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	450	B	0.800	439	4	mg/L		-927	80 - 120

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-1

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

Lab Sample ID: 280-168612-3 MS

Matrix: Water

Analysis Batch: 592825

Client Sample ID: W-14D

Prep Type: Total Recoverable

Prep Batch: 592417

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Beryllium	ND		0.0400	0.0457		mg/L		114	87 - 118

Lab Sample ID: 280-168612-3 MSD

Matrix: Water

Analysis Batch: 592687

Client Sample ID: W-14D

Prep Type: Total Recoverable

Prep Batch: 592417

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	ND		0.0400	0.0407		mg/L		102	80 - 111	0	20
Arsenic	0.00036	J	0.0400	0.0396		mg/L		98	92 - 112	3	20
Barium	0.012	^6+	0.0400	0.0525	^6+	mg/L		100	92 - 117	1	20
Cadmium	0.0010	F1	0.0400	0.0367	F1	mg/L		89	91 - 114	2	20
Chromium	0.00054	J	0.0400	0.0392		mg/L		97	91 - 114	2	20
Cobalt	0.010	F1	0.0400	0.0471	F1	mg/L		91	94 - 115	2	20
Lead	ND	F1	0.0400	0.0347	F1	mg/L		87	95 - 116	1	20
Molybdenum	0.014		0.0400	0.0534		mg/L		98	84 - 117	0	20
Selenium	1.2		0.0400	1.26	4	mg/L		204	90 - 115	1	20
Thallium	0.0020	F1	0.0400	0.0364	F1	mg/L		86	94 - 115	1	20

Lab Sample ID: 280-168612-3 MSD

Matrix: Water

Analysis Batch: 592825

Client Sample ID: W-14D

Prep Type: Total Recoverable

Prep Batch: 592417

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	450	B	0.800	452	4	mg/L		752	80 - 120	3	20

Lab Sample ID: 280-168612-3 MSD

Matrix: Water

Analysis Batch: 592825

Client Sample ID: W-14D

Prep Type: Total Recoverable

Prep Batch: 592417

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Beryllium	ND		0.0400	0.0456		mg/L		114	87 - 118	0	20

Lab Sample ID: MB 280-592961/1-A

Matrix: Water

Analysis Batch: 593479

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 592961

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium	ND		0.12	0.052	mg/L		11/10/22 15:24	11/14/22 19:59	1

Lab Sample ID: MB 280-592961/1-A

Matrix: Water

Analysis Batch: 593632

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 592961

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	ND		0.050	0.021	mg/L		11/10/22 15:24	11/15/22 22:09	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-1

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

Lab Sample ID: MB 280-592961/1-A
Matrix: Water
Analysis Batch: 593836

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 592961

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	ND		0.15	0.065	mg/L		11/10/22 15:24	11/16/22 17:41	1

Lab Sample ID: LCS 280-592961/2-A
Matrix: Water
Analysis Batch: 593479

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 592961

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Potassium	0.800	0.804		mg/L		101	80 - 120

Lab Sample ID: LCS 280-592961/2-A
Matrix: Water
Analysis Batch: 593632

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 592961

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Magnesium	0.800	0.783		mg/L		98	80 - 120

Lab Sample ID: LCS 280-592961/2-A
Matrix: Water
Analysis Batch: 593836

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 592961

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sodium	0.800	0.834		mg/L		104	80 - 120

Lab Sample ID: MB 280-592771/1-D
Matrix: Water
Analysis Batch: 593209

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 592880

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		11/10/22 07:50	11/11/22 11:01	1
Arsenic	ND		0.0050	0.00033	mg/L		11/10/22 07:50	11/11/22 11:01	1
Barium	ND		0.0010	0.00029	mg/L		11/10/22 07:50	11/11/22 11:01	1
Beryllium	ND		0.0010	0.000080	mg/L		11/10/22 07:50	11/11/22 11:01	1
Cadmium	ND		0.0010	0.00027	mg/L		11/10/22 07:50	11/11/22 11:01	1
Chromium	ND		0.0020	0.00050	mg/L		11/10/22 07:50	11/11/22 11:01	1
Cobalt	ND		0.0010	0.000092	mg/L		11/10/22 07:50	11/11/22 11:01	1
Lead	ND		0.0010	0.00018	mg/L		11/10/22 07:50	11/11/22 11:01	1
Molybdenum	ND		0.0020	0.00014	mg/L		11/10/22 07:50	11/11/22 11:01	1
Selenium	ND		0.0050	0.00037	mg/L		11/10/22 07:50	11/11/22 11:01	1
Calcium	ND		0.20	0.038	mg/L		11/10/22 07:50	11/11/22 11:01	1
Thallium	ND		0.0010	0.000089	mg/L		11/10/22 07:50	11/11/22 11:01	1

Lab Sample ID: LCS 280-592771/2-D
Matrix: Water
Analysis Batch: 593209

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 592880

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0395		mg/L		99	85 - 115
Arsenic	0.0400	0.0384		mg/L		96	85 - 117
Barium	0.0400	0.0393		mg/L		98	85 - 118
Beryllium	0.0400	0.0414		mg/L		103	80 - 125

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-1

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

Lab Sample ID: LCS 280-592771/2-D

Matrix: Water

Analysis Batch: 593209

Client Sample ID: Lab Control Sample

Prep Type: Dissolved

Prep Batch: 592880

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	0.0400	0.0397		mg/L		99	85 - 115
Chromium	0.0400	0.0385		mg/L		96	84 - 121
Cobalt	0.0400	0.0385		mg/L		96	85 - 120
Lead	0.0400	0.0386		mg/L		97	85 - 118
Molybdenum	0.0400	0.0393		mg/L		98	85 - 119
Selenium	0.0400	0.0385		mg/L		96	77 - 122
Calcium	0.800	0.853		mg/L		107	80 - 120
Thallium	0.0400	0.0383		mg/L		96	85 - 118

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-592402/1-A

Matrix: Water

Analysis Batch: 592836

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 592402

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		11/04/22 10:59	11/08/22 19:08	1

Lab Sample ID: LCS 280-592402/2-A

Matrix: Water

Analysis Batch: 592836

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 592402

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00503		mg/L		101	84 - 120

Lab Sample ID: MB 280-592771/1-F

Matrix: Water

Analysis Batch: 593845

Client Sample ID: Method Blank

Prep Type: Dissolved

Prep Batch: 593528

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		11/15/22 16:50	11/16/22 15:20	1

Lab Sample ID: LCS 280-592771/2-F

Matrix: Water

Analysis Batch: 593845

Client Sample ID: Lab Control Sample

Prep Type: Dissolved

Prep Batch: 593528

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00515		mg/L		103	84 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-592975/27

Matrix: Water

Analysis Batch: 592975

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH adj. to 25 deg C	7.00	7.1		SU		101	99 - 101

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-1

Method: 9040B - pH (Continued)

Lab Sample ID: LCS 280-592975/50

Matrix: Water

Analysis Batch: 592975

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH adj. to 25 deg C	7.00	7.1		SU		101	99 - 101

Lab Sample ID: 280-168612-3 DU

Matrix: Water

Analysis Batch: 592975

Client Sample ID: W-14D

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH adj. to 25 deg C	7.2	HF	7.2		SU		0	5
Temperature	22.8	HF	22.4		Degrees C		1	10

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-594088/6

Matrix: Water

Analysis Batch: 594088

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			11/18/22 17:59	1

Lab Sample ID: LCS 280-594088/4

Matrix: Water

Analysis Batch: 594088

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	52.0		mg/L		104	90 - 110

Lab Sample ID: LCSD 280-594088/5

Matrix: Water

Analysis Batch: 594088

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	51.9		mg/L		104	90 - 110	0	10

Lab Sample ID: MRL 280-594088/3

Matrix: Water

Analysis Batch: 594088

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	2.50	2.39	J	mg/L		96	50 - 150

Lab Sample ID: 280-168612-3 MS

Matrix: Water

Analysis Batch: 594088

Client Sample ID: W-14D

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	700	F1	1000	1910	F1	mg/L		121	80 - 120

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-1

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

Lab Sample ID: 280-168612-3 MSD

Matrix: Water

Analysis Batch: 594088

Client Sample ID: W-14D

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	700	F1	1000	1770		mg/L		108	80 - 120	7	20

Lab Sample ID: 280-168612-3 DU

Matrix: Water

Analysis Batch: 594088

Client Sample ID: W-14D

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	700	F1	679		mg/L		3	15

Lab Sample ID: MB 280-594925/101

Matrix: Water

Analysis Batch: 594925

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			11/30/22 19:25	1
Fluoride	ND		0.50	0.17	mg/L			11/30/22 19:25	1
Sulfate	ND	^+	5.0	1.0	mg/L			11/30/22 19:25	1

Lab Sample ID: MB 280-594925/13

Matrix: Water

Analysis Batch: 594925

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			11/29/22 18:29	1
Fluoride	ND		0.50	0.17	mg/L			11/29/22 18:29	1
Sulfate	ND		5.0	1.0	mg/L			11/29/22 18:29	1

Lab Sample ID: MB 280-594925/66

Matrix: Water

Analysis Batch: 594925

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			11/30/22 09:30	1
Fluoride	ND		0.50	0.17	mg/L			11/30/22 09:30	1
Sulfate	ND		5.0	1.0	mg/L			11/30/22 09:30	1

Lab Sample ID: LCS 280-594925/99

Matrix: Water

Analysis Batch: 594925

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	54.0		mg/L		108	90 - 110
Fluoride	2.50	2.40		mg/L		96	90 - 110

Lab Sample ID: LCSD 280-594925/100

Matrix: Water

Analysis Batch: 594925

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	53.9		mg/L		108	90 - 110	0	10

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-1

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

Lab Sample ID: LCSD 280-594925/100

Matrix: Water

Analysis Batch: 594925

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Fluoride	2.50	2.45		mg/L		98	90 - 110	2	10

Lab Sample ID: MRL 280-594925/10

Matrix: Water

Analysis Batch: 594925

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	2.50	2.39	J	mg/L		96	50 - 150
Fluoride	0.250	0.225	J	mg/L		90	50 - 150
Sulfate	2.50	2.13	J	mg/L		85	50 - 150

Lab Sample ID: MB 280-595327/52

Matrix: Water

Analysis Batch: 595327

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.50	0.17	mg/L			12/03/22 07:32	1
Sulfate	ND		5.0	1.0	mg/L			12/03/22 07:32	1

Lab Sample ID: MB 280-595327/6

Matrix: Water

Analysis Batch: 595327

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		5.0	1.0	mg/L			12/02/22 10:15	1

Lab Sample ID: LCS 280-595327/4

Matrix: Water

Analysis Batch: 595327

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	2.50	2.33	^	mg/L		93	90 - 110
Sulfate	50.0	51.9		mg/L		104	90 - 110

Lab Sample ID: LCS 280-595327/50

Matrix: Water

Analysis Batch: 595327

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	2.50	2.35		mg/L		94	90 - 110
Sulfate	50.0	53.8		mg/L		108	90 - 110

Lab Sample ID: LCSD 280-595327/5

Matrix: Water

Analysis Batch: 595327

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Fluoride	2.50	2.38	^	mg/L		95	90 - 110	2	10
Sulfate	50.0	51.9		mg/L		104	90 - 110	0	10

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-1

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

Lab Sample ID: LCSD 280-595327/51

Matrix: Water

Analysis Batch: 595327

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Fluoride	2.50	2.44		mg/L		98	90 - 110	4	10
Sulfate	50.0	53.6		mg/L		107	90 - 110	0	10

Lab Sample ID: MRL 280-595327/3

Matrix: Water

Analysis Batch: 595327

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
Fluoride	0.250	0.212	J	mg/L		85	50 - 150		
Sulfate	2.50	2.22	J	mg/L		89	50 - 150		

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-592976/5

Matrix: Water

Analysis Batch: 592976

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	ND		10	3.1	mg/L			11/09/22 15:27	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			11/09/22 15:27	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			11/09/22 15:27	1

Lab Sample ID: LCS 280-592976/4

Matrix: Water

Analysis Batch: 592976

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Alkalinity	200	201		mg/L		100	89 - 109		

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

Lab Sample ID: MB 280-592428/1

Matrix: Water

Analysis Batch: 592428

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 (TDS)	ND		10	4.7	mg/L			11/04/22 12:15	1

Lab Sample ID: LCS 280-592428/2

Matrix: Water

Analysis Batch: 592428

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 (TDS)	501	470		mg/L		94	88 - 114		

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-1

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

Lab Sample ID: 280-168612-3 DU

Matrix: Water

Analysis Batch: 592428

Client Sample ID: W-14D

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids (TDS)	24000		23100		mg/L		4	10

Lab Sample ID: MB 280-592606/1

Matrix: Water

Analysis Batch: 592606

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 (TDS)	ND		10	4.7	mg/L			11/07/22 12:02	1

Lab Sample ID: LCS 280-592606/2

Matrix: Water

Analysis Batch: 592606

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 (TDS)	501	489		mg/L		98	88 - 114

Lab Sample ID: LCSD 280-592606/3

Matrix: Water

Analysis Batch: 592606

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids (TDS)	501	482		mg/L		96	88 - 114	1	20

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 280-592430/2

Matrix: Water

Analysis Batch: 592430

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			11/04/22 12:17	1

Lab Sample ID: LCS 280-592430/1

Matrix: Water

Analysis Batch: 592430

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	501	452		mg/L		90	79 - 114

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-1

Metals

Prep Batch: 592402

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168612-1	W-14	Total/NA	Water	7470A	
280-168612-2	W-17	Total/NA	Water	7470A	
280-168612-3	W-14D	Total/NA	Water	7470A	
MB 280-592402/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-592402/2-A	Lab Control Sample	Total/NA	Water	7470A	

Prep Batch: 592417

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168612-1	W-14	Total Recoverable	Water	3005A	
280-168612-2	W-17	Total Recoverable	Water	3005A	
280-168612-3	W-14D	Total Recoverable	Water	3005A	
MB 280-592417/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-592417/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-168612-3 MS	W-14D	Total Recoverable	Water	3005A	
280-168612-3 MSD	W-14D	Total Recoverable	Water	3005A	

Prep Batch: 592625

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168612-1	W-14	Total Recoverable	Water	3005A	
280-168612-2	W-17	Total Recoverable	Water	3005A	
280-168612-3	W-14D	Total Recoverable	Water	3005A	
MB 280-592625/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-592625/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 592687

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168612-1	W-14	Total Recoverable	Water	6020B	592417
280-168612-2	W-17	Total Recoverable	Water	6020B	592417
280-168612-3	W-14D	Total Recoverable	Water	6020B	592417
MB 280-592417/1-A	Method Blank	Total Recoverable	Water	6020B	592417
LCS 280-592417/2-A	Lab Control Sample	Total Recoverable	Water	6020B	592417
280-168612-3 MS	W-14D	Total Recoverable	Water	6020B	592417
280-168612-3 MSD	W-14D	Total Recoverable	Water	6020B	592417

Filtration Batch: 592771

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168612-1	W-14	Dissolved	Water	FILTRATION	
280-168612-2	W-17	Dissolved	Water	FILTRATION	
280-168612-3	W-14D	Dissolved	Water	FILTRATION	
MB 280-592771/1-C	Method Blank	Dissolved	Water	FILTRATION	
MB 280-592771/1-D	Method Blank	Dissolved	Water	FILTRATION	
MB 280-592771/1-F	Method Blank	Dissolved	Water	FILTRATION	
LCS 280-592771/2-C	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 280-592771/2-D	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 280-592771/2-F	Lab Control Sample	Dissolved	Water	FILTRATION	

Analysis Batch: 592825

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168612-1	W-14	Total Recoverable	Water	6020B	592417
280-168612-1	W-14	Total Recoverable	Water	6020B	592417
280-168612-2	W-17	Total Recoverable	Water	6020B	592417

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-1

Metals (Continued)

Analysis Batch: 592825 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168612-2	W-17	Total Recoverable	Water	6020B	592417
280-168612-3	W-14D	Total Recoverable	Water	6020B	592417
280-168612-3	W-14D	Total Recoverable	Water	6020B	592417
MB 280-592417/1-A	Method Blank	Total Recoverable	Water	6020B	592417
LCS 280-592417/2-A	Lab Control Sample	Total Recoverable	Water	6020B	592417
280-168612-3 MS	W-14D	Total Recoverable	Water	6020B	592417
280-168612-3 MS	W-14D	Total Recoverable	Water	6020B	592417
280-168612-3 MSD	W-14D	Total Recoverable	Water	6020B	592417
280-168612-3 MSD	W-14D	Total Recoverable	Water	6020B	592417

Analysis Batch: 592836

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168612-1	W-14	Total/NA	Water	7470A	592402
280-168612-2	W-17	Total/NA	Water	7470A	592402
280-168612-3	W-14D	Total/NA	Water	7470A	592402
MB 280-592402/1-A	Method Blank	Total/NA	Water	7470A	592402
LCS 280-592402/2-A	Lab Control Sample	Total/NA	Water	7470A	592402

Prep Batch: 592873

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168612-1	W-14	Dissolved	Water	3005A	592771
280-168612-2	W-17	Dissolved	Water	3005A	592771
280-168612-3	W-14D	Dissolved	Water	3005A	592771
MB 280-592771/1-C	Method Blank	Dissolved	Water	3005A	592771
LCS 280-592771/2-C	Lab Control Sample	Dissolved	Water	3005A	592771

Prep Batch: 592880

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168612-1	W-14	Dissolved	Water	3005A	592771
280-168612-2	W-17	Dissolved	Water	3005A	592771
280-168612-3	W-14D	Dissolved	Water	3005A	592771
MB 280-592771/1-D	Method Blank	Dissolved	Water	3005A	592771
LCS 280-592771/2-D	Lab Control Sample	Dissolved	Water	3005A	592771

Prep Batch: 592961

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168612-1	W-14	Total Recoverable	Water	3005A	592771
280-168612-2	W-17	Total Recoverable	Water	3005A	592771
280-168612-3	W-14D	Total Recoverable	Water	3005A	592771
MB 280-592961/1-A	Method Blank	Total Recoverable	Water	3005A	592771
LCS 280-592961/2-A	Lab Control Sample	Total Recoverable	Water	3005A	592771

Analysis Batch: 593129

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168612-1	W-14	Dissolved	Water	6010C	592873
280-168612-2	W-17	Dissolved	Water	6010C	592873
280-168612-3	W-14D	Dissolved	Water	6010C	592873
MB 280-592771/1-C	Method Blank	Dissolved	Water	6010C	592873
LCS 280-592771/2-C	Lab Control Sample	Dissolved	Water	6010C	592873

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-1

Metals

Analysis Batch: 593209

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168612-1	W-14	Dissolved	Water	6020B	592880
280-168612-2	W-17	Dissolved	Water	6020B	592880
280-168612-3	W-14D	Dissolved	Water	6020B	592880
MB 280-592771/1-D	Method Blank	Dissolved	Water	6020B	592880
LCS 280-592771/2-D	Lab Control Sample	Dissolved	Water	6020B	592880

Analysis Batch: 593310

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168612-1	W-14	Dissolved	Water	6020B	592880
280-168612-2	W-17	Dissolved	Water	6020B	592880
280-168612-3	W-14D	Dissolved	Water	6020B	592880

Analysis Batch: 593456

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168612-1	W-14	Total Recoverable	Water	6010C	592625
280-168612-2	W-17	Total Recoverable	Water	6010C	592625
280-168612-3	W-14D	Total Recoverable	Water	6010C	592625
MB 280-592625/1-A	Method Blank	Total Recoverable	Water	6010C	592625
LCS 280-592625/2-A	Lab Control Sample	Total Recoverable	Water	6010C	592625

Analysis Batch: 593479

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168612-1	W-14	Total Recoverable	Water	6020B	592961
280-168612-2	W-17	Total Recoverable	Water	6020B	592961
280-168612-3	W-14D	Total Recoverable	Water	6020B	592961
MB 280-592961/1-A	Method Blank	Total Recoverable	Water	6020B	592961
LCS 280-592961/2-A	Lab Control Sample	Total Recoverable	Water	6020B	592961

Prep Batch: 593528

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168612-1	W-14	Dissolved	Water	7470A	592771
280-168612-2	W-17	Dissolved	Water	7470A	592771
280-168612-3	W-14D	Dissolved	Water	7470A	592771
MB 280-592771/1-F	Method Blank	Dissolved	Water	7470A	592771
LCS 280-592771/2-F	Lab Control Sample	Dissolved	Water	7470A	592771

Analysis Batch: 593632

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168612-1	W-14	Total Recoverable	Water	6020B	592961
280-168612-2	W-17	Total Recoverable	Water	6020B	592961
280-168612-3	W-14D	Total Recoverable	Water	6020B	592961
MB 280-592961/1-A	Method Blank	Total Recoverable	Water	6020B	592961
LCS 280-592961/2-A	Lab Control Sample	Total Recoverable	Water	6020B	592961

Analysis Batch: 593836

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168612-1	W-14	Total Recoverable	Water	6020B	592961
280-168612-2	W-17	Total Recoverable	Water	6020B	592961
280-168612-3	W-14D	Total Recoverable	Water	6020B	592961
MB 280-592961/1-A	Method Blank	Total Recoverable	Water	6020B	592961
LCS 280-592961/2-A	Lab Control Sample	Total Recoverable	Water	6020B	592961

Eurofins Denver

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-1

Metals

Analysis Batch: 593845

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168612-1	W-14	Dissolved	Water	7470A	593528
280-168612-2	W-17	Dissolved	Water	7470A	593528
280-168612-3	W-14D	Dissolved	Water	7470A	593528
MB 280-592771/1-F	Method Blank	Dissolved	Water	7470A	593528
LCS 280-592771/2-F	Lab Control Sample	Dissolved	Water	7470A	593528

General Chemistry

Analysis Batch: 592428

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168612-1	W-14	Total/NA	Water	SM 2540C	
280-168612-3	W-14D	Total/NA	Water	SM 2540C	
MB 280-592428/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-592428/2	Lab Control Sample	Total/NA	Water	SM 2540C	
280-168612-3 DU	W-14D	Total/NA	Water	SM 2540C	

Analysis Batch: 592430

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168612-1	W-14	Total/NA	Water	SM 2540D	
280-168612-2	W-17	Total/NA	Water	SM 2540D	
280-168612-3	W-14D	Total/NA	Water	SM 2540D	
MB 280-592430/2	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-592430/1	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 592606

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168612-2	W-17	Total/NA	Water	SM 2540C	
MB 280-592606/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-592606/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-592606/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 592975

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168612-1	W-14	Total/NA	Water	9040B	
280-168612-2	W-17	Total/NA	Water	9040B	
280-168612-3	W-14D	Total/NA	Water	9040B	
LCS 280-592975/27	Lab Control Sample	Total/NA	Water	9040B	
LCS 280-592975/50	Lab Control Sample	Total/NA	Water	9040B	
280-168612-3 DU	W-14D	Total/NA	Water	9040B	

Analysis Batch: 592976

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168612-1	W-14	Total/NA	Water	SM 2320B	
280-168612-2	W-17	Total/NA	Water	SM 2320B	
280-168612-3	W-14D	Total/NA	Water	SM 2320B	
MB 280-592976/5	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-592976/4	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 594088

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168612-1	W-14	Total/NA	Water	9056A	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-1

General Chemistry (Continued)

Analysis Batch: 594088 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168612-2	W-17	Total/NA	Water	9056A	
280-168612-3	W-14D	Total/NA	Water	9056A	
MB 280-594088/6	Method Blank	Total/NA	Water	9056A	
LCS 280-594088/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-594088/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-594088/3	Lab Control Sample	Total/NA	Water	9056A	
280-168612-3 MS	W-14D	Total/NA	Water	9056A	
280-168612-3 MSD	W-14D	Total/NA	Water	9056A	
280-168612-3 DU	W-14D	Total/NA	Water	9056A	

Analysis Batch: 594925

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-594925/101	Method Blank	Total/NA	Water	9056A	
MB 280-594925/13	Method Blank	Total/NA	Water	9056A	
MB 280-594925/66	Method Blank	Total/NA	Water	9056A	
LCS 280-594925/99	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-594925/100	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-594925/10	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 595327

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168612-1	W-14	Total/NA	Water	9056A	
280-168612-1	W-14	Total/NA	Water	9056A	
280-168612-2	W-17	Total/NA	Water	9056A	
280-168612-2	W-17	Total/NA	Water	9056A	
280-168612-3	W-14D	Total/NA	Water	9056A	
280-168612-3	W-14D	Total/NA	Water	9056A	
MB 280-595327/52	Method Blank	Total/NA	Water	9056A	
MB 280-595327/6	Method Blank	Total/NA	Water	9056A	
LCS 280-595327/4	Lab Control Sample	Total/NA	Water	9056A	
LCS 280-595327/50	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-595327/5	Lab Control Sample Dup	Total/NA	Water	9056A	
LCSD 280-595327/51	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-595327/3	Lab Control Sample	Total/NA	Water	9056A	

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-1

Client Sample ID: W-14

Date Collected: 10/31/22 12:45

Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			250 mL	250 mL	592771	11/08/22 15:35	MAB	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	592873	11/10/22 09:07	LJS	EET DEN
Dissolved	Analysis	6010C		1			593129	11/11/22 04:44	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592625	11/13/22 17:20	MCR	EET DEN
Total Recoverable	Analysis	6010C		1			593456	11/14/22 15:01	KRP	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	592771	11/08/22 15:35	MAB	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	592880	11/10/22 07:50	LJS	EET DEN
Dissolved	Analysis	6020B		50			593209	11/11/22 11:08	LMT	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	592771	11/08/22 15:35	MAB	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	592880	11/10/22 07:50	LJS	EET DEN
Dissolved	Analysis	6020B		1			593310	11/11/22 13:24	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592417	11/04/22 14:50	MCR	EET DEN
Total Recoverable	Analysis	6020B		1			592687	11/07/22 18:03	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592417	11/04/22 14:50	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			592825	11/08/22 14:52	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592417	11/04/22 14:50	MCR	EET DEN
Total Recoverable	Analysis	6020B		1			592825	11/08/22 19:58	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592961	11/10/22 15:24	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			593479	11/14/22 20:10	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592961	11/10/22 15:24	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			593632	11/15/22 22:20	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592961	11/10/22 15:24	MCR	EET DEN
Total Recoverable	Analysis	6020B		500			593836	11/16/22 17:48	LMT	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	592771	11/08/22 15:35	MAB	EET DEN
Dissolved	Prep	7470A			30 mL	50 mL	593528	11/15/22 16:50	KMS	EET DEN
Dissolved	Analysis	7470A		1			593845	11/16/22 15:25	KMS	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	592402	11/04/22 10:59	PFM	EET DEN
Total/NA	Analysis	7470A		1			592836	11/08/22 20:01	PFM	EET DEN
Total/NA	Analysis	9040B		1			592975	11/09/22 16:42	KEG	EET DEN
Total/NA	Analysis	9056A		50	10 mL	10 mL	594088	11/18/22 21:57	MEC	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	595327	12/03/22 05:51	MEC	EET DEN
Total/NA	Analysis	9056A		200	10 mL	10 mL	595327	12/03/22 06:08	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			592976	11/09/22 17:31	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	592428	11/04/22 12:15	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	592430	11/04/22 12:17	ASP	EET DEN

Client Sample ID: W-17

Date Collected: 11/02/22 09:30

Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			250 mL	250 mL	592771	11/08/22 15:35	MAB	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	592873	11/10/22 09:07	LJS	EET DEN
Dissolved	Analysis	6010C		1			593129	11/11/22 04:49	KRP	EET DEN

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-1

Client Sample ID: W-17

Date Collected: 11/02/22 09:30

Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	592625	11/13/22 17:20	MCR	EET DEN
Total Recoverable	Analysis	6010C		1			593456	11/14/22 15:05	KRP	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	592771	11/08/22 15:35	MAB	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	592880	11/10/22 07:50	LJS	EET DEN
Dissolved	Analysis	6020B		50			593209	11/11/22 11:12	LMT	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	592771	11/08/22 15:35	MAB	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	592880	11/10/22 07:50	LJS	EET DEN
Dissolved	Analysis	6020B		1			593310	11/11/22 13:28	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592417	11/04/22 14:50	MCR	EET DEN
Total Recoverable	Analysis	6020B		1			592687	11/07/22 18:07	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592417	11/04/22 14:50	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			592825	11/08/22 14:55	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592417	11/04/22 14:50	MCR	EET DEN
Total Recoverable	Analysis	6020B		1			592825	11/08/22 20:01	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592961	11/10/22 15:24	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			593479	11/14/22 20:14	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592961	11/10/22 15:24	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			593632	11/15/22 22:24	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592961	11/10/22 15:24	MCR	EET DEN
Total Recoverable	Analysis	6020B		500			593836	11/16/22 17:52	LMT	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	592771	11/08/22 15:35	MAB	EET DEN
Dissolved	Prep	7470A			30 mL	50 mL	593528	11/15/22 16:50	KMS	EET DEN
Dissolved	Analysis	7470A		1			593845	11/16/22 15:27	KMS	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	592402	11/04/22 10:59	PFM	EET DEN
Total/NA	Analysis	7470A		1			592836	11/08/22 20:04	PFM	EET DEN
Total/NA	Analysis	9040B		1			592975	11/09/22 16:46	KEG	EET DEN
Total/NA	Analysis	9056A		20	10 mL	10 mL	594088	11/18/22 22:14	MEC	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	595327	12/03/22 06:25	MEC	EET DEN
Total/NA	Analysis	9056A		100	10 mL	10 mL	595327	12/03/22 06:42	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			592976	11/09/22 17:42	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	592606	11/07/22 12:02	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	592430	11/04/22 12:17	ASP	EET DEN

Client Sample ID: W-14D

Date Collected: 10/31/22 13:00

Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			250 mL	250 mL	592771	11/08/22 15:35	MAB	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	592873	11/10/22 09:07	LJS	EET DEN
Dissolved	Analysis	6010C		1			593129	11/11/22 04:54	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592625	11/13/22 17:20	MCR	EET DEN
Total Recoverable	Analysis	6010C		1			593456	11/14/22 15:09	KRP	EET DEN

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-1

Client Sample ID: W-14D

Lab Sample ID: 280-168612-3

Date Collected: 10/31/22 13:00

Matrix: Water

Date Received: 11/03/22 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			250 mL	250 mL	592771	11/08/22 15:35	MAB	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	592880	11/10/22 07:50	LJS	EET DEN
Dissolved	Analysis	6020B		50			593209	11/11/22 11:16	LMT	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	592771	11/08/22 15:35	MAB	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	592880	11/10/22 07:50	LJS	EET DEN
Dissolved	Analysis	6020B		1			593310	11/11/22 13:32	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592417	11/04/22 14:50	MCR	EET DEN
Total Recoverable	Analysis	6020B		1			592687	11/07/22 18:11	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592417	11/04/22 14:50	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			592825	11/08/22 15:18	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592417	11/04/22 14:50	MCR	EET DEN
Total Recoverable	Analysis	6020B		1			592825	11/08/22 20:05	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592961	11/10/22 15:24	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			593479	11/14/22 20:17	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592961	11/10/22 15:24	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			593632	11/15/22 22:28	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592961	11/10/22 15:24	MCR	EET DEN
Total Recoverable	Analysis	6020B		500			593836	11/16/22 17:56	LMT	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	592771	11/08/22 15:35	MAB	EET DEN
Dissolved	Prep	7470A			30 mL	50 mL	593528	11/15/22 16:50	KMS	EET DEN
Dissolved	Analysis	7470A		1			593845	11/16/22 15:30	KMS	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	592402	11/04/22 11:01	PFM	EET DEN
Total/NA	Analysis	7470A		1			592836	11/08/22 20:06	PFM	EET DEN
Total/NA	Analysis	9040B		1			592975	11/09/22 16:55	KEG	EET DEN
Total/NA	Analysis	9056A		20	10 mL	10 mL	594088	11/18/22 22:32	MEC	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	595327	12/03/22 08:23	MEC	EET DEN
Total/NA	Analysis	9056A		200	10 mL	10 mL	595327	12/03/22 08:40	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			592976	11/09/22 17:55	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	592428	11/04/22 12:15	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	592430	11/04/22 12:17	ASP	EET DEN

Laboratory References:

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

Eurofins Denver

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-1

Laboratory: Eurofins Denver

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

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-23

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	Calcium
6020B	3005A	Water	Magnesium
6020B	3005A	Water	Potassium
6020B	3005A	Water	Sodium
9040B		Water	Temperature

Chain of Custody Record

Client Information		Lab PM:		Carrier Tracking No(s):		COC No:	
Client Contact: Ms. Sierra Schupp		Ryan, Nicole C				280-123975-34653.1	
Company: HDR Inc		E-Mail: Nicole.Ryan@ET.eurofins.com		State of Origin:		Page: Page 1 of 1	
Address: 1670 Broadway Suite 3400 City: Denver State, Zip: CO, 80202 Phone: 734-263-7138(Tel) Email: Sierra.Schupp@hdrinc.com Project Name: Xcel Energy GW CCR Monitoring - Comanche Site: Colorado App. III and IV + TSS, Additional Methods		PWSID:		Analysis Requested			
Due Date Requested:		TAT Requested (days):		Preservation Codes:			
Compliance Project: ☐ Yes ☐ No		PO #: DEN-021 WO #:		A - HCL M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)			
Project #: 28014376 SSOW#:		Field Filtered Sample (Yes or No)		Total Number of Containers			
Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=oil, BT=Tissue, A=Air)	
Sample Date		Sample Time		Preservation Code:		Special Instructions/Note:	
W-14	10/31/22	12:45	G	Water	6010C, 6020B, 7470A - Dis. Metals/Mercury	2540C, 6020B, 7470A - pH, 9056A_2BD - Cl, FI, SO4	2540D - TSS, Alkalinity
W-17	11/2/22	9:30	G	Water	6010C, 6020B, 7470A - Dis. Metals/Mercury	2540C, 6020B, 7470A - pH, 9056A_2BD - Cl, FI, SO4	2540D - TSS, Alkalinity
W-147	10/15/22	13:00	G	W	6010C, 6020B, 7470A - Dis. Metals/Mercury	2540C, 6020B, 7470A - pH, 9056A_2BD - Cl, FI, SO4	2540D - TSS, Alkalinity
 280-168612 Chain of Custody							
Possible Hazard Identification ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological							
Deliverable Requested: I, II, III, IV, Other (specify)							
Empty Kit Relinquished by:							
Relinquished by:		Date:		Time:		Method of Shipment:	
Relinquished by:		Date:		Time:		Company:	
Relinquished by:		Date:		Time:		Company:	
Custody Seal No.:		N/A		Custody Seal No.:		N/A	

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-168612-1

Login Number: 168612

List Number: 1

Creator: Roehsner, Karen P

List Source: Eurofins Denver

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

ANALYTICAL REPORT

PREPARED FOR

Attn: Molly Reeves

HDR Inc

1670 Broadway

Suite 3400

Denver, Colorado 80202

Generated 1/6/2023 3:44:32 PM Revision 1

JOB DESCRIPTION

Xcel Energy GW CCR Monitoring - Comanche

JOB NUMBER

280-168612-2

Eurofins Denver

Job Notes

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the Eurofins TestAmerica Denver Project Manager.

The Lab Certification ID# is 4025.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

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 TestAmerica Project Manager.

Authorization



Authorized for release by
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Revision 1

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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-2

Qualifiers

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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-2

Job ID: 280-168612-2

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-168612-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

Revision 1, January 6, 2022

This report has been revised to include the combined RAD226 and RAD228 result for all samples.

Receipt

The samples were received on 11/3/2022 9:30 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 was 2.4° C.

Receipt Exceptions

The sample collection time was not recorded on the sample container received. Logged per the COC: W-17 (280-168612-2).

RADIUM-226 (GFPC)

Samples W-14 (280-168612-1), W-17 (280-168612-2) and W-14D (280-168612-3) were analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 11/08/2022 and analyzed on 12/02/2022.

The following samples were prepared at a reduced aliquot due to Matrix: W-14 (280-168612-1), W-17 (280-168612-2) and W-14D (280-168612-3). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

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

RADIUM-228

Samples W-14 (280-168612-1), W-17 (280-168612-2) and W-14D (280-168612-3) were analyzed for Radium-228 in accordance with 9320. The samples were prepared on 11/08/2022 and analyzed on 11/22/2022.

The following samples were prepared at a reduced aliquot due to Matrix: W-14 (280-168612-1), W-17 (280-168612-2) and W-14D (280-168612-3). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

The Ra-228 laboratory control sample (LCS) associated with the following samples recovered at 137% : (LCS 160-589263/2-A). The limits in our LIMS system at (75-125%) reflect the requirements of a regulatory agency that represents a large amount of our work. However the samples associated with this LCS are not from this agency and are therefore held to our in-house statistical limits of (62-148%) per method requirements. The LCS is within criteria and no further action is required.

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-2

Job ID: 280-168612-2 (Continued)

Laboratory: Eurofins Denver (Continued)

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

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Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-2

Client Sample ID: W-14

Lab Sample ID: 280-168612-1

☐ No Detections.

Client Sample ID: W-17

Lab Sample ID: 280-168612-2

☐ No Detections.

Client Sample ID: W-14D

Lab Sample ID: 280-168612-3

☐ No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Method Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-2

Method	Method Description	Protocol	Laboratory
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
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL

Protocol References:

None = None

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

Sample Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-168612-1	W-14	Water	10/31/22 12:45	11/03/22 09:30
280-168612-2	W-17	Water	11/02/22 09:30	11/03/22 09:30
280-168612-3	W-14D	Water	10/31/22 13:00	11/03/22 09:30

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-2

Method: SW846 9315 - Radium-226 (GFPC)

Client Sample ID: W-14
Date Collected: 10/31/22 12:45
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.63		0.276	0.312	1.00	0.175	pCi/L	11/08/22 11:58	12/02/22 10:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	81.2		40 - 110					11/08/22 11:58	12/02/22 10:21	1

Client Sample ID: W-17
Date Collected: 11/02/22 09:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.422		0.150	0.155	1.00	0.147	pCi/L	11/08/22 11:58	12/02/22 10:23	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.7		40 - 110					11/08/22 11:58	12/02/22 10:23	1

Client Sample ID: W-14D
Date Collected: 10/31/22 13:00
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.40		0.253	0.282	1.00	0.154	pCi/L	11/08/22 11:58	12/02/22 12:53	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	79.0		40 - 110					11/08/22 11:58	12/02/22 12:53	1

Method: SW846 9320 - Radium-228 (GFPC)

Client Sample ID: W-14
Date Collected: 10/31/22 12:45
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.47		0.727	0.762	1.00	0.848	pCi/L	11/08/22 13:41	11/22/22 15:31	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	81.2		40 - 110					11/08/22 13:41	11/22/22 15:31	1
Y Carrier	85.6		40 - 110					11/08/22 13:41	11/22/22 15:31	1

Client Sample ID: W-17
Date Collected: 11/02/22 09:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.405	U	0.482	0.483	1.00	0.794	pCi/L	11/08/22 13:41	11/22/22 15:31	1

Eurofins Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-2

Method: SW846 9320 - Radium-228 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	87.7		40 - 110	11/08/22 13:41	11/22/22 15:31	1
Y Carrier	85.2		40 - 110	11/08/22 13:41	11/22/22 15:31	1

Client Sample ID: W-14D
Date Collected: 10/31/22 13:00
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-3
Matrix: Water

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.97		0.664	0.689	1.00	0.803	pCi/L	11/08/22 13:41	11/22/22 15:31	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	79.0		40 - 110					11/08/22 13:41	11/22/22 15:31	1
Y Carrier	86.4		40 - 110					11/08/22 13:41	11/22/22 15:31	1

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

Client Sample ID: W-14
Date Collected: 10/31/22 12:45
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	4.10		0.778	0.823	5.00	0.848	pCi/L		01/06/23 15:53	1

Client Sample ID: W-17
Date Collected: 11/02/22 09:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.827		0.505	0.507	5.00	0.794	pCi/L		01/06/23 15:53	1

Client Sample ID: W-14D
Date Collected: 10/31/22 13:00
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	3.37		0.711	0.744	5.00	0.803	pCi/L		01/06/23 15:53	1

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-2

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-589246/1-A

Matrix: Water

Analysis Batch: 592074

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 589246

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.04342	U	0.0735	0.0736	1.00	0.128	pCi/L	11/08/22 11:58	12/02/22 07:37	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.1		40 - 110					11/08/22 11:58	12/02/22 07:37	1

Lab Sample ID: LCS 160-589246/2-A

Matrix: Water

Analysis Batch: 592074

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 589246

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226		11.3	10.75		1.13	1.00	0.114	pCi/L	95	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits							
Ba Carrier	84.1		40 - 110							

Lab Sample ID: LCSD 160-589246/3-A

Matrix: Water

Analysis Batch: 592074

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 589246

Analyte		Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-226		11.3	11.70		1.22	1.00	0.136	pCi/L	103	75 - 125	0.40	1
Carrier	LCSD %Yield	LCSD Qualifier	Limits									
Ba Carrier	81.4		40 - 110									

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-589263/1-A

Matrix: Water

Analysis Batch: 590931

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 589263

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.06416	U	0.311	0.311	1.00	0.564	pCi/L	11/08/22 13:41	11/22/22 15:29	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.1		40 - 110					11/08/22 13:41	11/22/22 15:29	1
Y Carrier	84.1		40 - 110					11/08/22 13:41	11/22/22 15:29	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-2

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

Lab Sample ID: LCS 160-589263/2-A

Matrix: Water

Analysis Batch: 590932

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 589263

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-228		8.42	11.52		1.51	1.00	0.587	pCi/L	137	75 - 125

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	84.1		40 - 110
Y Carrier	87.5		40 - 110

Lab Sample ID: LCSD 160-589263/3-A

Matrix: Water

Analysis Batch: 590932

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 589263

Analyte		Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-228		8.42	10.24		1.42	1.00	0.575	pCi/L	122	75 - 125	0.44	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	81.4		40 - 110
Y Carrier	83.7		40 - 110

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-2

Rad

Prep Batch: 589246

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168612-1	W-14	Total/NA	Water	PrecSep-21	
280-168612-2	W-17	Total/NA	Water	PrecSep-21	
280-168612-3	W-14D	Total/NA	Water	PrecSep-21	
MB 160-589246/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-589246/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-589246/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 589263

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168612-1	W-14	Total/NA	Water	PrecSep_0	
280-168612-2	W-17	Total/NA	Water	PrecSep_0	
280-168612-3	W-14D	Total/NA	Water	PrecSep_0	
MB 160-589263/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-589263/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-589263/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-2

Client Sample ID: W-14

Date Collected: 10/31/22 12:45

Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			753.93 mL	1.0 g	589246	11/08/22 11:58	BMP	EET SL
Total/NA	Analysis	9315		1			592075	12/02/22 10:21	FLC	EET SL
Total/NA	Prep	PrecSep_0			753.93 mL	1.0 g	589263	11/08/22 13:41	BMP	EET SL
Total/NA	Analysis	9320		1			590932	11/22/22 15:31	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			595882	01/06/23 15:53	EMH	EET SL

Client Sample ID: W-17

Date Collected: 11/02/22 09:30

Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			739.29 mL	1.0 g	589246	11/08/22 11:58	BMP	EET SL
Total/NA	Analysis	9315		1			592071	12/02/22 10:23	FLC	EET SL
Total/NA	Prep	PrecSep_0			739.29 mL	1.0 g	589263	11/08/22 13:41	BMP	EET SL
Total/NA	Analysis	9320		1			590932	11/22/22 15:31	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			595882	01/06/23 15:53	EMH	EET SL

Client Sample ID: W-14D

Date Collected: 10/31/22 13:00

Date Received: 11/03/22 09:30

Lab Sample ID: 280-168612-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			777.46 mL	1.0 g	589246	11/08/22 11:58	BMP	EET SL
Total/NA	Analysis	9315		1			592074	12/02/22 12:53	FLC	EET SL
Total/NA	Prep	PrecSep_0			777.46 mL	1.0 g	589263	11/08/22 13:41	BMP	EET SL
Total/NA	Analysis	9320		1			590932	11/22/22 15:31	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			595882	01/06/23 15:53	EMH	EET SL

Laboratory References:

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

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-2

Laboratory: Eurofins St. Louis

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

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-23
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-23
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-23
Iowa	State	373	12-01-24
Kansas	NELAP	E-10236	10-31-23
Kentucky (DW)	State	KY90125	12-31-22 *
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-23
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-23
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	04-01-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-23
South Carolina	State	85002001	06-30-23
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-24
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-23

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

Eurofins Denver

[illegible]

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-168612-2

Login Number: 168612

List Number: 1

Creator: Roehsner, Karen P

List Source: Eurofins Denver

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

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-168612-2

Login Number: 168612

List Number: 2

Creator: Bohlmann, Jessica M

List Source: Eurofins St. Louis

List Creation: 11/07/22 01:50 PM

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

Tracer/Carrier Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168612-2

Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	
280-168612-1	W-14	81.2	
280-168612-2	W-17	87.7	
280-168612-3	W-14D	79.0	
LCS 160-589246/2-A	Lab Control Sample	84.1	
LCSD 160-589246/3-A	Lab Control Sample Dup	81.4	
MB 160-589246/1-A	Method Blank	89.1	
Tracer/Carrier Legend			
Ba = Ba Carrier			

Method: 9320 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)
280-168612-1	W-14	81.2	85.6
280-168612-2	W-17	87.7	85.2
280-168612-3	W-14D	79.0	86.4
LCS 160-589263/2-A	Lab Control Sample	84.1	87.5
LCSD 160-589263/3-A	Lab Control Sample Dup	81.4	83.7
MB 160-589263/1-A	Method Blank	89.1	84.1
Tracer/Carrier Legend			
Ba = Ba Carrier			
Y = Y Carrier			



ANALYTICAL REPORT

PREPARED FOR

Attn: Molly Reeves
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Generated 12/9/2022 2:35:57 PM

JOB DESCRIPTION

Xcel Energy GW CCR Monitoring - Comanche

JOB NUMBER

280-168613-1

Eurofins Denver

Job Notes

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the Eurofins TestAmerica Denver Project Manager.

The Lab Certification ID# is 4025.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

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 TestAmerica Project Manager.

Authorization



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Authorized for release by
Nicole Ryan, Project Manager I
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(303)736-0100

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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

Qualifiers

Metals

Qualifier	Qualifier Description
^+	Continuing Calibration Verification (CCV) is outside acceptance limits, high biased.
^6+	Interference Check Standard (ICSA and/or ICSAB) is outside acceptance limits, high biased.
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.
B	Compound was found in the blank and sample.
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
^-	Continuing Calibration Verification (CCV) is outside acceptance limits, low biased.
B	Compound was found in the blank and sample.
F1	MS and/or MSD recovery exceeds control limits.
H	Sample was prepped or analyzed beyond the specified holding time
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Eurofins Denver

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

Job ID: 280-168613-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-168613-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

The presence of the '4' qualifier indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount.

Receipt

The samples were received on 11/3/2022 9:30 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 1.3° C, 1.8° C and 1.9° C.

Receipt Exceptions

280-168613-A-9 and 280-168613-B-9 were received with a pH >2 SU. The lab added the minimum amount of HNO₃ to preserve.

DISSOLVED METALS

Samples W-10B (280-168613-7) and W-11 (280-168613-8) were analyzed for Dissolved Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 11/10/2022 and analyzed on 11/11/2022 and 11/15/2022.

Sample W-10B (280-168613-7)[2X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

TOTAL RECOVERABLE METALS

Samples W-2C (280-168613-1), W-3B (280-168613-2), W-5B (280-168613-3), W-6B1 (280-168613-4), W-7 (280-168613-5), W-9 (280-168613-6), W-10B (280-168613-7), W-11 (280-168613-8), W-12 (280-168613-9) and W-10BEB (280-168613-10) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 11/13/2022 and analyzed on 11/14/2022 and 11/15/2022.

Lithium failed the recovery criteria high for the MS of sample W-2CMS (280-168613-1) in batch 280-593456.

Lithium failed the recovery criteria high for the MSD of sample W-2CMSD (280-168613-1) in batch 280-593456.

Samples W-3B (280-168613-2)[2X], W-6B1 (280-168613-4)[2X], W-7 (280-168613-5)[2X] and W-10B (280-168613-7)[2X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

Job ID: 280-168613-1 (Continued)

Laboratory: Eurofins Denver (Continued)

DISSOLVED METALS (ICP/MS)

Samples W-10B (280-168613-7) and W-11 (280-168613-8) were analyzed for Dissolved Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 11/10/2022 and analyzed on 11/11/2022.

The continuing calibration verification (CCV) associated with batch 280-593310 recovered (111%&112%) for As and Be which is above the upper control limit (110%) . The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: W-11 (280-168613-8), (CCV 280-593310/104), (CCV 280-593310/97), (280-168613-F-8-E MS), (280-168613-F-8-F MSD), (280-168613-F-8-D PDS) and (280-168613-F-8-D SD ^5).

Several analytes failed the recovery criteria low for the MS of sample W-11MS (280-168613-8) in batch 280-593310. Arsenic and Beryllium failed the recovery criteria high.

Calcium, Cadmium, Lead and Thallium failed the recovery criteria low for the MSD of sample W-11MSD (280-168613-8) in batch 280-593310. Arsenic and Beryllium failed the recovery criteria high.

Samples W-10B (280-168613-7)[50X] and W-11 (280-168613-8)[50X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

TOTAL RECOVERABLE METALS (ICP/MS)

Samples W-2C (280-168613-1), W-3B (280-168613-2), W-5B (280-168613-3), W-6B1 (280-168613-4), W-7 (280-168613-5), W-9 (280-168613-6), W-10B (280-168613-7), W-11 (280-168613-8), W-12 (280-168613-9) and W-10BEB (280-168613-10) were analyzed for Total Recoverable Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 11/04/2022 and 11/07/2022 and analyzed on 11/07/2022, 11/08/2022, 11/09/2022 and 11/10/2022.

The interference check standard solution (ICSA) associated with batch 280-592687 had results for one or more elements at a level greater than 2x the Reporting Limit. The ICSA result (2.17 ppb) was >2x the RL (1 ppb) for Ba.

The vendor acknowledges that these elements are trace impurities in the ICSA standard. These results are not indicative of a matrix interference.

The instrument blank for analytical batch 280-592825 contained 102 ppb Na greater than one-half the reporting limit (RL) of 150 ppb Na, and were not re-analyzed because sample > 10x the blank.. The data have been qualified and reported.

Calcium was detected in method blank MB 280-592417/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Cobalt, Lead, Thallium and Calcium failed the recovery criteria low for the MS of sample 280-168612-3 in batch 280-592825. Selenium failed the recovery criteria high.

Cadmium, Cobalt, Lead and Thallium failed the recovery criteria low for the MSD of sample 280-168612-3 in batch 280-592825. Selenium and Calcium failed the recovery criteria high.

Several analytes failed the recovery criteria low for the MS of sample 280-168614-5 in batch 280-592932. Magnesium and Sodium failed the recovery criteria high.

Several analytes failed the recovery criteria low for the MSD of sample 280-168614-5 in batch 280-592932. Magnesium, Sodium and Potassium failed the recovery criteria high.

Samples W-2C (280-168613-1)[50X], W-3B (280-168613-2)[50X], W-5B (280-168613-3)[50X], W-6B1 (280-168613-4)[50X], W-7 (280-168613-5)[50X], W-9 (280-168613-6)[50X], W-10B (280-168613-7)[50X], W-11 (280-168613-8)[50X] and W-12 (280-168613-9)[50X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

Job ID: 280-168613-1 (Continued)

Laboratory: Eurofins Denver (Continued)

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

DISSOLVED MERCURY

Samples W-10B (280-168613-7) and W-11 (280-168613-8) were analyzed for dissolved mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared on 11/15/2022 and analyzed on 11/16/2022.

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

TOTAL MERCURY

Samples W-2C (280-168613-1), W-3B (280-168613-2), W-5B (280-168613-3), W-6B1 (280-168613-4), W-7 (280-168613-5), W-9 (280-168613-6), W-10B (280-168613-7), W-11 (280-168613-8), W-12 (280-168613-9) and W-10BEB (280-168613-10) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared on 11/04/2022, 11/08/2022 and 11/11/2022 and analyzed on 11/08/2022 and 11/11/2022.

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

ALKALINITY

Samples W-2C (280-168613-1), W-3B (280-168613-2), W-5B (280-168613-3), W-6B1 (280-168613-4), W-7 (280-168613-5), W-9 (280-168613-6), W-10B (280-168613-7), W-11 (280-168613-8), W-12 (280-168613-9) and W-10BEB (280-168613-10) were analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 11/04/2022.

Alkalinity was detected in method blank MB 280-592471/6 at a level exceeding the reporting limit. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

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

TOTAL DISSOLVED SOLIDS

Samples W-2C (280-168613-1), W-3B (280-168613-2), W-5B (280-168613-3), W-6B1 (280-168613-4), W-7 (280-168613-5), W-9 (280-168613-6), W-10B (280-168613-7), W-11 (280-168613-8), W-12 (280-168613-9) and W-10BEB (280-168613-10) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 11/04/2022.

The following samples were received with less than 2 days remaining on the holding time or less than one shift (8 hours) remaining on a test with a holding time of 48 hours or less. As such, the laboratory had insufficient time remaining to perform the analysis within holding time: W-2C (280-168613-1), W-3B (280-168613-2), W-5B (280-168613-3) and W-6B1 (280-168613-4).

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

TOTAL SUSPENDED SOLIDS

Samples W-2C (280-168613-1), W-3B (280-168613-2), W-5B (280-168613-3), W-6B1 (280-168613-4), W-7 (280-168613-5), W-9 (280-168613-6), W-10B (280-168613-7), W-11 (280-168613-8), W-12 (280-168613-9) and W-10BEB (280-168613-10) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 11/04/2022.

The following samples were received with less than 2 days remaining on the holding time or less than one shift (8 hours) remaining on a test with a holding time of 48 hours or less. As such, the laboratory had insufficient time remaining to perform the analysis within holding time: W-2C (280-168613-1), W-3B (280-168613-2), W-5B (280-168613-3) and W-6B1 (280-168613-4).

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

CORROSIVITY (PH)

Samples W-2C (280-168613-1), W-3B (280-168613-2), W-5B (280-168613-3), W-6B1 (280-168613-4), W-7 (280-168613-5), W-9 (280-168613-6), W-10B (280-168613-7), W-11 (280-168613-8), W-12 (280-168613-9) and W-10BEB (280-168613-10) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 11/09/2022 and 11/14/2022.

Sample did not equilibrate to within 0.05 pH units after three measurements. This was observed in a previous analysis thus the sample was not rerun: W-10BEB (280-168613-10)

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

Job ID: 280-168613-1 (Continued)

Laboratory: Eurofins Denver (Continued)

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

ANIONS (28 DAYS)

Samples W-2C (280-168613-1), W-3B (280-168613-2), W-5B (280-168613-3), W-6B1 (280-168613-4), W-7 (280-168613-5), W-9 (280-168613-6), W-10B (280-168613-7), W-11 (280-168613-8), W-12 (280-168613-9) and W-10BEB (280-168613-10) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days). The samples were analyzed on 11/19/2022, 12/03/2022 and 12/09/2022.

Reanalysis of the following samples was performed outside of the analytical holding time due to the samples requiring further dilution alongside fluoride quality control failures: W-7 (280-168613-5), W-9 (280-168613-6), W-10B (280-168613-7), W-11 (280-168613-8), W-12 (280-168613-9) and W-10BEB (280-168613-10).

Reanalysis of the following samples was performed outside of the analytical holding time due to the samples requiring further dilutions alongside a fluoride quality control failure : W-2C (280-168613-1), W-3B (280-168613-2), W-5B (280-168613-3), W-6B1 (280-168613-4), W-7 (280-168613-5), W-10B (280-168613-7), W-11 (280-168613-8) and W-12 (280-168613-9).

Chloride failed the recovery criteria low for the MS of sample W-10BEBMS (280-168613-10) in batch 280-593895. Sulfate failed the recovery criteria high.

Chloride failed the recovery criteria low for the MSD of sample W-10BEBMSD (280-168613-10) in batch 280-593895. Sulfate failed the recovery criteria high.

Fluoride failed the recovery criteria low for the MS of sample 280-169545-1 in batch 280-596092.

Fluoride failed the recovery criteria low for the MSD of sample 280-169545-1 in batch 280-596092.

Samples W-2C (280-168613-1)[10X], W-2C (280-168613-1)[500X], W-3B (280-168613-2)[10X], W-3B (280-168613-2)[500X], W-5B (280-168613-3)[50X], W-6B1 (280-168613-4)[50X], W-6B1 (280-168613-4)[500X], W-7 (280-168613-5)[10X], W-7 (280-168613-5)[1000X], W-9 (280-168613-6)[10X], W-9 (280-168613-6)[200X], W-10B (280-168613-7)[1000X], W-10B (280-168613-7)[50X], W-11 (280-168613-8)[500X], W-12 (280-168613-9)[100X] and W-12 (280-168613-9)[500X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

Client Sample ID: W-2C

Lab Sample ID: 280-168613-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.9		0.10	0.0015	mg/L	1		6010C	Total
									Recoverable
Lithium	2.9	F1	0.020	0.0091	mg/L	1		6010C	Total
									Recoverable
Magnesium	4500		2.5	1.1	mg/L	50		6020B	Total
									Recoverable
Arsenic	0.00063	J	0.0050	0.00033	mg/L	1		6020B	Total
									Recoverable
Sodium	3500		7.5	3.2	mg/L	50		6020B	Total
									Recoverable
Barium	0.015	^6+	0.0010	0.00029	mg/L	1		6020B	Total
									Recoverable
Potassium	36		6.0	2.6	mg/L	50		6020B	Total
									Recoverable
Cadmium	0.0042		0.0010	0.00027	mg/L	1		6020B	Total
									Recoverable
Chromium	0.0013	J	0.0020	0.00050	mg/L	1		6020B	Total
									Recoverable
Cobalt	0.0022		0.0010	0.000092	mg/L	1		6020B	Total
									Recoverable
Lead	0.0020		0.0010	0.00018	mg/L	1		6020B	Total
									Recoverable
Molybdenum	0.0025		0.0020	0.00014	mg/L	1		6020B	Total
									Recoverable
Selenium	2.5		0.0050	0.00037	mg/L	1		6020B	Total
									Recoverable
Thallium	0.0025		0.0010	0.000089	mg/L	1		6020B	Total
									Recoverable
Calcium	450	B	10	1.9	mg/L	50		6020B	Total
									Recoverable
pH adj. to 25 deg C	7.0	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.2	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	730		30	10	mg/L	10		9056A	Total/NA
Sulfate	29000	H	2500	520	mg/L	500		9056A	Total/NA
Alkalinity	470	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	470		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	37000	H	1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	4.0	H	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-3B

Lab Sample ID: 280-168613-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.1		0.20	0.0029	mg/L	2		6010C	Total
									Recoverable
Lithium	3.3		0.020	0.0091	mg/L	1		6010C	Total
									Recoverable
Antimony	0.00043	J	0.0020	0.00040	mg/L	1		6020B	Total
									Recoverable
Magnesium	4900		2.5	1.1	mg/L	50		6020B	Total
									Recoverable
Arsenic	0.00077	J	0.0050	0.00033	mg/L	1		6020B	Total
									Recoverable
Sodium	11000		7.5	3.2	mg/L	50		6020B	Total
									Recoverable
Barium	0.016		0.0010	0.00029	mg/L	1		6020B	Total
									Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

Client Sample ID: W-3B (Continued)

Lab Sample ID: 280-168613-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Potassium	39		6.0	2.6	mg/L	50		6020B	Total
Beryllium	0.00029	J	0.0010	0.000080	mg/L	1		6020B	Recoverable Total
Cadmium	0.017		0.0010	0.00027	mg/L	1		6020B	Recoverable Total
Chromium	0.00077	J	0.0020	0.00050	mg/L	1		6020B	Recoverable Total
Cobalt	0.12		0.0010	0.000092	mg/L	1		6020B	Recoverable Total
Lead	0.00066	J	0.0010	0.00018	mg/L	1		6020B	Recoverable Total
Molybdenum	0.0026		0.0020	0.00014	mg/L	1		6020B	Recoverable Total
Selenium	0.0066		0.0050	0.00037	mg/L	1		6020B	Recoverable Total
Thallium	0.0030		0.0010	0.000089	mg/L	1		6020B	Recoverable Total
Calcium	480	B	10	1.9	mg/L	50		6020B	Recoverable Total
pH adj. to 25 deg C	6.8	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.1	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	840		30	10	mg/L	10		9056A	Total/NA
Sulfate	46000	H	2500	520	mg/L	500		9056A	Total/NA
Alkalinity	880	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	880		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	63000	H	1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	17	H	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-5B

Lab Sample ID: 280-168613-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.1		0.10	0.0015	mg/L	1		6010C	Total
Lithium	0.27		0.020	0.0091	mg/L	1		6010C	Recoverable Total
Magnesium	240		2.5	1.1	mg/L	50		6020B	Recoverable Total
Sodium	660		7.5	3.2	mg/L	50		6020B	Recoverable Total
Barium	0.018	^6+	0.0010	0.00029	mg/L	1		6020B	Recoverable Total
Potassium	14		6.0	2.6	mg/L	50		6020B	Recoverable Total
Cadmium	0.0028		0.0010	0.00027	mg/L	1		6020B	Recoverable Total
Cobalt	0.0024		0.0010	0.000092	mg/L	1		6020B	Recoverable Total
Lead	0.00026	J	0.0010	0.00018	mg/L	1		6020B	Recoverable Total
Molybdenum	0.0023		0.0020	0.00014	mg/L	1		6020B	Recoverable Total
Selenium	0.00064	J	0.0050	0.00037	mg/L	1		6020B	Recoverable Total
Thallium	0.00077	J	0.0010	0.000089	mg/L	1		6020B	Recoverable Total

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

Client Sample ID: W-5B (Continued)

Lab Sample ID: 280-168613-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	530	B	10	1.9	mg/L	50		6020B	Total Recoverable
pH adj. to 25 deg C	7.3	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	98		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.37	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	3400	H	250	52	mg/L	50		9056A	Total/NA
Alkalinity	190	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	190		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	4600	H	40	19	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	2.4	J H	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-6B1

Lab Sample ID: 280-168613-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.98		0.20	0.0029	mg/L	2		6010C	Total Recoverable
Lithium	3.6		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Antimony	0.00056	J	0.0020	0.00040	mg/L	1		6020B	Total Recoverable
Magnesium	4800		2.5	1.1	mg/L	50		6020B	Total Recoverable
Arsenic	0.0014	J	0.0050	0.00033	mg/L	1		6020B	Total Recoverable
Sodium	11000		7.5	3.2	mg/L	50		6020B	Total Recoverable
Barium	0.019		0.0010	0.00029	mg/L	1		6020B	Total Recoverable
Potassium	44		6.0	2.6	mg/L	50		6020B	Total Recoverable
Beryllium	0.000091	J	0.0010	0.000080	mg/L	1		6020B	Total Recoverable
Cadmium	0.026		0.0010	0.00027	mg/L	1		6020B	Total Recoverable
Chromium	0.0012	J	0.0020	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.14		0.0010	0.000092	mg/L	1		6020B	Total Recoverable
Lead	0.00049	J	0.0010	0.00018	mg/L	1		6020B	Total Recoverable
Molybdenum	0.0051		0.0020	0.00014	mg/L	1		6020B	Total Recoverable
Selenium	0.0046	J	0.0050	0.00037	mg/L	1		6020B	Total Recoverable
Thallium	0.0050		0.0010	0.000089	mg/L	1		6020B	Total Recoverable
Calcium	480	B	10	1.9	mg/L	50		6020B	Total Recoverable
pH adj. to 25 deg C	6.8	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.2	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1200	H	150	51	mg/L	50		9056A	Total/NA
Sulfate	50000	H	2500	520	mg/L	500		9056A	Total/NA
Alkalinity	880	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	880		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	62000	H	1000	470	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

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Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

Client Sample ID: W-6B1 (Continued)

Lab Sample ID: 280-168613-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Suspended Solids	27	H	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-7

Lab Sample ID: 280-168613-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.90		0.20	0.0029	mg/L	2		6010C	Total Recoverable
Lithium	5.1		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Antimony	0.00043	J	0.0020	0.00040	mg/L	1		6020B	Total Recoverable
Magnesium	7000		2.5	1.1	mg/L	50		6020B	Total Recoverable
Arsenic	0.00056	J	0.0050	0.00033	mg/L	1		6020B	Total Recoverable
Sodium	7400		7.5	3.2	mg/L	50		6020B	Total Recoverable
Barium	0.014		0.0010	0.00029	mg/L	1		6020B	Total Recoverable
Potassium	59		6.0	2.6	mg/L	50		6020B	Total Recoverable
Beryllium	0.000089	J	0.0010	0.000080	mg/L	1		6020B	Total Recoverable
Cadmium	0.0060		0.0010	0.00027	mg/L	1		6020B	Total Recoverable
Chromium	0.00089	J	0.0020	0.00050	mg/L	1		6020B	Total Recoverable
Cobalt	0.024		0.0010	0.000092	mg/L	1		6020B	Total Recoverable
Lead	0.00058	J	0.0010	0.00018	mg/L	1		6020B	Total Recoverable
Molybdenum	0.0053		0.0020	0.00014	mg/L	1		6020B	Total Recoverable
Selenium	2.4		0.0050	0.00037	mg/L	1		6020B	Total Recoverable
Thallium	0.0057		0.0010	0.000089	mg/L	1		6020B	Total Recoverable
Calcium	440	B	10	1.9	mg/L	50		6020B	Total Recoverable
pH adj. to 25 deg C	6.9	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.5	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	710		30	10	mg/L	10		9056A	Total/NA
Sulfate	50000	H	5000	1000	mg/L	1000		9056A	Total/NA
Alkalinity	1000	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	1000		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	61000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	9.6		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-9

Lab Sample ID: 280-168613-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1.7		0.10	0.0015	mg/L	1		6010C	Total Recoverable
Lithium	1.2		0.020	0.0091	mg/L	1		6010C	Total Recoverable
Antimony	0.00086	J	0.0020	0.00040	mg/L	1		6020B	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

Client Sample ID: W-9 (Continued)

Lab Sample ID: 280-168613-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Magnesium	1400		2.5	1.1	mg/L	50			6020B	Total
Arsenic	0.00083	J	0.0050	0.00033	mg/L	1			6020B	Total Recoverable
Sodium	2600		7.5	3.2	mg/L	50			6020B	Total Recoverable
Barium	0.014		0.0010	0.00029	mg/L	1			6020B	Total Recoverable
Potassium	20		6.0	2.6	mg/L	50			6020B	Total Recoverable
Cadmium	0.0011		0.0010	0.00027	mg/L	1			6020B	Total Recoverable
Chromium	0.0038		0.0020	0.00050	mg/L	1			6020B	Total Recoverable
Cobalt	0.0025		0.0010	0.000092	mg/L	1			6020B	Total Recoverable
Lead	0.00023	J	0.0010	0.00018	mg/L	1			6020B	Total Recoverable
Molybdenum	0.0079		0.0020	0.00014	mg/L	1			6020B	Total Recoverable
Selenium	0.0095		0.0050	0.00037	mg/L	1			6020B	Total Recoverable
Thallium	0.00055	J	0.0010	0.000089	mg/L	1			6020B	Total Recoverable
Calcium	440	B	10	1.9	mg/L	50			6020B	Total Recoverable
pH adj. to 25 deg C	7.4	HF	0.1	0.1	SU	1			9040B	Total/NA
Temperature	23.0	HF	1.0	1.0	Degrees C	1			9040B	Total/NA
Chloride	370		30	10	mg/L	10			9056A	Total/NA
Fluoride	0.38	J H	0.50	0.17	mg/L	1			9056A	Total/NA
Sulfate	13000	H	1000	210	mg/L	200			9056A	Total/NA
Alkalinity	660	B	10	3.1	mg/L	1			SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	660		10	3.1	mg/L	1			SM 2320B	Total/NA
Total Dissolved Solids (TDS)	13000		1000	470	mg/L	1			SM 2540C	Total/NA
Total Suspended Solids	5.2		4.0	1.1	mg/L	1			SM 2540D	Total/NA

Client Sample ID: W-10B

Lab Sample ID: 280-168613-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Boron	0.94		0.20	0.0029	mg/L	2			6010C	Total Recoverable
Lithium	6.1		0.020	0.0091	mg/L	1			6010C	Total Recoverable
Boron	0.89		0.20	0.0029	mg/L	2			6010C	Dissolved
Lithium	4.8		0.020	0.0091	mg/L	1			6010C	Dissolved
Magnesium	9900		2.5	1.1	mg/L	50			6020B	Total Recoverable
Arsenic	0.00071	J	0.0050	0.00033	mg/L	1			6020B	Total Recoverable
Sodium	6000		7.5	3.2	mg/L	50			6020B	Total Recoverable
Barium	0.018	^6+	0.0010	0.00029	mg/L	1			6020B	Total Recoverable
Potassium	73		6.0	2.6	mg/L	50			6020B	Total Recoverable
Beryllium	0.000091	J	0.0010	0.000080	mg/L	1			6020B	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

Client Sample ID: W-10B (Continued)

Lab Sample ID: 280-168613-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cadmium	0.00033	J	0.0010	0.00027	mg/L	1		6020B	Total
									Recoverable
Chromium	0.00072	J	0.0020	0.00050	mg/L	1		6020B	Total
									Recoverable
Cobalt	0.0020		0.0010	0.000092	mg/L	1		6020B	Total
									Recoverable
Molybdenum	0.0036		0.0020	0.00014	mg/L	1		6020B	Total
									Recoverable
Selenium	5.2		0.25	0.019	mg/L	50		6020B	Total
									Recoverable
Thallium	0.0051		0.0010	0.000089	mg/L	1		6020B	Total
									Recoverable
Calcium	470	B	10	1.9	mg/L	50		6020B	Total
									Recoverable
Arsenic	0.00045	J	0.0050	0.00033	mg/L	1		6020B	Dissolved
Barium	0.017		0.0010	0.00029	mg/L	1		6020B	Dissolved
Chromium	0.0020		0.0020	0.00050	mg/L	1		6020B	Dissolved
Cobalt	0.0011		0.0010	0.000092	mg/L	1		6020B	Dissolved
Calcium	470		10	1.9	mg/L	50		6020B	Dissolved
Molybdenum	0.0027		0.0020	0.00014	mg/L	1		6020B	Dissolved
Selenium	4.8		0.25	0.019	mg/L	50		6020B	Dissolved
Thallium	0.0066		0.0010	0.000089	mg/L	1		6020B	Dissolved
pH adj. to 25 deg C	7.1	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	23.3	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1200	H	150	51	mg/L	50		9056A	Total/NA
Sulfate	59000	H	5000	1000	mg/L	1000		9056A	Total/NA
Alkalinity	1000	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	1000		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	78000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	17		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-11

Lab Sample ID: 280-168613-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.61		0.10	0.0015	mg/L	1		6010C	Total
									Recoverable
Lithium	3.8		0.020	0.0091	mg/L	1		6010C	Total
									Recoverable
Boron	0.58		0.10	0.0015	mg/L	1		6010C	Dissolved
Lithium	3.2		0.020	0.0091	mg/L	1		6010C	Dissolved
Antimony	0.00043	J	0.0020	0.00040	mg/L	1		6020B	Total
									Recoverable
Magnesium	1400		2.5	1.1	mg/L	50		6020B	Total
									Recoverable
Arsenic	0.00081	J	0.0050	0.00033	mg/L	1		6020B	Total
									Recoverable
Sodium	3400		7.5	3.2	mg/L	50		6020B	Total
									Recoverable
Barium	0.018		0.0010	0.00029	mg/L	1		6020B	Total
									Recoverable
Potassium	38		6.0	2.6	mg/L	50		6020B	Total
									Recoverable
Beryllium	0.00012	J	0.0010	0.000080	mg/L	1		6020B	Total
									Recoverable
Cadmium	0.0014		0.0010	0.00027	mg/L	1		6020B	Total
									Recoverable

This Detection Summary does not include radiochemical test results.

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Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

Client Sample ID: W-11 (Continued)

Lab Sample ID: 280-168613-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	0.0016	J	0.0020	0.00050	mg/L	1		6020B	Total
									Recoverable
Cobalt	0.021		0.0010	0.000092	mg/L	1		6020B	Total
									Recoverable
Lead	0.00099	J	0.0010	0.00018	mg/L	1		6020B	Total
									Recoverable
Molybdenum	0.0044		0.0020	0.00014	mg/L	1		6020B	Total
									Recoverable
Selenium	3.2		0.0050	0.00037	mg/L	1		6020B	Total
									Recoverable
Thallium	0.0043		0.0010	0.000089	mg/L	1		6020B	Total
									Recoverable
Calcium	470	B	10	1.9	mg/L	50		6020B	Total
									Recoverable
Arsenic	0.00038	J ^+ F1	0.0050	0.00033	mg/L	1		6020B	Dissolved
Barium	0.012		0.0010	0.00029	mg/L	1		6020B	Dissolved
Cadmium	0.0013	F1	0.0010	0.00027	mg/L	1		6020B	Dissolved
Chromium	0.0010	J	0.0020	0.00050	mg/L	1		6020B	Dissolved
Cobalt	0.020	F1	0.0010	0.000092	mg/L	1		6020B	Dissolved
Calcium	450		10	1.9	mg/L	50		6020B	Dissolved
Molybdenum	0.0036	B	0.0020	0.00014	mg/L	1		6020B	Dissolved
Selenium	2.9		0.0050	0.00037	mg/L	1		6020B	Dissolved
Thallium	0.0038	F1	0.0010	0.000089	mg/L	1		6020B	Dissolved
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.7	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	2.9	J	3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.35	J H	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	14000	H	2500	520	mg/L	500		9056A	Total/NA
Alkalinity	1100	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	1100		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	18000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	39		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-12

Lab Sample ID: 280-168613-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.67		0.10	0.0015	mg/L	1		6010C	Total
									Recoverable
Lithium	2.6		0.020	0.0091	mg/L	1		6010C	Total
									Recoverable
Antimony	0.00059	J	0.0020	0.00040	mg/L	1		6020B	Total
									Recoverable
Magnesium	1200		2.5	1.1	mg/L	50		6020B	Total
									Recoverable
Arsenic	0.00035	J	0.0050	0.00033	mg/L	1		6020B	Total
									Recoverable
Sodium	5400		7.5	3.2	mg/L	50		6020B	Total
									Recoverable
Barium	0.014		0.0010	0.00029	mg/L	1		6020B	Total
									Recoverable
Potassium	36		6.0	2.6	mg/L	50		6020B	Total
									Recoverable
Beryllium	0.00010	J	0.0010	0.000080	mg/L	1		6020B	Total
									Recoverable
Cadmium	0.0014		0.0010	0.00027	mg/L	1		6020B	Total
									Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

Client Sample ID: W-12 (Continued)

Lab Sample ID: 280-168613-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	0.0013	J	0.0020	0.00050	mg/L	1		6020B	Total
									Recoverable
Cobalt	0.028		0.0010	0.000092	mg/L	1		6020B	Total
									Recoverable
Molybdenum	0.0042		0.0020	0.00014	mg/L	1		6020B	Total
									Recoverable
Selenium	0.016		0.0050	0.00037	mg/L	1		6020B	Total
									Recoverable
Thallium	0.0033		0.0010	0.000089	mg/L	1		6020B	Total
									Recoverable
Calcium	390		0.20	0.038	mg/L	1		6020B	Total
									Recoverable
pH adj. to 25 deg C	7.1	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	970	H	300	100	mg/L	100		9056A	Total/NA
Fluoride	0.18	J H	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	18000	H	2500	520	mg/L	500		9056A	Total/NA
Alkalinity	1400	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	1400		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	25000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	9.2		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-10BEB

Lab Sample ID: 280-168613-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Selenium	0.00081	J	0.0050	0.00037	mg/L	1		6020B	Total
									Recoverable
pH adj. to 25 deg C	7.4	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	23.3	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Sulfate	3.3	J F1	5.0	1.0	mg/L	1		9056A	Total/NA
Alkalinity	3.4	J B	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	3.4	J	10	3.1	mg/L	1		SM 2320B	Total/NA
Total Suspended Solids	1.6	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

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Method Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	EET DEN
6020B	Metals (ICP/MS)	SW846	EET DEN
7470A	Mercury (CVAA)	SW846	EET DEN
9040B	pH	SW846	EET DEN
9056A	Anions, Ion Chromatography	SW846	EET DEN
SM 2320B	Alkalinity	SM	EET DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET DEN
SM 2540D	Solids, Total Suspended (TSS)	SM	EET DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET DEN
7470A	Preparation, Mercury	SW846	EET DEN
FILTRATION	Sample Filtration	None	EET DEN

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.

Laboratory References:

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

Sample Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-168613-1	W-2C	Water	10/27/22 13:30	11/03/22 09:30
280-168613-2	W-3B	Water	10/27/22 11:00	11/03/22 09:30
280-168613-3	W-5B	Water	10/27/22 13:25	11/03/22 09:30
280-168613-4	W-6B1	Water	10/27/22 18:55	11/03/22 09:30
280-168613-5	W-7	Water	10/28/22 16:40	11/03/22 09:30
280-168613-6	W-9	Water	10/29/22 13:50	11/03/22 09:30
280-168613-7	W-10B	Water	10/28/22 19:00	11/03/22 09:30
280-168613-8	W-11	Water	10/29/22 12:30	11/03/22 09:30
280-168613-9	W-12	Water	10/29/22 10:45	11/03/22 09:30
280-168613-10	W-10BEB	Ground Water	10/28/22 19:30	11/03/22 09:30

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

Method: SW846 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: W-2C
Date Collected: 10/27/22 13:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.9		0.10	0.0015	mg/L		11/13/22 17:20	11/14/22 15:13	1
Lithium	2.9	F1	0.020	0.0091	mg/L		11/13/22 17:20	11/14/22 15:13	1

Client Sample ID: W-3B
Date Collected: 10/27/22 11:00
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.1		0.20	0.0029	mg/L		11/13/22 17:20	11/15/22 20:39	2
Lithium	3.3		0.020	0.0091	mg/L		11/13/22 17:20	11/14/22 15:49	1

Client Sample ID: W-5B
Date Collected: 10/27/22 13:25
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.1		0.10	0.0015	mg/L		11/13/22 17:20	11/14/22 15:53	1
Lithium	0.27		0.020	0.0091	mg/L		11/13/22 17:20	11/14/22 15:53	1

Client Sample ID: W-6B1
Date Collected: 10/27/22 18:55
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.98		0.20	0.0029	mg/L		11/13/22 17:20	11/15/22 20:50	2
Lithium	3.6		0.020	0.0091	mg/L		11/13/22 17:20	11/14/22 15:57	1

Client Sample ID: W-7
Date Collected: 10/28/22 16:40
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.90		0.20	0.0029	mg/L		11/13/22 17:20	11/15/22 20:54	2
Lithium	5.1		0.020	0.0091	mg/L		11/13/22 17:20	11/14/22 16:01	1

Client Sample ID: W-9
Date Collected: 10/29/22 13:50
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.7		0.10	0.0015	mg/L		11/13/22 17:20	11/14/22 16:05	1
Lithium	1.2		0.020	0.0091	mg/L		11/13/22 17:20	11/14/22 16:05	1

Client Sample ID: W-10B
Date Collected: 10/28/22 19:00
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.94		0.20	0.0029	mg/L		11/13/22 17:20	11/15/22 20:58	2
Lithium	6.1		0.020	0.0091	mg/L		11/13/22 17:20	11/14/22 16:09	1

Client Sample ID: W-11
Date Collected: 10/29/22 12:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.61		0.10	0.0015	mg/L		11/13/22 17:20	11/14/22 16:14	1
Lithium	3.8		0.020	0.0091	mg/L		11/13/22 17:20	11/14/22 16:14	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

Method: SW846 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: W-12
Date Collected: 10/29/22 10:45
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.67		0.10	0.0015	mg/L		11/13/22 17:20	11/14/22 16:18	1
Lithium	2.6		0.020	0.0091	mg/L		11/13/22 17:20	11/14/22 16:18	1

Client Sample ID: W-10BEB
Date Collected: 10/28/22 19:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-10
Matrix: Ground Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.0015	mg/L		11/13/22 17:20	11/14/22 16:22	1
Lithium	ND		0.020	0.0091	mg/L		11/13/22 17:20	11/14/22 16:22	1

Method: SW846 6010C - Metals (ICP) - Dissolved

Client Sample ID: W-10B
Date Collected: 10/28/22 19:00
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.89		0.20	0.0029	mg/L		11/10/22 09:07	11/15/22 07:44	2
Lithium	4.8		0.020	0.0091	mg/L		11/10/22 09:07	11/11/22 04:58	1

Client Sample ID: W-11
Date Collected: 10/29/22 12:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.58		0.10	0.0015	mg/L		11/10/22 09:07	11/11/22 05:20	1
Lithium	3.2		0.020	0.0091	mg/L		11/10/22 09:07	11/11/22 05:20	1

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

Client Sample ID: W-2C
Date Collected: 10/27/22 13:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		11/04/22 14:50	11/07/22 18:38	1
Magnesium	4500		2.5	1.1	mg/L		11/07/22 14:42	11/08/22 16:22	50
Arsenic	0.00063	J	0.0050	0.00033	mg/L		11/04/22 14:50	11/07/22 18:38	1
Sodium	3500		7.5	3.2	mg/L		11/07/22 14:42	11/08/22 16:22	50
Barium	0.015	^6+	0.0010	0.00029	mg/L		11/04/22 14:50	11/07/22 18:38	1
Potassium	36		6.0	2.6	mg/L		11/07/22 14:42	11/08/22 16:22	50
Beryllium	ND		0.0010	0.000080	mg/L		11/04/22 14:50	11/08/22 20:32	1
Cadmium	0.0042		0.0010	0.00027	mg/L		11/04/22 14:50	11/07/22 18:38	1
Chromium	0.0013	J	0.0020	0.00050	mg/L		11/04/22 14:50	11/07/22 18:38	1
Cobalt	0.0022		0.0010	0.000092	mg/L		11/04/22 14:50	11/07/22 18:38	1
Lead	0.0020		0.0010	0.00018	mg/L		11/04/22 14:50	11/07/22 18:38	1
Molybdenum	0.0025		0.0020	0.00014	mg/L		11/04/22 14:50	11/07/22 18:38	1
Selenium	2.5		0.0050	0.00037	mg/L		11/04/22 14:50	11/07/22 18:38	1
Thallium	0.0025		0.0010	0.000089	mg/L		11/04/22 14:50	11/07/22 18:38	1
Calcium	450	B	10	1.9	mg/L		11/04/22 14:50	11/08/22 15:29	50

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

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

Client Sample ID: W-3B
Date Collected: 10/27/22 11:00
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00043	J	0.0020	0.00040	mg/L		11/04/22 14:50	11/07/22 18:42	1
Magnesium	4900		2.5	1.1	mg/L		11/07/22 14:42	11/08/22 16:26	50
Arsenic	0.00077	J	0.0050	0.00033	mg/L		11/04/22 14:50	11/07/22 18:42	1
Sodium	11000		7.5	3.2	mg/L		11/07/22 14:42	11/08/22 16:26	50
Barium	0.016		0.0010	0.00029	mg/L		11/04/22 14:50	11/08/22 20:36	1
Potassium	39		6.0	2.6	mg/L		11/07/22 14:42	11/08/22 16:26	50
Beryllium	0.00029	J	0.0010	0.000080	mg/L		11/04/22 14:50	11/08/22 20:36	1
Cadmium	0.017		0.0010	0.00027	mg/L		11/04/22 14:50	11/07/22 18:42	1
Chromium	0.00077	J	0.0020	0.00050	mg/L		11/04/22 14:50	11/07/22 18:42	1
Cobalt	0.12		0.0010	0.000092	mg/L		11/04/22 14:50	11/07/22 18:42	1
Lead	0.00066	J	0.0010	0.00018	mg/L		11/04/22 14:50	11/07/22 18:42	1
Molybdenum	0.0026		0.0020	0.00014	mg/L		11/04/22 14:50	11/07/22 18:42	1
Selenium	0.0066		0.0050	0.00037	mg/L		11/04/22 14:50	11/07/22 18:42	1
Thallium	0.0030		0.0010	0.000089	mg/L		11/04/22 14:50	11/07/22 18:42	1
Calcium	480	B	10	1.9	mg/L		11/04/22 14:50	11/08/22 15:33	50

Client Sample ID: W-5B
Date Collected: 10/27/22 13:25
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		11/04/22 14:50	11/07/22 18:46	1
Magnesium	240		2.5	1.1	mg/L		11/07/22 14:42	11/08/22 16:30	50
Arsenic	ND		0.0050	0.00033	mg/L		11/04/22 14:50	11/07/22 18:46	1
Sodium	660		7.5	3.2	mg/L		11/07/22 14:42	11/08/22 16:30	50
Barium	0.018	^6+	0.0010	0.00029	mg/L		11/04/22 14:50	11/07/22 18:46	1
Potassium	14		6.0	2.6	mg/L		11/07/22 14:42	11/08/22 16:30	50
Beryllium	ND		0.0010	0.000080	mg/L		11/04/22 14:50	11/08/22 20:39	1
Cadmium	0.0028		0.0010	0.00027	mg/L		11/04/22 14:50	11/07/22 18:46	1
Chromium	ND		0.0020	0.00050	mg/L		11/04/22 14:50	11/07/22 18:46	1
Cobalt	0.0024		0.0010	0.000092	mg/L		11/04/22 14:50	11/07/22 18:46	1
Lead	0.00026	J	0.0010	0.00018	mg/L		11/04/22 14:50	11/07/22 18:46	1
Molybdenum	0.0023		0.0020	0.00014	mg/L		11/04/22 14:50	11/07/22 18:46	1
Selenium	0.00064	J	0.0050	0.00037	mg/L		11/04/22 14:50	11/07/22 18:46	1
Thallium	0.00077	J	0.0010	0.000089	mg/L		11/04/22 14:50	11/07/22 18:46	1
Calcium	530	B	10	1.9	mg/L		11/04/22 14:50	11/08/22 15:37	50

Client Sample ID: W-6B1
Date Collected: 10/27/22 18:55
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00056	J	0.0020	0.00040	mg/L		11/04/22 14:50	11/08/22 20:43	1
Magnesium	4800		2.5	1.1	mg/L		11/07/22 14:42	11/08/22 16:34	50
Arsenic	0.0014	J	0.0050	0.00033	mg/L		11/04/22 14:50	11/08/22 20:43	1
Sodium	11000		7.5	3.2	mg/L		11/07/22 14:42	11/08/22 16:34	50
Barium	0.019		0.0010	0.00029	mg/L		11/04/22 14:50	11/08/22 20:43	1
Potassium	44		6.0	2.6	mg/L		11/07/22 14:42	11/08/22 16:34	50
Beryllium	0.000091	J	0.0010	0.000080	mg/L		11/04/22 14:50	11/08/22 20:43	1
Cadmium	0.026		0.0010	0.00027	mg/L		11/04/22 14:50	11/08/22 20:43	1
Chromium	0.0012	J	0.0020	0.00050	mg/L		11/04/22 14:50	11/08/22 20:43	1
Cobalt	0.14		0.0010	0.000092	mg/L		11/04/22 14:50	11/08/22 20:43	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

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

Client Sample ID: W-6B1
Date Collected: 10/27/22 18:55
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.00049	J	0.0010	0.00018	mg/L		11/04/22 14:50	11/08/22 20:43	1
Molybdenum	0.0051		0.0020	0.00014	mg/L		11/04/22 14:50	11/08/22 20:43	1
Selenium	0.0046	J	0.0050	0.00037	mg/L		11/04/22 14:50	11/08/22 20:43	1
Thallium	0.0050		0.0010	0.000089	mg/L		11/04/22 14:50	11/08/22 20:43	1
Calcium	480	B	10	1.9	mg/L		11/04/22 14:50	11/08/22 15:41	50

Client Sample ID: W-7
Date Collected: 10/28/22 16:40
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00043	J	0.0020	0.00040	mg/L		11/04/22 14:50	11/08/22 20:47	1
Magnesium	7000		2.5	1.1	mg/L		11/07/22 14:42	11/08/22 16:37	50
Arsenic	0.00056	J	0.0050	0.00033	mg/L		11/04/22 14:50	11/08/22 20:47	1
Sodium	7400		7.5	3.2	mg/L		11/07/22 14:42	11/08/22 16:37	50
Barium	0.014		0.0010	0.00029	mg/L		11/04/22 14:50	11/08/22 20:47	1
Potassium	59		6.0	2.6	mg/L		11/07/22 14:42	11/08/22 16:37	50
Beryllium	0.000089	J	0.0010	0.000080	mg/L		11/04/22 14:50	11/08/22 20:47	1
Cadmium	0.0060		0.0010	0.00027	mg/L		11/04/22 14:50	11/08/22 20:47	1
Chromium	0.00089	J	0.0020	0.00050	mg/L		11/04/22 14:50	11/08/22 20:47	1
Cobalt	0.024		0.0010	0.000092	mg/L		11/04/22 14:50	11/08/22 20:47	1
Lead	0.00058	J	0.0010	0.00018	mg/L		11/04/22 14:50	11/08/22 20:47	1
Molybdenum	0.0053		0.0020	0.00014	mg/L		11/04/22 14:50	11/08/22 20:47	1
Selenium	2.4		0.0050	0.00037	mg/L		11/04/22 14:50	11/08/22 20:47	1
Thallium	0.0057		0.0010	0.000089	mg/L		11/04/22 14:50	11/08/22 20:47	1
Calcium	440	B	10	1.9	mg/L		11/04/22 14:50	11/08/22 15:44	50

Client Sample ID: W-9
Date Collected: 10/29/22 13:50
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00086	J	0.0020	0.00040	mg/L		11/04/22 14:50	11/08/22 20:51	1
Magnesium	1400		2.5	1.1	mg/L		11/07/22 14:42	11/08/22 16:41	50
Arsenic	0.00083	J	0.0050	0.00033	mg/L		11/04/22 14:50	11/08/22 20:51	1
Sodium	2600		7.5	3.2	mg/L		11/07/22 14:42	11/08/22 16:41	50
Barium	0.014		0.0010	0.00029	mg/L		11/04/22 14:50	11/08/22 20:51	1
Potassium	20		6.0	2.6	mg/L		11/07/22 14:42	11/08/22 16:41	50
Beryllium	ND		0.0010	0.000080	mg/L		11/04/22 14:50	11/08/22 20:51	1
Cadmium	0.0011		0.0010	0.00027	mg/L		11/04/22 14:50	11/08/22 20:51	1
Chromium	0.0038		0.0020	0.00050	mg/L		11/04/22 14:50	11/08/22 20:51	1
Cobalt	0.0025		0.0010	0.000092	mg/L		11/04/22 14:50	11/08/22 20:51	1
Lead	0.00023	J	0.0010	0.00018	mg/L		11/04/22 14:50	11/08/22 20:51	1
Molybdenum	0.0079		0.0020	0.00014	mg/L		11/04/22 14:50	11/08/22 20:51	1
Selenium	0.0095		0.0050	0.00037	mg/L		11/04/22 14:50	11/08/22 20:51	1
Thallium	0.00055	J	0.0010	0.000089	mg/L		11/04/22 14:50	11/08/22 20:51	1
Calcium	440	B	10	1.9	mg/L		11/04/22 14:50	11/08/22 15:48	50

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

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

Client Sample ID: W-10B
Date Collected: 10/28/22 19:00
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		11/04/22 14:50	11/07/22 19:01	1
Magnesium	9900		2.5	1.1	mg/L		11/07/22 14:42	11/08/22 16:45	50
Arsenic	0.00071	J	0.0050	0.00033	mg/L		11/04/22 14:50	11/07/22 19:01	1
Sodium	6000		7.5	3.2	mg/L		11/07/22 14:42	11/08/22 16:45	50
Barium	0.018	^6+	0.0010	0.00029	mg/L		11/04/22 14:50	11/07/22 19:01	1
Potassium	73		6.0	2.6	mg/L		11/07/22 14:42	11/08/22 16:45	50
Beryllium	0.000091	J	0.0010	0.000080	mg/L		11/04/22 14:50	11/08/22 20:55	1
Cadmium	0.00033	J	0.0010	0.00027	mg/L		11/04/22 14:50	11/07/22 19:01	1
Chromium	0.00072	J	0.0020	0.00050	mg/L		11/04/22 14:50	11/07/22 19:01	1
Cobalt	0.0020		0.0010	0.000092	mg/L		11/04/22 14:50	11/07/22 19:01	1
Lead	ND		0.0010	0.00018	mg/L		11/04/22 14:50	11/07/22 19:01	1
Molybdenum	0.0036		0.0020	0.00014	mg/L		11/04/22 14:50	11/07/22 19:01	1
Selenium	5.2		0.25	0.019	mg/L		11/04/22 14:50	11/08/22 15:52	50
Thallium	0.0051		0.0010	0.000089	mg/L		11/04/22 14:50	11/07/22 19:01	1
Calcium	470	B	10	1.9	mg/L		11/04/22 14:50	11/08/22 15:52	50

Client Sample ID: W-11
Date Collected: 10/29/22 12:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00043	J	0.0020	0.00040	mg/L		11/04/22 14:50	11/08/22 20:58	1
Magnesium	1400		2.5	1.1	mg/L		11/07/22 14:42	11/08/22 16:49	50
Arsenic	0.00081	J	0.0050	0.00033	mg/L		11/04/22 14:50	11/08/22 20:58	1
Sodium	3400		7.5	3.2	mg/L		11/07/22 14:42	11/08/22 16:49	50
Barium	0.018		0.0010	0.00029	mg/L		11/04/22 14:50	11/08/22 20:58	1
Potassium	38		6.0	2.6	mg/L		11/07/22 14:42	11/08/22 16:49	50
Beryllium	0.00012	J	0.0010	0.000080	mg/L		11/04/22 14:50	11/08/22 20:58	1
Cadmium	0.0014		0.0010	0.00027	mg/L		11/04/22 14:50	11/08/22 20:58	1
Chromium	0.0016	J	0.0020	0.00050	mg/L		11/04/22 14:50	11/08/22 20:58	1
Cobalt	0.021		0.0010	0.000092	mg/L		11/04/22 14:50	11/08/22 20:58	1
Lead	0.00099	J	0.0010	0.00018	mg/L		11/04/22 14:50	11/08/22 20:58	1
Molybdenum	0.0044		0.0020	0.00014	mg/L		11/04/22 14:50	11/08/22 20:58	1
Selenium	3.2		0.0050	0.00037	mg/L		11/04/22 14:50	11/08/22 20:58	1
Thallium	0.0043		0.0010	0.000089	mg/L		11/04/22 14:50	11/08/22 20:58	1
Calcium	470	B	10	1.9	mg/L		11/04/22 14:50	11/08/22 15:55	50

Client Sample ID: W-12
Date Collected: 10/29/22 10:45
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00059	J	0.0020	0.00040	mg/L		11/07/22 14:42	11/08/22 18:15	1
Magnesium	1200		2.5	1.1	mg/L		11/07/22 14:42	11/08/22 17:00	50
Arsenic	0.00035	J	0.0050	0.00033	mg/L		11/07/22 14:42	11/08/22 18:15	1
Sodium	5400		7.5	3.2	mg/L		11/07/22 14:42	11/08/22 17:00	50
Barium	0.014		0.0010	0.00029	mg/L		11/07/22 14:42	11/08/22 18:15	1
Potassium	36		6.0	2.6	mg/L		11/07/22 14:42	11/09/22 13:51	50
Beryllium	0.00010	J	0.0010	0.000080	mg/L		11/07/22 14:42	11/08/22 18:15	1
Cadmium	0.0014		0.0010	0.00027	mg/L		11/07/22 14:42	11/08/22 18:15	1
Chromium	0.0013	J	0.0020	0.00050	mg/L		11/07/22 14:42	11/08/22 18:15	1
Cobalt	0.028		0.0010	0.000092	mg/L		11/07/22 14:42	11/08/22 18:15	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

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

Client Sample ID: W-12
Date Collected: 10/29/22 10:45
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0010	0.00018	mg/L		11/07/22 14:42	11/08/22 18:15	1
Molybdenum	0.0042		0.0020	0.00014	mg/L		11/07/22 14:42	11/08/22 18:15	1
Selenium	0.016		0.0050	0.00037	mg/L		11/07/22 14:42	11/08/22 18:15	1
Thallium	0.0033		0.0010	0.000089	mg/L		11/07/22 14:42	11/08/22 18:15	1
Calcium	390		0.20	0.038	mg/L		11/07/22 14:42	11/08/22 18:15	1

Client Sample ID: W-10BEB
Date Collected: 10/28/22 19:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-10
Matrix: Ground Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		11/04/22 14:50	11/07/22 19:08	1
Magnesium	ND		0.050	0.021	mg/L		11/07/22 14:42	11/10/22 17:44	1
Arsenic	ND		0.0050	0.00033	mg/L		11/04/22 14:50	11/07/22 19:08	1
Sodium	ND		0.15	0.065	mg/L		11/07/22 14:42	11/10/22 17:44	1
Barium	ND	^6+	0.0010	0.00029	mg/L		11/04/22 14:50	11/07/22 19:08	1
Potassium	ND		0.12	0.052	mg/L		11/07/22 14:42	11/09/22 13:40	1
Beryllium	ND		0.0010	0.000080	mg/L		11/04/22 14:50	11/08/22 21:33	1
Cadmium	ND		0.0010	0.00027	mg/L		11/04/22 14:50	11/07/22 19:08	1
Chromium	ND		0.0020	0.00050	mg/L		11/04/22 14:50	11/07/22 19:08	1
Cobalt	ND		0.0010	0.000092	mg/L		11/04/22 14:50	11/07/22 19:08	1
Lead	ND		0.0010	0.00018	mg/L		11/04/22 14:50	11/07/22 19:08	1
Molybdenum	ND		0.0020	0.00014	mg/L		11/04/22 14:50	11/07/22 19:08	1
Selenium	0.00081	J	0.0050	0.00037	mg/L		11/04/22 14:50	11/07/22 19:08	1
Thallium	ND		0.0010	0.000089	mg/L		11/04/22 14:50	11/07/22 19:08	1
Calcium	ND		0.20	0.038	mg/L		11/04/22 14:50	11/10/22 17:40	1

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

Client Sample ID: W-10B
Date Collected: 10/28/22 19:00
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		11/10/22 07:50	11/11/22 14:06	1
Arsenic	0.00045	J	0.0050	0.00033	mg/L		11/10/22 07:50	11/11/22 14:06	1
Barium	0.017		0.0010	0.00029	mg/L		11/10/22 07:50	11/11/22 14:06	1
Beryllium	ND		0.0010	0.000080	mg/L		11/10/22 07:50	11/11/22 14:06	1
Cadmium	ND		0.0010	0.00027	mg/L		11/10/22 07:50	11/11/22 14:06	1
Chromium	0.0020		0.0020	0.00050	mg/L		11/10/22 07:50	11/11/22 14:06	1
Cobalt	0.0011		0.0010	0.000092	mg/L		11/10/22 07:50	11/11/22 14:06	1
Lead	ND		0.0010	0.00018	mg/L		11/10/22 07:50	11/11/22 14:06	1
Calcium	470		10	1.9	mg/L		11/10/22 07:50	11/11/22 11:19	50
Molybdenum	0.0027		0.0020	0.00014	mg/L		11/10/22 07:50	11/11/22 14:06	1
Selenium	4.8		0.25	0.019	mg/L		11/10/22 07:50	11/11/22 11:19	50
Thallium	0.0066		0.0010	0.000089	mg/L		11/10/22 07:50	11/11/22 14:06	1

Client Sample ID: W-11
Date Collected: 10/29/22 12:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		11/10/22 07:50	11/11/22 18:03	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

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

Client Sample ID: W-11
Date Collected: 10/29/22 12:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00038	J ^+ F1	0.0050	0.00033	mg/L		11/10/22 07:50	11/11/22 18:03	1
Barium	0.012		0.0010	0.00029	mg/L		11/10/22 07:50	11/11/22 18:03	1
Beryllium	ND	^+ F1	0.0010	0.000080	mg/L		11/10/22 07:50	11/11/22 18:03	1
Cadmium	0.0013	F1	0.0010	0.00027	mg/L		11/10/22 07:50	11/11/22 18:03	1
Chromium	0.0010	J	0.0020	0.00050	mg/L		11/10/22 07:50	11/11/22 18:03	1
Cobalt	0.020	F1	0.0010	0.000092	mg/L		11/10/22 07:50	11/11/22 18:03	1
Lead	ND	F1	0.0010	0.00018	mg/L		11/10/22 07:50	11/11/22 18:03	1
Calcium	450		10	1.9	mg/L		11/10/22 07:50	11/11/22 11:34	50
Molybdenum	0.0036	B	0.0020	0.00014	mg/L		11/10/22 07:50	11/11/22 18:03	1
Selenium	2.9		0.0050	0.00037	mg/L		11/10/22 07:50	11/11/22 18:03	1
Thallium	0.0038	F1	0.0010	0.000089	mg/L		11/10/22 07:50	11/11/22 18:03	1

Method: SW846 7470A - Mercury (CVAA)

Client Sample ID: W-2C
Date Collected: 10/27/22 13:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		11/04/22 11:01	11/08/22 20:09	1

Client Sample ID: W-3B
Date Collected: 10/27/22 11:00
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		11/08/22 10:36	11/08/22 20:11	1

Client Sample ID: W-5B
Date Collected: 10/27/22 13:25
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		11/08/22 10:36	11/08/22 20:14	1

Client Sample ID: W-6B1
Date Collected: 10/27/22 18:55
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		11/08/22 10:36	11/08/22 20:22	1

Client Sample ID: W-7
Date Collected: 10/28/22 16:40
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		11/08/22 10:36	11/08/22 20:24	1

Client Sample ID: W-9
Date Collected: 10/29/22 13:50
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		11/08/22 10:36	11/08/22 20:27	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

Method: SW846 7470A - Mercury (CVAA)

Client Sample ID: W-10B
Date Collected: 10/28/22 19:00
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		11/08/22 10:36	11/08/22 20:29	1

Client Sample ID: W-11
Date Collected: 10/29/22 12:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		11/08/22 10:36	11/08/22 20:32	1

Client Sample ID: W-12
Date Collected: 10/29/22 10:45
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		11/11/22 13:27	11/11/22 19:29	1

Client Sample ID: W-10BEB
Date Collected: 10/28/22 19:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-10
Matrix: Ground Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		11/11/22 13:27	11/11/22 19:31	1

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

Client Sample ID: W-10B
Date Collected: 10/28/22 19:00
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		11/15/22 16:50	11/16/22 15:32	1

Client Sample ID: W-11
Date Collected: 10/29/22 12:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		11/15/22 16:50	11/16/22 15:40	1

General Chemistry

Client Sample ID: W-2C
Date Collected: 10/27/22 13:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C (SW846 9040B)	7.0	HF	0.1	0.1	SU			11/09/22 17:02	1
Temperature (SW846 9040B)	22.2	HF	1.0	1.0	Degrees C			11/09/22 17:02	1
Chloride (SW846 9056A)	730		30	10	mg/L			11/19/22 08:08	10
Fluoride (SW846 9056A)	ND		0.50	0.17	mg/L			11/19/22 08:00	1
Sulfate (SW846 9056A)	29000	H	2500	520	mg/L			12/09/22 05:56	500
Alkalinity (SM 2320B)	470	B	10	3.1	mg/L			11/04/22 13:39	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	470		10	3.1	mg/L			11/04/22 13:39	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			11/04/22 13:39	1
Total Dissolved Solids (TDS) (SM 2540C)	37000	H	1000	470	mg/L			11/04/22 12:15	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

General Chemistry (Continued)

Client Sample ID: W-2C
Date Collected: 10/27/22 13:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	4.0	H	4.0	1.1	mg/L			11/04/22 12:17	1

Client Sample ID: W-3B
Date Collected: 10/27/22 11:00
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C (SW846 9040B)	6.8	HF	0.1	0.1	SU			11/09/22 17:06	1
Temperature (SW846 9040B)	22.1	HF	1.0	1.0	Degrees C			11/09/22 17:06	1
Chloride (SW846 9056A)	840		30	10	mg/L			11/19/22 08:25	10
Fluoride (SW846 9056A)	ND		0.50	0.17	mg/L			11/19/22 08:16	1
Sulfate (SW846 9056A)	46000	H	2500	520	mg/L			12/09/22 06:04	500
Alkalinity (SM 2320B)	880	B	10	3.1	mg/L			11/04/22 13:51	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	880		10	3.1	mg/L			11/04/22 13:51	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			11/04/22 13:51	1
Total Dissolved Solids (TDS) (SM 2540C)	63000	H	1000	470	mg/L			11/04/22 12:15	1
Total Suspended Solids (SM 2540D)	17	H	4.0	1.1	mg/L			11/04/22 12:17	1

Client Sample ID: W-5B
Date Collected: 10/27/22 13:25
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C (SW846 9040B)	7.3	HF	0.1	0.1	SU			11/09/22 17:10	1
Temperature (SW846 9040B)	22.0	HF	1.0	1.0	Degrees C			11/09/22 17:10	1
Chloride (SW846 9056A)	98		3.0	1.0	mg/L			11/19/22 08:33	1
Fluoride (SW846 9056A)	0.37	J	0.50	0.17	mg/L			11/19/22 08:33	1
Sulfate (SW846 9056A)	3400	H	250	52	mg/L			12/09/22 06:12	50
Alkalinity (SM 2320B)	190	B	10	3.1	mg/L			11/04/22 13:58	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	190		10	3.1	mg/L			11/04/22 13:58	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			11/04/22 13:58	1
Total Dissolved Solids (TDS) (SM 2540C)	4600	H	40	19	mg/L			11/04/22 12:15	1
Total Suspended Solids (SM 2540D)	2.4	J H	4.0	1.1	mg/L			11/04/22 12:17	1

Client Sample ID: W-6B1
Date Collected: 10/27/22 18:55
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C (SW846 9040B)	6.8	HF	0.1	0.1	SU			11/09/22 17:13	1
Temperature (SW846 9040B)	22.2	HF	1.0	1.0	Degrees C			11/09/22 17:13	1
Chloride (SW846 9056A)	1200	H	150	51	mg/L			12/09/22 06:28	50
Fluoride (SW846 9056A)	ND	H	0.50	0.17	mg/L			12/09/22 06:20	1
Sulfate (SW846 9056A)	50000	H	2500	520	mg/L			12/09/22 06:36	500
Alkalinity (SM 2320B)	880	B	10	3.1	mg/L			11/04/22 14:09	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	880		10	3.1	mg/L			11/04/22 14:09	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

General Chemistry (Continued)

Client Sample ID: W-6B1
Date Collected: 10/27/22 18:55
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			11/04/22 14:09	1
Total Dissolved Solids (TDS) (SM 2540C)	62000	H	1000	470	mg/L			11/04/22 12:15	1
Total Suspended Solids (SM 2540D)	27	H	4.0	1.1	mg/L			11/04/22 12:17	1

Client Sample ID: W-7
Date Collected: 10/28/22 16:40
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C (SW846 9040B)	6.9	HF	0.1	0.1	SU			11/09/22 17:17	1
Temperature (SW846 9040B)	22.5	HF	1.0	1.0	Degrees C			11/09/22 17:17	1
Chloride (SW846 9056A)	710		30	10	mg/L			11/19/22 09:31	10
Fluoride (SW846 9056A)	ND	H	0.50	0.17	mg/L			12/03/22 13:30	1
Sulfate (SW846 9056A)	50000	H	5000	1000	mg/L			12/09/22 06:44	1000
Alkalinity (SM 2320B)	1000	B	10	3.1	mg/L			11/04/22 14:21	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	1000		10	3.1	mg/L			11/04/22 14:21	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			11/04/22 14:21	1
Total Dissolved Solids (TDS) (SM 2540C)	61000		1000	470	mg/L			11/04/22 12:15	1
Total Suspended Solids (SM 2540D)	9.6		4.0	1.1	mg/L			11/04/22 12:17	1

Client Sample ID: W-9
Date Collected: 10/29/22 13:50
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C (SW846 9040B)	7.4	HF	0.1	0.1	SU			11/09/22 17:21	1
Temperature (SW846 9040B)	23.0	HF	1.0	1.0	Degrees C			11/09/22 17:21	1
Chloride (SW846 9056A)	370		30	10	mg/L			11/19/22 09:48	10
Fluoride (SW846 9056A)	0.38	J H	0.50	0.17	mg/L			12/03/22 14:04	1
Sulfate (SW846 9056A)	13000	H	1000	210	mg/L			12/03/22 14:21	200
Alkalinity (SM 2320B)	660	B	10	3.1	mg/L			11/04/22 14:32	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	660		10	3.1	mg/L			11/04/22 14:32	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			11/04/22 14:32	1
Total Dissolved Solids (TDS) (SM 2540C)	13000		1000	470	mg/L			11/04/22 12:15	1
Total Suspended Solids (SM 2540D)	5.2		4.0	1.1	mg/L			11/04/22 12:17	1

Client Sample ID: W-10B
Date Collected: 10/28/22 19:00
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C (SW846 9040B)	7.1	HF	0.1	0.1	SU			11/09/22 17:24	1
Temperature (SW846 9040B)	23.3	HF	1.0	1.0	Degrees C			11/09/22 17:24	1
Chloride (SW846 9056A)	1200	H	150	51	mg/L			12/03/22 15:29	50
Fluoride (SW846 9056A)	ND	H	0.50	0.17	mg/L			12/03/22 15:12	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

General Chemistry (Continued)

Client Sample ID: W-10B
Date Collected: 10/28/22 19:00
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate (SW846 9056A)	59000	H	5000	1000	mg/L			12/09/22 07:07	1000
Alkalinity (SM 2320B)	1000	B	10	3.1	mg/L			11/04/22 14:44	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	1000		10	3.1	mg/L			11/04/22 14:44	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			11/04/22 14:44	1
Total Dissolved Solids (TDS) (SM 2540C)	78000		1000	470	mg/L			11/04/22 12:15	1
Total Suspended Solids (SM 2540D)	17		4.0	1.1	mg/L			11/04/22 12:17	1

Client Sample ID: W-11
Date Collected: 10/29/22 12:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C (SW846 9040B)	7.2	HF	0.1	0.1	SU			11/09/22 17:36	1
Temperature (SW846 9040B)	22.7	HF	1.0	1.0	Degrees C			11/09/22 17:36	1
Chloride (SW846 9056A)	2.9	J	3.0	1.0	mg/L			11/19/22 10:13	1
Fluoride (SW846 9056A)	0.35	J H	0.50	0.17	mg/L			12/03/22 16:03	1
Sulfate (SW846 9056A)	14000	H	2500	520	mg/L			12/09/22 07:15	500
Alkalinity (SM 2320B)	1100	B	10	3.1	mg/L			11/04/22 14:56	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	1100		10	3.1	mg/L			11/04/22 14:56	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			11/04/22 14:56	1
Total Dissolved Solids (TDS) (SM 2540C)	18000		1000	470	mg/L			11/04/22 12:15	1
Total Suspended Solids (SM 2540D)	39		4.0	1.1	mg/L			11/04/22 12:17	1

Client Sample ID: W-12
Date Collected: 10/29/22 10:45
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C (SW846 9040B)	7.1	HF	0.1	0.1	SU			11/09/22 17:39	1
Temperature (SW846 9040B)	22.6	HF	1.0	1.0	Degrees C			11/09/22 17:39	1
Chloride (SW846 9056A)	970	H	300	100	mg/L			12/03/22 17:11	100
Fluoride (SW846 9056A)	0.18	J H	0.50	0.17	mg/L			12/03/22 16:37	1
Sulfate (SW846 9056A)	18000	H	2500	520	mg/L			12/09/22 08:59	500
Alkalinity (SM 2320B)	1400	B	10	3.1	mg/L			11/04/22 15:11	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	1400		10	3.1	mg/L			11/04/22 15:11	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			11/04/22 15:11	1
Total Dissolved Solids (TDS) (SM 2540C)	25000		1000	470	mg/L			11/04/22 12:15	1
Total Suspended Solids (SM 2540D)	9.2		4.0	1.1	mg/L			11/04/22 12:17	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

General Chemistry

Client Sample ID: W-10BEB
Date Collected: 10/28/22 19:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-10
Matrix: Ground Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C (SW846 9040B)	7.4	HF	0.1	0.1	SU			11/14/22 17:07	1
Temperature (SW846 9040B)	23.3	HF	1.0	1.0	Degrees C			11/14/22 17:07	1
Chloride (SW846 9056A)	ND	F1	3.0	1.0	mg/L			11/19/22 10:46	1
Fluoride (SW846 9056A)	ND	H	0.50	0.17	mg/L			12/03/22 17:28	1
Sulfate (SW846 9056A)	3.3	J F1	5.0	1.0	mg/L			11/19/22 10:46	1
Alkalinity (SM 2320B)	3.4	J B	10	3.1	mg/L			11/04/22 15:18	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	3.4	J	10	3.1	mg/L			11/04/22 15:18	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			11/04/22 15:18	1
Total Dissolved Solids (TDS) (SM 2540C)	ND		10	4.7	mg/L			11/04/22 12:15	1
Total Suspended Solids (SM 2540D)	1.6	J	4.0	1.1	mg/L			11/04/22 12:17	1

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-592625/1-A

Matrix: Water

Analysis Batch: 593456

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 592625

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.0015	mg/L		11/13/22 17:20	11/14/22 14:53	1
Lithium	ND		0.020	0.0091	mg/L		11/13/22 17:20	11/14/22 14:53	1

Lab Sample ID: LCS 280-592625/2-A

Matrix: Water

Analysis Batch: 593456

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 592625

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	2.03		mg/L		102	86 - 110
Lithium	1.00	1.02		mg/L		102	90 - 112

Lab Sample ID: 280-168613-1 MS

Matrix: Water

Analysis Batch: 593456

Client Sample ID: W-2C

Prep Type: Total Recoverable

Prep Batch: 592625

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	1.9		2.00	4.01		mg/L		107	87 - 113
Lithium	2.9	F1	1.00	4.09	F1	mg/L		116	89 - 114

Lab Sample ID: 280-168613-1 MSD

Matrix: Water

Analysis Batch: 593456

Client Sample ID: W-2C

Prep Type: Total Recoverable

Prep Batch: 592625

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	1.9		2.00	3.98		mg/L		106	87 - 113	1	20
Lithium	2.9	F1	1.00	4.08	F1	mg/L		115	89 - 114	0	20

Lab Sample ID: MB 280-592771/1-C

Matrix: Water

Analysis Batch: 593129

Client Sample ID: Method Blank

Prep Type: Dissolved

Prep Batch: 592873

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.0015	mg/L		11/10/22 09:07	11/11/22 03:53	1
Lithium	ND		0.020	0.0091	mg/L		11/10/22 09:07	11/11/22 03:53	1

Lab Sample ID: LCS 280-592771/2-C

Matrix: Water

Analysis Batch: 593129

Client Sample ID: Lab Control Sample

Prep Type: Dissolved

Prep Batch: 592873

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	2.05		mg/L		102	86 - 110
Lithium	2.00	1.96		mg/L		98	90 - 112

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-592417/1-A

Matrix: Water

Analysis Batch: 592687

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 592417

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		11/04/22 14:50	11/07/22 16:30	1
Arsenic	ND		0.0050	0.00033	mg/L		11/04/22 14:50	11/07/22 16:30	1
Barium	ND	^6+	0.0010	0.00029	mg/L		11/04/22 14:50	11/07/22 16:30	1
Beryllium	ND		0.0010	0.000080	mg/L		11/04/22 14:50	11/07/22 16:30	1
Cadmium	ND		0.0010	0.00027	mg/L		11/04/22 14:50	11/07/22 16:30	1
Chromium	ND		0.0020	0.00050	mg/L		11/04/22 14:50	11/07/22 16:30	1
Cobalt	ND		0.0010	0.000092	mg/L		11/04/22 14:50	11/07/22 16:30	1
Lead	ND		0.0010	0.00018	mg/L		11/04/22 14:50	11/07/22 16:30	1
Molybdenum	ND		0.0020	0.00014	mg/L		11/04/22 14:50	11/07/22 16:30	1
Selenium	ND		0.0050	0.00037	mg/L		11/04/22 14:50	11/07/22 16:30	1
Thallium	ND		0.0010	0.000089	mg/L		11/04/22 14:50	11/07/22 16:30	1

Lab Sample ID: MB 280-592417/1-A

Matrix: Water

Analysis Batch: 592825

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 592417

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	0.0781	J	0.20	0.038	mg/L		11/04/22 14:50	11/08/22 14:40	1

Lab Sample ID: LCS 280-592417/2-A

Matrix: Water

Analysis Batch: 592687

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 592417

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0409		mg/L		102	85 - 115
Arsenic	0.0400	0.0395		mg/L		99	85 - 117
Barium	0.0400	0.0400	^6+	mg/L		100	85 - 118
Beryllium	0.0400	0.0397		mg/L		99	80 - 125
Cadmium	0.0400	0.0399		mg/L		100	85 - 115
Chromium	0.0400	0.0397		mg/L		99	84 - 121
Cobalt	0.0400	0.0392		mg/L		98	85 - 120
Lead	0.0400	0.0401		mg/L		100	85 - 118
Molybdenum	0.0400	0.0399		mg/L		100	85 - 119
Selenium	0.0400	0.0392		mg/L		98	77 - 122
Thallium	0.0400	0.0396		mg/L		99	85 - 118

Lab Sample ID: LCS 280-592417/2-A

Matrix: Water

Analysis Batch: 592825

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 592417

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	0.800	0.917		mg/L		115	80 - 120

Lab Sample ID: MB 280-592586/1-A

Matrix: Water

Analysis Batch: 592825

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 592586

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		11/07/22 14:42	11/08/22 16:14	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

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

Lab Sample ID: MB 280-592586/1-A
Matrix: Water
Analysis Batch: 592825

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 592586

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	ND		0.050	0.021	mg/L		11/07/22 14:42	11/08/22 16:14	1
Arsenic	ND		0.0050	0.00033	mg/L		11/07/22 14:42	11/08/22 16:14	1
Sodium	ND		0.15	0.065	mg/L		11/07/22 14:42	11/08/22 16:14	1
Barium	ND		0.0010	0.00029	mg/L		11/07/22 14:42	11/08/22 16:14	1
Potassium	ND		0.12	0.052	mg/L		11/07/22 14:42	11/08/22 16:14	1
Beryllium	ND		0.0010	0.000080	mg/L		11/07/22 14:42	11/08/22 16:14	1
Cadmium	ND		0.0010	0.00027	mg/L		11/07/22 14:42	11/08/22 16:14	1
Chromium	ND		0.0020	0.00050	mg/L		11/07/22 14:42	11/08/22 16:14	1
Cobalt	ND		0.0010	0.000092	mg/L		11/07/22 14:42	11/08/22 16:14	1
Lead	ND		0.0010	0.00018	mg/L		11/07/22 14:42	11/08/22 16:14	1
Molybdenum	ND		0.0020	0.00014	mg/L		11/07/22 14:42	11/08/22 16:14	1
Selenium	ND		0.0050	0.00037	mg/L		11/07/22 14:42	11/08/22 16:14	1
Calcium	ND		0.20	0.038	mg/L		11/07/22 14:42	11/08/22 16:14	1
Thallium	ND		0.0010	0.000089	mg/L		11/07/22 14:42	11/08/22 16:14	1

Lab Sample ID: LCS 280-592586/2-A
Matrix: Water
Analysis Batch: 592825

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 592586

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0407		mg/L		102	85 - 115
Magnesium	0.800	0.787		mg/L		98	80 - 120
Arsenic	0.0400	0.0399		mg/L		100	85 - 117
Sodium	0.800	0.796		mg/L		99	80 - 120
Barium	0.0400	0.0399		mg/L		100	85 - 118
Potassium	0.800	0.786		mg/L		98	80 - 120
Beryllium	0.0400	0.0390		mg/L		97	80 - 125
Cadmium	0.0400	0.0400		mg/L		100	85 - 115
Chromium	0.0400	0.0404		mg/L		101	84 - 121
Cobalt	0.0400	0.0392		mg/L		98	85 - 120
Lead	0.0400	0.0393		mg/L		98	85 - 118
Molybdenum	0.0400	0.0392		mg/L		98	85 - 119
Selenium	0.0400	0.0394		mg/L		99	77 - 122
Calcium	0.800	0.807		mg/L		101	80 - 120
Thallium	0.0400	0.0390		mg/L		98	85 - 118

Lab Sample ID: MB 280-592771/1-D
Matrix: Water
Analysis Batch: 593209

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 592880

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		11/10/22 07:50	11/11/22 11:01	1
Arsenic	ND		0.0050	0.00033	mg/L		11/10/22 07:50	11/11/22 11:01	1
Barium	ND		0.0010	0.00029	mg/L		11/10/22 07:50	11/11/22 11:01	1
Beryllium	ND		0.0010	0.000080	mg/L		11/10/22 07:50	11/11/22 11:01	1
Cadmium	ND		0.0010	0.00027	mg/L		11/10/22 07:50	11/11/22 11:01	1
Chromium	ND		0.0020	0.00050	mg/L		11/10/22 07:50	11/11/22 11:01	1
Cobalt	ND		0.0010	0.000092	mg/L		11/10/22 07:50	11/11/22 11:01	1
Lead	ND		0.0010	0.00018	mg/L		11/10/22 07:50	11/11/22 11:01	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

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

Lab Sample ID: MB 280-592771/1-D

Matrix: Water

Analysis Batch: 593209

Client Sample ID: Method Blank

Prep Type: Dissolved

Prep Batch: 592880

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	ND		0.0020	0.00014	mg/L		11/10/22 07:50	11/11/22 11:01	1
Selenium	ND		0.0050	0.00037	mg/L		11/10/22 07:50	11/11/22 11:01	1
Calcium	ND		0.20	0.038	mg/L		11/10/22 07:50	11/11/22 11:01	1
Thallium	ND		0.0010	0.000089	mg/L		11/10/22 07:50	11/11/22 11:01	1

Lab Sample ID: LCS 280-592771/2-D

Matrix: Water

Analysis Batch: 593209

Client Sample ID: Lab Control Sample

Prep Type: Dissolved

Prep Batch: 592880

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0395		mg/L		99	85 - 115
Arsenic	0.0400	0.0384		mg/L		96	85 - 117
Barium	0.0400	0.0393		mg/L		98	85 - 118
Beryllium	0.0400	0.0414		mg/L		103	80 - 125
Cadmium	0.0400	0.0397		mg/L		99	85 - 115
Chromium	0.0400	0.0385		mg/L		96	84 - 121
Cobalt	0.0400	0.0385		mg/L		96	85 - 120
Lead	0.0400	0.0386		mg/L		97	85 - 118
Molybdenum	0.0400	0.0393		mg/L		98	85 - 119
Selenium	0.0400	0.0385		mg/L		96	77 - 122
Calcium	0.800	0.853		mg/L		107	80 - 120
Thallium	0.0400	0.0383		mg/L		96	85 - 118

Lab Sample ID: 280-168613-8 MS

Matrix: Water

Analysis Batch: 593209

Client Sample ID: W-11

Prep Type: Dissolved

Prep Batch: 592880

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	450		0.800	430	4	mg/L		-2850	80 - 120

Lab Sample ID: 280-168613-8 MS

Matrix: Water

Analysis Batch: 593310

Client Sample ID: W-11

Prep Type: Dissolved

Prep Batch: 592880

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	ND		0.0400	0.0399		mg/L		100	80 - 111
Arsenic	0.00038	J ^+ F1	0.0400	0.0462	^+ F1	mg/L		115	92 - 112
Barium	0.012		0.0400	0.0532		mg/L		102	92 - 117
Beryllium	ND	^+ F1	0.0400	0.0484	^+ F1	mg/L		121	87 - 118
Cadmium	0.0013	F1	0.0400	0.0360	F1	mg/L		87	91 - 114
Chromium	0.0010	J	0.0400	0.0455		mg/L		111	91 - 114
Cobalt	0.020	F1	0.0400	0.0636		mg/L		109	94 - 115
Lead	ND	F1	0.0400	0.0370	F1	mg/L		92	95 - 116
Molybdenum	0.0036	B	0.0400	0.0433		mg/L		99	84 - 117
Selenium	2.9		0.0400	2.89	4	mg/L		25	90 - 115
Thallium	0.0038	F1	0.0400	0.0400	F1	mg/L		91	94 - 115

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

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

Lab Sample ID: 280-168613-8 MSD

Matrix: Water

Analysis Batch: 593209

Client Sample ID: W-11

Prep Type: Dissolved

Prep Batch: 592880

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	450		0.800	419	4	mg/L		-4279	80 - 120	3	20

Lab Sample ID: 280-168613-8 MSD

Matrix: Water

Analysis Batch: 593310

Client Sample ID: W-11

Prep Type: Dissolved

Prep Batch: 592880

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	ND		0.0400	0.0408		mg/L		102	80 - 111	2	20
Arsenic	0.00038	J ^+ F1	0.0400	0.0464	^+ F1	mg/L		115	92 - 112	0	20
Barium	0.012		0.0400	0.0518		mg/L		98	92 - 117	3	20
Beryllium	ND	^+ F1	0.0400	0.0476	^+ F1	mg/L		119	87 - 118	2	20
Cadmium	0.0013	F1	0.0400	0.0375	F1	mg/L		90	91 - 114	4	20
Chromium	0.0010	J	0.0400	0.0453		mg/L		111	91 - 114	1	20
Cobalt	0.020	F1	0.0400	0.0631		mg/L		108	94 - 115	1	20
Lead	ND	F1	0.0400	0.0363	F1	mg/L		91	95 - 116	2	20
Molybdenum	0.0036	B	0.0400	0.0431		mg/L		99	84 - 117	1	20
Selenium	2.9		0.0400	2.92	4	mg/L		97	90 - 115	1	20
Thallium	0.0038	F1	0.0400	0.0396	F1	mg/L		90	94 - 115	1	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-592402/1-A

Matrix: Water

Analysis Batch: 592836

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 592402

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		11/04/22 10:59	11/08/22 19:08	1

Lab Sample ID: LCS 280-592402/2-A

Matrix: Water

Analysis Batch: 592836

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 592402

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00503		mg/L		101	84 - 120

Lab Sample ID: MB 280-593167/1-A

Matrix: Water

Analysis Batch: 593325

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 593167

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		11/11/22 13:27	11/11/22 18:58	1

Lab Sample ID: LCS 280-593167/2-A

Matrix: Water

Analysis Batch: 593325

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 593167

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00488		mg/L		98	84 - 120

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

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

Lab Sample ID: MB 280-592771/1-F
Matrix: Water
Analysis Batch: 593845

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 593528

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		11/15/22 16:50	11/16/22 15:20	1

Lab Sample ID: LCS 280-592771/2-F
Matrix: Water
Analysis Batch: 593845

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 593528

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00515		mg/L		103	84 - 120

Lab Sample ID: 280-168613-7 MS
Matrix: Water
Analysis Batch: 593845

Client Sample ID: W-10B
Prep Type: Dissolved
Prep Batch: 593528

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		0.00500	0.00451		mg/L		90	75 - 125

Lab Sample ID: 280-168613-7 MSD
Matrix: Water
Analysis Batch: 593845

Client Sample ID: W-10B
Prep Type: Dissolved
Prep Batch: 593528

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		0.00500	0.00459		mg/L		92	75 - 125	2	20

Method: 9040B - pH

Lab Sample ID: LCS 280-592975/50
Matrix: Water
Analysis Batch: 592975

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH adj. to 25 deg C	7.00	7.1		SU		101	99 - 101

Lab Sample ID: LCS 280-593471/27
Matrix: Water
Analysis Batch: 593471

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH adj. to 25 deg C	7.00	7.1		SU		101	99 - 101

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-593895/47
Matrix: Water
Analysis Batch: 593895

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			11/19/22 01:21	1
Sulfate	ND		5.0	1.0	mg/L			11/19/22 01:21	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

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

Lab Sample ID: MB 280-593895/6

Matrix: Water

Analysis Batch: 593895

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND	^	3.0	1.0	mg/L			11/18/22 19:41	1
Fluoride	ND	^	0.50	0.17	mg/L			11/18/22 19:41	1
Sulfate	ND	^	5.0	1.0	mg/L			11/18/22 19:41	1

Lab Sample ID: MB 280-593895/94

Matrix: Water

Analysis Batch: 593895

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			11/19/22 07:51	1
Fluoride	ND		0.50	0.17	mg/L			11/19/22 07:51	1
Sulfate	ND		5.0	1.0	mg/L			11/19/22 07:51	1

Lab Sample ID: LCS 280-593895/92

Matrix: Water

Analysis Batch: 593895

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	46.3		mg/L		93	90 - 110
Fluoride	2.50	2.42		mg/L		97	90 - 110
Sulfate	50.0	47.1		mg/L		94	90 - 110

Lab Sample ID: LCSD 280-593895/93

Matrix: Water

Analysis Batch: 593895

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	46.2		mg/L		92	90 - 110	0	10
Fluoride	2.50	2.42		mg/L		97	90 - 110	0	10
Sulfate	50.0	46.9		mg/L		94	90 - 110	0	10

Lab Sample ID: MRL 280-593895/3

Matrix: Water

Analysis Batch: 593895

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	2.50	2.55	J	mg/L		102	50 - 150
Fluoride	0.250	0.293	J	mg/L		117	50 - 150
Sulfate	2.50	2.27	J	mg/L		91	50 - 150

Lab Sample ID: 280-168613-10 MS

Matrix: Ground Water

Analysis Batch: 593895

Client Sample ID: W-10BEB

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	ND	F1	25.0	8.47	F1	mg/L		34	80 - 120
Sulfate	3.3	J F1	25.0	75.3	F1	mg/L		288	80 - 120

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

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

Lab Sample ID: 280-168613-10 MSD

Matrix: Ground Water

Analysis Batch: 593895

Client Sample ID: W-10BEB

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	ND	F1	25.0	8.47	F1	mg/L		34	80 - 120	0	20
Sulfate	3.3	J F1	25.0	75.8	F1	mg/L		290	80 - 120	1	20

Lab Sample ID: 280-168613-10 DU

Matrix: Ground Water

Analysis Batch: 593895

Client Sample ID: W-10BEB

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	ND	F1	ND		mg/L		NC	15
Sulfate	3.3	J F1	3.07	J	mg/L		8	15

Lab Sample ID: MB 280-595327/52

Matrix: Water

Analysis Batch: 595327

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			12/03/22 07:32	1
Fluoride	ND		0.50	0.17	mg/L			12/03/22 07:32	1
Sulfate	ND		5.0	1.0	mg/L			12/03/22 07:32	1

Lab Sample ID: LCS 280-595327/50

Matrix: Water

Analysis Batch: 595327

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	53.5		mg/L		107	90 - 110
Fluoride	2.50	2.35		mg/L		94	90 - 110
Sulfate	50.0	53.8		mg/L		108	90 - 110

Lab Sample ID: LCSD 280-595327/51

Matrix: Water

Analysis Batch: 595327

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	53.4		mg/L		107	90 - 110	0	10
Fluoride	2.50	2.44		mg/L		98	90 - 110	4	10
Sulfate	50.0	53.6		mg/L		107	90 - 110	0	10

Lab Sample ID: MRL 280-595327/3

Matrix: Water

Analysis Batch: 595327

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	2.50	2.46	J	mg/L		98	50 - 150
Fluoride	0.250	0.212	J	mg/L		85	50 - 150
Sulfate	2.50	2.22	J	mg/L		89	50 - 150

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

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

Lab Sample ID: 280-168613-10 MS

Matrix: Ground Water

Analysis Batch: 595327

Client Sample ID: W-10BEB

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	ND	H	5.00	4.58		mg/L		92	80 - 120

Lab Sample ID: 280-168613-10 MSD

Matrix: Ground Water

Analysis Batch: 595327

Client Sample ID: W-10BEB

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Fluoride	ND	H	5.00	4.94		mg/L		99	80 - 120	7	20

Lab Sample ID: 280-168613-10 DU

Matrix: Ground Water

Analysis Batch: 595327

Client Sample ID: W-10BEB

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Fluoride	ND	H	ND		mg/L		NC	15

Lab Sample ID: MB 280-596092/50

Matrix: Water

Analysis Batch: 596092

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			12/09/22 01:42	1
Fluoride	ND		0.50	0.17	mg/L			12/09/22 01:42	1
Sulfate	ND		5.0	1.0	mg/L			12/09/22 01:42	1

Lab Sample ID: MB 280-596092/98

Matrix: Water

Analysis Batch: 596092

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			12/09/22 08:03	1
Fluoride	ND		0.50	0.17	mg/L			12/09/22 08:03	1
Sulfate	ND		5.0	1.0	mg/L			12/09/22 08:03	1

Lab Sample ID: LCS 280-596092/48

Matrix: Water

Analysis Batch: 596092

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	49.6		mg/L		99	90 - 110
Fluoride	2.50	2.40		mg/L		96	90 - 110
Sulfate	50.0	49.6		mg/L		99	90 - 110

Lab Sample ID: LCS 280-596092/96

Matrix: Water

Analysis Batch: 596092

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	50.3		mg/L		101	90 - 110
Fluoride	2.50	2.54		mg/L		101	90 - 110

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

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

Lab Sample ID: LCS 280-596092/96

Matrix: Water

Analysis Batch: 596092

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	50.0	50.2		mg/L		100	90 - 110

Lab Sample ID: LCSD 280-596092/49

Matrix: Water

Analysis Batch: 596092

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	49.6		mg/L		99	90 - 110	0	10
Fluoride	2.50	2.41		mg/L		96	90 - 110	0	10
Sulfate	50.0	49.5		mg/L		99	90 - 110	0	10

Lab Sample ID: LCSD 280-596092/97

Matrix: Water

Analysis Batch: 596092

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	50.3		mg/L		101	90 - 110	0	10
Fluoride	2.50	2.52		mg/L		101	90 - 110	1	10
Sulfate	50.0	50.0		mg/L		100	90 - 110	1	10

Lab Sample ID: MRL 280-596092/3

Matrix: Water

Analysis Batch: 596092

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	2.50	2.38	J	mg/L		95	50 - 150
Fluoride	0.250	0.235	J	mg/L		94	50 - 150
Sulfate	2.50	2.47	J	mg/L		99	50 - 150

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-592471/6

Matrix: Water

Analysis Batch: 592471

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	3.30	J	10	3.1	mg/L			11/04/22 11:32	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			11/04/22 11:32	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			11/04/22 11:32	1

Lab Sample ID: LCS 280-592471/4

Matrix: Water

Analysis Batch: 592471

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	200	195		mg/L		98	89 - 109

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: LCSD 280-592471/5

Matrix: Water

Analysis Batch: 592471

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Alkalinity	200	200		mg/L		100	89 - 109	2	10

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

Lab Sample ID: MB 280-592428/1

Matrix: Water

Analysis Batch: 592428

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 (TDS)	ND		10	4.7	mg/L			11/04/22 12:15	1

Lab Sample ID: LCS 280-592428/2

Matrix: Water

Analysis Batch: 592428

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 (TDS)	501	470		mg/L		94	88 - 114		

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 280-592430/2

Matrix: Water

Analysis Batch: 592430

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			11/04/22 12:17	1

Lab Sample ID: LCS 280-592430/1

Matrix: Water

Analysis Batch: 592430

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Suspended Solids	501	452		mg/L		90	79 - 114		

Lab Sample ID: 280-168613-1 DU

Matrix: Water

Analysis Batch: 592430

Client Sample ID: W-2C

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	4.0	H	4.40		mg/L		10	10

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

Metals

Prep Batch: 592402

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168613-1	W-2C	Total/NA	Water	7470A	
280-168613-2	W-3B	Total/NA	Water	7470A	
280-168613-3	W-5B	Total/NA	Water	7470A	
280-168613-4	W-6B1	Total/NA	Water	7470A	
280-168613-5	W-7	Total/NA	Water	7470A	
280-168613-6	W-9	Total/NA	Water	7470A	
280-168613-7	W-10B	Total/NA	Water	7470A	
280-168613-8	W-11	Total/NA	Water	7470A	
MB 280-592402/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-592402/2-A	Lab Control Sample	Total/NA	Water	7470A	

Prep Batch: 592417

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168613-1	W-2C	Total Recoverable	Water	3005A	
280-168613-2	W-3B	Total Recoverable	Water	3005A	
280-168613-3	W-5B	Total Recoverable	Water	3005A	
280-168613-4	W-6B1	Total Recoverable	Water	3005A	
280-168613-5	W-7	Total Recoverable	Water	3005A	
280-168613-6	W-9	Total Recoverable	Water	3005A	
280-168613-7	W-10B	Total Recoverable	Water	3005A	
280-168613-8	W-11	Total Recoverable	Water	3005A	
280-168613-10	W-10BEB	Total Recoverable	Ground Water	3005A	
MB 280-592417/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-592417/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 592586

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168613-1	W-2C	Total Recoverable	Water	3005A	
280-168613-2	W-3B	Total Recoverable	Water	3005A	
280-168613-3	W-5B	Total Recoverable	Water	3005A	
280-168613-4	W-6B1	Total Recoverable	Water	3005A	
280-168613-5	W-7	Total Recoverable	Water	3005A	
280-168613-6	W-9	Total Recoverable	Water	3005A	
280-168613-7	W-10B	Total Recoverable	Water	3005A	
280-168613-8	W-11	Total Recoverable	Water	3005A	
280-168613-9	W-12	Total Recoverable	Water	3005A	
280-168613-10	W-10BEB	Total Recoverable	Ground Water	3005A	
MB 280-592586/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-592586/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 592625

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168613-1	W-2C	Total Recoverable	Water	3005A	
280-168613-2	W-3B	Total Recoverable	Water	3005A	
280-168613-3	W-5B	Total Recoverable	Water	3005A	
280-168613-4	W-6B1	Total Recoverable	Water	3005A	
280-168613-5	W-7	Total Recoverable	Water	3005A	
280-168613-6	W-9	Total Recoverable	Water	3005A	
280-168613-7	W-10B	Total Recoverable	Water	3005A	
280-168613-8	W-11	Total Recoverable	Water	3005A	
280-168613-9	W-12	Total Recoverable	Water	3005A	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

Metals (Continued)

Prep Batch: 592625 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168613-10	W-10BEB	Total Recoverable	Ground Water	3005A	
MB 280-592625/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-592625/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-168613-1 MS	W-2C	Total Recoverable	Water	3005A	
280-168613-1 MSD	W-2C	Total Recoverable	Water	3005A	

Analysis Batch: 592687

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168613-1	W-2C	Total Recoverable	Water	6020B	592417
280-168613-2	W-3B	Total Recoverable	Water	6020B	592417
280-168613-3	W-5B	Total Recoverable	Water	6020B	592417
280-168613-7	W-10B	Total Recoverable	Water	6020B	592417
280-168613-10	W-10BEB	Total Recoverable	Ground Water	6020B	592417
MB 280-592417/1-A	Method Blank	Total Recoverable	Water	6020B	592417
LCS 280-592417/2-A	Lab Control Sample	Total Recoverable	Water	6020B	592417

Filtration Batch: 592771

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168613-7	W-10B	Dissolved	Water	FILTRATION	
280-168613-8	W-11	Dissolved	Water	FILTRATION	
MB 280-592771/1-C	Method Blank	Dissolved	Water	FILTRATION	
MB 280-592771/1-D	Method Blank	Dissolved	Water	FILTRATION	
MB 280-592771/1-F	Method Blank	Dissolved	Water	FILTRATION	
LCS 280-592771/2-C	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 280-592771/2-D	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 280-592771/2-F	Lab Control Sample	Dissolved	Water	FILTRATION	
280-168613-7 MS	W-10B	Dissolved	Water	FILTRATION	
280-168613-7 MSD	W-10B	Dissolved	Water	FILTRATION	
280-168613-8 MS	W-11	Dissolved	Water	FILTRATION	
280-168613-8 MSD	W-11	Dissolved	Water	FILTRATION	

Analysis Batch: 592825

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168613-1	W-2C	Total Recoverable	Water	6020B	592417
280-168613-1	W-2C	Total Recoverable	Water	6020B	592586
280-168613-1	W-2C	Total Recoverable	Water	6020B	592417
280-168613-2	W-3B	Total Recoverable	Water	6020B	592417
280-168613-2	W-3B	Total Recoverable	Water	6020B	592586
280-168613-2	W-3B	Total Recoverable	Water	6020B	592417
280-168613-3	W-5B	Total Recoverable	Water	6020B	592417
280-168613-3	W-5B	Total Recoverable	Water	6020B	592586
280-168613-3	W-5B	Total Recoverable	Water	6020B	592417
280-168613-4	W-6B1	Total Recoverable	Water	6020B	592417
280-168613-4	W-6B1	Total Recoverable	Water	6020B	592586
280-168613-4	W-6B1	Total Recoverable	Water	6020B	592417
280-168613-5	W-7	Total Recoverable	Water	6020B	592417
280-168613-5	W-7	Total Recoverable	Water	6020B	592586
280-168613-5	W-7	Total Recoverable	Water	6020B	592417
280-168613-6	W-9	Total Recoverable	Water	6020B	592417
280-168613-6	W-9	Total Recoverable	Water	6020B	592586
280-168613-6	W-9	Total Recoverable	Water	6020B	592417

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

Metals (Continued)

Analysis Batch: 592825 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168613-7	W-10B	Total Recoverable	Water	6020B	592417
280-168613-7	W-10B	Total Recoverable	Water	6020B	592586
280-168613-7	W-10B	Total Recoverable	Water	6020B	592417
280-168613-8	W-11	Total Recoverable	Water	6020B	592417
280-168613-8	W-11	Total Recoverable	Water	6020B	592586
280-168613-8	W-11	Total Recoverable	Water	6020B	592417
280-168613-9	W-12	Total Recoverable	Water	6020B	592586
280-168613-9	W-12	Total Recoverable	Water	6020B	592586
280-168613-10	W-10BEB	Total Recoverable	Ground Water	6020B	592417
MB 280-592417/1-A	Method Blank	Total Recoverable	Water	6020B	592417
MB 280-592586/1-A	Method Blank	Total Recoverable	Water	6020B	592586
LCS 280-592417/2-A	Lab Control Sample	Total Recoverable	Water	6020B	592417
LCS 280-592586/2-A	Lab Control Sample	Total Recoverable	Water	6020B	592586

Analysis Batch: 592836

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168613-1	W-2C	Total/NA	Water	7470A	592402
280-168613-2	W-3B	Total/NA	Water	7470A	592402
280-168613-3	W-5B	Total/NA	Water	7470A	592402
280-168613-4	W-6B1	Total/NA	Water	7470A	592402
280-168613-5	W-7	Total/NA	Water	7470A	592402
280-168613-6	W-9	Total/NA	Water	7470A	592402
280-168613-7	W-10B	Total/NA	Water	7470A	592402
280-168613-8	W-11	Total/NA	Water	7470A	592402
MB 280-592402/1-A	Method Blank	Total/NA	Water	7470A	592402
LCS 280-592402/2-A	Lab Control Sample	Total/NA	Water	7470A	592402

Prep Batch: 592873

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168613-7	W-10B	Dissolved	Water	3005A	592771
280-168613-8	W-11	Dissolved	Water	3005A	592771
MB 280-592771/1-C	Method Blank	Dissolved	Water	3005A	592771
LCS 280-592771/2-C	Lab Control Sample	Dissolved	Water	3005A	592771

Prep Batch: 592880

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168613-7	W-10B	Dissolved	Water	3005A	592771
280-168613-8	W-11	Dissolved	Water	3005A	592771
MB 280-592771/1-D	Method Blank	Dissolved	Water	3005A	592771
LCS 280-592771/2-D	Lab Control Sample	Dissolved	Water	3005A	592771
280-168613-8 MS	W-11	Dissolved	Water	3005A	592771
280-168613-8 MSD	W-11	Dissolved	Water	3005A	592771

Analysis Batch: 592932

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168613-9	W-12	Total Recoverable	Water	6020B	592586
280-168613-10	W-10BEB	Total Recoverable	Ground Water	6020B	592586

Analysis Batch: 593129

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168613-7	W-10B	Dissolved	Water	6010C	592873

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

Metals (Continued)

Analysis Batch: 593129 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168613-8	W-11	Dissolved	Water	6010C	592873
MB 280-592771/1-C	Method Blank	Dissolved	Water	6010C	592873
LCS 280-592771/2-C	Lab Control Sample	Dissolved	Water	6010C	592873

Analysis Batch: 593149

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168613-10	W-10BEB	Total Recoverable	Ground Water	6020B	592417
280-168613-10	W-10BEB	Total Recoverable	Ground Water	6020B	592586

Prep Batch: 593167

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168613-9	W-12	Total/NA	Water	7470A	
280-168613-10	W-10BEB	Total/NA	Ground Water	7470A	
MB 280-593167/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-593167/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 593209

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168613-7	W-10B	Dissolved	Water	6020B	592880
280-168613-7	W-10B	Dissolved	Water	6020B	592880
280-168613-8	W-11	Dissolved	Water	6020B	592880
MB 280-592771/1-D	Method Blank	Dissolved	Water	6020B	592880
LCS 280-592771/2-D	Lab Control Sample	Dissolved	Water	6020B	592880
280-168613-8 MS	W-11	Dissolved	Water	6020B	592880
280-168613-8 MSD	W-11	Dissolved	Water	6020B	592880

Analysis Batch: 593310

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168613-8	W-11	Dissolved	Water	6020B	592880
280-168613-8 MS	W-11	Dissolved	Water	6020B	592880
280-168613-8 MSD	W-11	Dissolved	Water	6020B	592880

Analysis Batch: 593325

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168613-9	W-12	Total/NA	Water	7470A	593167
280-168613-10	W-10BEB	Total/NA	Ground Water	7470A	593167
MB 280-593167/1-A	Method Blank	Total/NA	Water	7470A	593167
LCS 280-593167/2-A	Lab Control Sample	Total/NA	Water	7470A	593167

Analysis Batch: 593456

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168613-1	W-2C	Total Recoverable	Water	6010C	592625
280-168613-2	W-3B	Total Recoverable	Water	6010C	592625
280-168613-3	W-5B	Total Recoverable	Water	6010C	592625
280-168613-4	W-6B1	Total Recoverable	Water	6010C	592625
280-168613-5	W-7	Total Recoverable	Water	6010C	592625
280-168613-6	W-9	Total Recoverable	Water	6010C	592625
280-168613-7	W-10B	Total Recoverable	Water	6010C	592625
280-168613-8	W-11	Total Recoverable	Water	6010C	592625
280-168613-9	W-12	Total Recoverable	Water	6010C	592625
280-168613-10	W-10BEB	Total Recoverable	Ground Water	6010C	592625

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

Metals (Continued)

Analysis Batch: 593456 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-592625/1-A	Method Blank	Total Recoverable	Water	6010C	592625
LCS 280-592625/2-A	Lab Control Sample	Total Recoverable	Water	6010C	592625
280-168613-1 MS	W-2C	Total Recoverable	Water	6010C	592625
280-168613-1 MSD	W-2C	Total Recoverable	Water	6010C	592625

Analysis Batch: 593472

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168613-7	W-10B	Dissolved	Water	6010C	592873

Prep Batch: 593528

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168613-7	W-10B	Dissolved	Water	7470A	592771
280-168613-8	W-11	Dissolved	Water	7470A	592771
MB 280-592771/1-F	Method Blank	Dissolved	Water	7470A	592771
LCS 280-592771/2-F	Lab Control Sample	Dissolved	Water	7470A	592771
280-168613-7 MS	W-10B	Dissolved	Water	7470A	592771
280-168613-7 MSD	W-10B	Dissolved	Water	7470A	592771

Analysis Batch: 593627

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168613-2	W-3B	Total Recoverable	Water	6010C	592625
280-168613-4	W-6B1	Total Recoverable	Water	6010C	592625
280-168613-5	W-7	Total Recoverable	Water	6010C	592625
280-168613-7	W-10B	Total Recoverable	Water	6010C	592625

Analysis Batch: 593845

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168613-7	W-10B	Dissolved	Water	7470A	593528
280-168613-8	W-11	Dissolved	Water	7470A	593528
MB 280-592771/1-F	Method Blank	Dissolved	Water	7470A	593528
LCS 280-592771/2-F	Lab Control Sample	Dissolved	Water	7470A	593528
280-168613-7 MS	W-10B	Dissolved	Water	7470A	593528
280-168613-7 MSD	W-10B	Dissolved	Water	7470A	593528

General Chemistry

Analysis Batch: 592428

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168613-1	W-2C	Total/NA	Water	SM 2540C	
280-168613-2	W-3B	Total/NA	Water	SM 2540C	
280-168613-3	W-5B	Total/NA	Water	SM 2540C	
280-168613-4	W-6B1	Total/NA	Water	SM 2540C	
280-168613-5	W-7	Total/NA	Water	SM 2540C	
280-168613-6	W-9	Total/NA	Water	SM 2540C	
280-168613-7	W-10B	Total/NA	Water	SM 2540C	
280-168613-8	W-11	Total/NA	Water	SM 2540C	
280-168613-9	W-12	Total/NA	Water	SM 2540C	
280-168613-10	W-10BEB	Total/NA	Ground Water	SM 2540C	
MB 280-592428/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-592428/2	Lab Control Sample	Total/NA	Water	SM 2540C	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

General Chemistry

Analysis Batch: 592430

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168613-1	W-2C	Total/NA	Water	SM 2540D	
280-168613-2	W-3B	Total/NA	Water	SM 2540D	
280-168613-3	W-5B	Total/NA	Water	SM 2540D	
280-168613-4	W-6B1	Total/NA	Water	SM 2540D	
280-168613-5	W-7	Total/NA	Water	SM 2540D	
280-168613-6	W-9	Total/NA	Water	SM 2540D	
280-168613-7	W-10B	Total/NA	Water	SM 2540D	
280-168613-8	W-11	Total/NA	Water	SM 2540D	
280-168613-9	W-12	Total/NA	Water	SM 2540D	
280-168613-10	W-10BEB	Total/NA	Ground Water	SM 2540D	
MB 280-592430/2	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-592430/1	Lab Control Sample	Total/NA	Water	SM 2540D	
280-168613-1 DU	W-2C	Total/NA	Water	SM 2540D	

Analysis Batch: 592471

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168613-1	W-2C	Total/NA	Water	SM 2320B	
280-168613-2	W-3B	Total/NA	Water	SM 2320B	
280-168613-3	W-5B	Total/NA	Water	SM 2320B	
280-168613-4	W-6B1	Total/NA	Water	SM 2320B	
280-168613-5	W-7	Total/NA	Water	SM 2320B	
280-168613-6	W-9	Total/NA	Water	SM 2320B	
280-168613-7	W-10B	Total/NA	Water	SM 2320B	
280-168613-8	W-11	Total/NA	Water	SM 2320B	
280-168613-9	W-12	Total/NA	Water	SM 2320B	
280-168613-10	W-10BEB	Total/NA	Ground Water	SM 2320B	
MB 280-592471/6	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-592471/4	Lab Control Sample	Total/NA	Water	SM 2320B	
LCSD 280-592471/5	Lab Control Sample Dup	Total/NA	Water	SM 2320B	

Analysis Batch: 592975

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168613-1	W-2C	Total/NA	Water	9040B	
280-168613-2	W-3B	Total/NA	Water	9040B	
280-168613-3	W-5B	Total/NA	Water	9040B	
280-168613-4	W-6B1	Total/NA	Water	9040B	
280-168613-5	W-7	Total/NA	Water	9040B	
280-168613-6	W-9	Total/NA	Water	9040B	
280-168613-7	W-10B	Total/NA	Water	9040B	
280-168613-8	W-11	Total/NA	Water	9040B	
280-168613-9	W-12	Total/NA	Water	9040B	
LCS 280-592975/50	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 593471

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168613-10	W-10BEB	Total/NA	Ground Water	9040B	
LCS 280-593471/27	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 593895

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168613-1	W-2C	Total/NA	Water	9056A	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

General Chemistry (Continued)

Analysis Batch: 593895 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168613-1	W-2C	Total/NA	Water	9056A	
280-168613-2	W-3B	Total/NA	Water	9056A	
280-168613-2	W-3B	Total/NA	Water	9056A	
280-168613-3	W-5B	Total/NA	Water	9056A	
280-168613-5	W-7	Total/NA	Water	9056A	
280-168613-6	W-9	Total/NA	Water	9056A	
280-168613-8	W-11	Total/NA	Water	9056A	
280-168613-10	W-10BEB	Total/NA	Ground Water	9056A	
MB 280-593895/47	Method Blank	Total/NA	Water	9056A	
MB 280-593895/6	Method Blank	Total/NA	Water	9056A	
MB 280-593895/94	Method Blank	Total/NA	Water	9056A	
LCS 280-593895/92	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-593895/93	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-593895/3	Lab Control Sample	Total/NA	Water	9056A	
280-168613-10 MS	W-10BEB	Total/NA	Ground Water	9056A	
280-168613-10 MSD	W-10BEB	Total/NA	Ground Water	9056A	
280-168613-10 DU	W-10BEB	Total/NA	Ground Water	9056A	

Analysis Batch: 595327

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168613-5	W-7	Total/NA	Water	9056A	
280-168613-6	W-9	Total/NA	Water	9056A	
280-168613-6	W-9	Total/NA	Water	9056A	
280-168613-7	W-10B	Total/NA	Water	9056A	
280-168613-7	W-10B	Total/NA	Water	9056A	
280-168613-8	W-11	Total/NA	Water	9056A	
280-168613-9	W-12	Total/NA	Water	9056A	
280-168613-9	W-12	Total/NA	Water	9056A	
280-168613-10	W-10BEB	Total/NA	Ground Water	9056A	
MB 280-595327/52	Method Blank	Total/NA	Water	9056A	
LCS 280-595327/50	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-595327/51	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-595327/3	Lab Control Sample	Total/NA	Water	9056A	
280-168613-10 MS	W-10BEB	Total/NA	Ground Water	9056A	
280-168613-10 MSD	W-10BEB	Total/NA	Ground Water	9056A	
280-168613-10 DU	W-10BEB	Total/NA	Ground Water	9056A	

Analysis Batch: 596092

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168613-1	W-2C	Total/NA	Water	9056A	
280-168613-2	W-3B	Total/NA	Water	9056A	
280-168613-3	W-5B	Total/NA	Water	9056A	
280-168613-4	W-6B1	Total/NA	Water	9056A	
280-168613-4	W-6B1	Total/NA	Water	9056A	
280-168613-4	W-6B1	Total/NA	Water	9056A	
280-168613-5	W-7	Total/NA	Water	9056A	
280-168613-7	W-10B	Total/NA	Water	9056A	
280-168613-8	W-11	Total/NA	Water	9056A	
280-168613-9	W-12	Total/NA	Water	9056A	
MB 280-596092/50	Method Blank	Total/NA	Water	9056A	
MB 280-596092/98	Method Blank	Total/NA	Water	9056A	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

General Chemistry (Continued)

Analysis Batch: 596092 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 280-596092/48	Lab Control Sample	Total/NA	Water	9056A	
LCS 280-596092/96	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-596092/49	Lab Control Sample Dup	Total/NA	Water	9056A	
LCSD 280-596092/97	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-596092/3	Lab Control Sample	Total/NA	Water	9056A	

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

Client Sample ID: W-2C

Date Collected: 10/27/22 13:30

Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	592625	11/13/22 17:20	MCR	EET DEN
Total Recoverable	Analysis	6010C		1			593456	11/14/22 15:13	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592417	11/04/22 14:50	MCR	EET DEN
Total Recoverable	Analysis	6020B		1			592687	11/07/22 18:38	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592417	11/04/22 14:50	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			592825	11/08/22 15:29	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592586	11/07/22 14:42	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			592825	11/08/22 16:22	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592417	11/04/22 14:50	MCR	EET DEN
Total Recoverable	Analysis	6020B		1			592825	11/08/22 20:32	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	592402	11/04/22 11:01	PFM	EET DEN
Total/NA	Analysis	7470A		1			592836	11/08/22 20:09	PFM	EET DEN
Total/NA	Analysis	9040B		1			592975	11/09/22 17:02	KEG	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	593895	11/19/22 08:00	EJS	EET DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	593895	11/19/22 08:08	EJS	EET DEN
Total/NA	Analysis	9056A		500	5 mL	5 mL	596092	12/09/22 05:56	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			592471	11/04/22 13:39	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	592428	11/04/22 12:15	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	592430	11/04/22 12:17	ASP	EET DEN

Client Sample ID: W-3B

Date Collected: 10/27/22 11:00

Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	592625	11/13/22 17:20	MCR	EET DEN
Total Recoverable	Analysis	6010C		1			593456	11/14/22 15:49	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592625	11/13/22 17:20	MCR	EET DEN
Total Recoverable	Analysis	6010C		2			593627	11/15/22 20:39	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592417	11/04/22 14:50	MCR	EET DEN
Total Recoverable	Analysis	6020B		1			592687	11/07/22 18:42	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592417	11/04/22 14:50	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			592825	11/08/22 15:33	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592586	11/07/22 14:42	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			592825	11/08/22 16:26	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592417	11/04/22 14:50	MCR	EET DEN
Total Recoverable	Analysis	6020B		1			592825	11/08/22 20:36	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	592402	11/08/22 10:36	PFM	EET DEN
Total/NA	Analysis	7470A		1			592836	11/08/22 20:11	PFM	EET DEN
Total/NA	Analysis	9040B		1			592975	11/09/22 17:06	KEG	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	593895	11/19/22 08:16	EJS	EET DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	593895	11/19/22 08:25	EJS	EET DEN
Total/NA	Analysis	9056A		500	5 mL	5 mL	596092	12/09/22 06:04	EJS	EET DEN

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

Client Sample ID: W-3B

Date Collected: 10/27/22 11:00

Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2320B		1			592471	11/04/22 13:51	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	592428	11/04/22 12:15	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	592430	11/04/22 12:17	ASP	EET DEN

Client Sample ID: W-5B

Date Collected: 10/27/22 13:25

Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	592625	11/13/22 17:20	MCR	EET DEN
Total Recoverable	Analysis	6010C		1			593456	11/14/22 15:53	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592417	11/04/22 14:50	MCR	EET DEN
Total Recoverable	Analysis	6020B		1			592687	11/07/22 18:46	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592417	11/04/22 14:50	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			592825	11/08/22 15:37	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592586	11/07/22 14:42	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			592825	11/08/22 16:30	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592417	11/04/22 14:50	MCR	EET DEN
Total Recoverable	Analysis	6020B		1			592825	11/08/22 20:39	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	592402	11/08/22 10:36	PFM	EET DEN
Total/NA	Analysis	7470A		1			592836	11/08/22 20:14	PFM	EET DEN
Total/NA	Analysis	9040B		1			592975	11/09/22 17:10	KEG	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	593895	11/19/22 08:33	EJS	EET DEN
Total/NA	Analysis	9056A		50	5 mL	5 mL	596092	12/09/22 06:12	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			592471	11/04/22 13:58	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	592428	11/04/22 12:15	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	592430	11/04/22 12:17	ASP	EET DEN

Client Sample ID: W-6B1

Date Collected: 10/27/22 18:55

Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	592625	11/13/22 17:20	MCR	EET DEN
Total Recoverable	Analysis	6010C		1			593456	11/14/22 15:57	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592625	11/13/22 17:20	MCR	EET DEN
Total Recoverable	Analysis	6010C		2			593627	11/15/22 20:50	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592417	11/04/22 14:50	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			592825	11/08/22 15:41	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592586	11/07/22 14:42	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			592825	11/08/22 16:34	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592417	11/04/22 14:50	MCR	EET DEN
Total Recoverable	Analysis	6020B		1			592825	11/08/22 20:43	LMT	EET DEN

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

Client Sample ID: W-6B1

Lab Sample ID: 280-168613-4

Date Collected: 10/27/22 18:55

Matrix: Water

Date Received: 11/03/22 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7470A			30 mL	50 mL	592402	11/08/22 10:36	PFM	EET DEN
Total/NA	Analysis	7470A		1			592836	11/08/22 20:22	PFM	EET DEN
Total/NA	Analysis	9040B		1			592975	11/09/22 17:13	KEG	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	596092	12/09/22 06:20	EJS	EET DEN
Total/NA	Analysis	9056A		50	5 mL	5 mL	596092	12/09/22 06:28	EJS	EET DEN
Total/NA	Analysis	9056A		500	5 mL	5 mL	596092	12/09/22 06:36	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			592471	11/04/22 14:09	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	592428	11/04/22 12:15	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	592430	11/04/22 12:17	ASP	EET DEN

Client Sample ID: W-7

Lab Sample ID: 280-168613-5

Date Collected: 10/28/22 16:40

Matrix: Water

Date Received: 11/03/22 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	592625	11/13/22 17:20	MCR	EET DEN
Total Recoverable	Analysis	6010C		1			593456	11/14/22 16:01	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592625	11/13/22 17:20	MCR	EET DEN
Total Recoverable	Analysis	6010C		2			593627	11/15/22 20:54	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592417	11/04/22 14:50	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			592825	11/08/22 15:44	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592586	11/07/22 14:42	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			592825	11/08/22 16:37	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592417	11/04/22 14:50	MCR	EET DEN
Total Recoverable	Analysis	6020B		1			592825	11/08/22 20:47	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	592402	11/08/22 10:36	PFM	EET DEN
Total/NA	Analysis	7470A		1			592836	11/08/22 20:24	PFM	EET DEN
Total/NA	Analysis	9040B		1			592975	11/09/22 17:17	KEG	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	595327	12/03/22 13:30	MEC	EET DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	593895	11/19/22 09:31	EJS	EET DEN
Total/NA	Analysis	9056A		1000	5 mL	5 mL	596092	12/09/22 06:44	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			592471	11/04/22 14:21	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	592428	11/04/22 12:15	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	592430	11/04/22 12:17	ASP	EET DEN

Client Sample ID: W-9

Lab Sample ID: 280-168613-6

Date Collected: 10/29/22 13:50

Matrix: Water

Date Received: 11/03/22 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	592625	11/13/22 17:20	MCR	EET DEN
Total Recoverable	Analysis	6010C		1			593456	11/14/22 16:05	KRP	EET DEN

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

Client Sample ID: W-9

Date Collected: 10/29/22 13:50

Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	592417	11/04/22 14:50	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			592825	11/08/22 15:48	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592586	11/07/22 14:42	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			592825	11/08/22 16:41	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592417	11/04/22 14:50	MCR	EET DEN
Total Recoverable	Analysis	6020B		1			592825	11/08/22 20:51	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	592402	11/08/22 10:36	PFM	EET DEN
Total/NA	Analysis	7470A		1			592836	11/08/22 20:27	PFM	EET DEN
Total/NA	Analysis	9040B		1			592975	11/09/22 17:21	KEG	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	595327	12/03/22 14:04	MEC	EET DEN
Total/NA	Analysis	9056A		200	10 mL	10 mL	595327	12/03/22 14:21	MEC	EET DEN
Total/NA	Analysis	9056A		10	5 mL	5 mL	593895	11/19/22 09:48	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			592471	11/04/22 14:32	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	592428	11/04/22 12:15	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	592430	11/04/22 12:17	ASP	EET DEN

Client Sample ID: W-10B

Date Collected: 10/28/22 19:00

Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			250 mL	250 mL	592771	11/08/22 15:35	MAB	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	592873	11/10/22 09:07	LJS	EET DEN
Dissolved	Analysis	6010C		1			593129	11/11/22 04:58	KRP	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	592771	11/08/22 15:35	MAB	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	592873	11/10/22 09:07	LJS	EET DEN
Dissolved	Analysis	6010C		2			593472	11/15/22 07:44	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592625	11/13/22 17:20	MCR	EET DEN
Total Recoverable	Analysis	6010C		1			593456	11/14/22 16:09	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592625	11/13/22 17:20	MCR	EET DEN
Total Recoverable	Analysis	6010C		2			593627	11/15/22 20:58	KRP	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	592771	11/08/22 15:35	MAB	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	592880	11/10/22 07:50	LJS	EET DEN
Dissolved	Analysis	6020B		50			593209	11/11/22 11:19	LMT	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	592771	11/08/22 15:35	MAB	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	592880	11/10/22 07:50	LJS	EET DEN
Dissolved	Analysis	6020B		1			593209	11/11/22 14:06	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592417	11/04/22 14:50	MCR	EET DEN
Total Recoverable	Analysis	6020B		1			592687	11/07/22 19:01	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592417	11/04/22 14:50	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			592825	11/08/22 15:52	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592586	11/07/22 14:42	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			592825	11/08/22 16:45	LMT	EET DEN

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

Client Sample ID: W-10B

Date Collected: 10/28/22 19:00

Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	592417	11/04/22 14:50	MCR	EET DEN
Total Recoverable	Analysis	6020B		1			592825	11/08/22 20:55	LMT	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	592771	11/08/22 15:35	MAB	EET DEN
Dissolved	Prep	7470A			30 mL	50 mL	593528	11/15/22 16:50	KMS	EET DEN
Dissolved	Analysis	7470A		1			593845	11/16/22 15:32	KMS	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	592402	11/08/22 10:36	PFM	EET DEN
Total/NA	Analysis	7470A		1			592836	11/08/22 20:29	PFM	EET DEN
Total/NA	Analysis	9040B		1			592975	11/09/22 17:24	KEG	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	595327	12/03/22 15:12	MEC	EET DEN
Total/NA	Analysis	9056A		50	10 mL	10 mL	595327	12/03/22 15:29	MEC	EET DEN
Total/NA	Analysis	9056A		1000	5 mL	5 mL	596092	12/09/22 07:07	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			592471	11/04/22 14:44	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	592428	11/04/22 12:15	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	592430	11/04/22 12:17	ASP	EET DEN

Client Sample ID: W-11

Date Collected: 10/29/22 12:30

Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			250 mL	250 mL	592771	11/08/22 15:35	MAB	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	592873	11/10/22 09:07	LJS	EET DEN
Dissolved	Analysis	6010C		1			593129	11/11/22 05:20	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592625	11/13/22 17:20	MCR	EET DEN
Total Recoverable	Analysis	6010C		1			593456	11/14/22 16:14	KRP	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	592771	11/08/22 15:35	MAB	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	592880	11/10/22 07:50	LJS	EET DEN
Dissolved	Analysis	6020B		50			593209	11/11/22 11:34	LMT	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	592771	11/08/22 15:35	MAB	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	592880	11/10/22 07:50	LJS	EET DEN
Dissolved	Analysis	6020B		1			593310	11/11/22 18:03	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592417	11/04/22 14:50	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			592825	11/08/22 15:55	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592586	11/07/22 14:42	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			592825	11/08/22 16:49	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592417	11/04/22 14:50	MCR	EET DEN
Total Recoverable	Analysis	6020B		1			592825	11/08/22 20:58	LMT	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	592771	11/08/22 15:35	MAB	EET DEN
Dissolved	Prep	7470A			30 mL	50 mL	593528	11/15/22 16:50	KMS	EET DEN
Dissolved	Analysis	7470A		1			593845	11/16/22 15:40	KMS	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	592402	11/08/22 10:36	PFM	EET DEN
Total/NA	Analysis	7470A		1			592836	11/08/22 20:32	PFM	EET DEN
Total/NA	Analysis	9040B		1			592975	11/09/22 17:36	KEG	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	595327	12/03/22 16:03	MEC	EET DEN

Eurofins Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

Client Sample ID: W-11

Lab Sample ID: 280-168613-8

Date Collected: 10/29/22 12:30

Matrix: Water

Date Received: 11/03/22 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1	5 mL	5 mL	593895	11/19/22 10:13	EJS	EET DEN
Total/NA	Analysis	9056A		500	5 mL	5 mL	596092	12/09/22 07:15	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			592471	11/04/22 14:56	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	592428	11/04/22 12:15	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	592430	11/04/22 12:17	ASP	EET DEN

Client Sample ID: W-12

Lab Sample ID: 280-168613-9

Date Collected: 10/29/22 10:45

Matrix: Water

Date Received: 11/03/22 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	592625	11/13/22 17:20	MCR	EET DEN
Total Recoverable	Analysis	6010C		1			593456	11/14/22 16:18	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592586	11/07/22 14:42	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			592825	11/08/22 17:00	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592586	11/07/22 14:42	MCR	EET DEN
Total Recoverable	Analysis	6020B		1			592825	11/08/22 18:15	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592586	11/07/22 14:42	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			592932	11/09/22 13:51	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	593167	11/11/22 13:27	PFM	EET DEN
Total/NA	Analysis	7470A		1			593325	11/11/22 19:29	PFM	EET DEN
Total/NA	Analysis	9040B		1			592975	11/09/22 17:39	KEG	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	595327	12/03/22 16:37	MEC	EET DEN
Total/NA	Analysis	9056A		100	10 mL	10 mL	595327	12/03/22 17:11	MEC	EET DEN
Total/NA	Analysis	9056A		500	5 mL	5 mL	596092	12/09/22 08:59	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			592471	11/04/22 15:11	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	592428	11/04/22 12:15	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	592430	11/04/22 12:17	ASP	EET DEN

Client Sample ID: W-10BEB

Lab Sample ID: 280-168613-10

Date Collected: 10/28/22 19:30

Matrix: Ground Water

Date Received: 11/03/22 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	592625	11/13/22 17:20	MCR	EET DEN
Total Recoverable	Analysis	6010C		1			593456	11/14/22 16:22	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592417	11/04/22 14:50	MCR	EET DEN
Total Recoverable	Analysis	6020B		1			592687	11/07/22 19:08	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592417	11/04/22 14:50	MCR	EET DEN
Total Recoverable	Analysis	6020B		1			592825	11/08/22 21:33	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592586	11/07/22 14:42	MCR	EET DEN
Total Recoverable	Analysis	6020B		1			592932	11/09/22 13:40	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592417	11/04/22 14:50	MCR	EET DEN
Total Recoverable	Analysis	6020B		1			593149	11/10/22 17:40	LMT	EET DEN

Eurofins Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

Client Sample ID: W-10BEB

Lab Sample ID: 280-168613-10

Date Collected: 10/28/22 19:30

Matrix: Ground Water

Date Received: 11/03/22 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	592586	11/07/22 14:42	MCR	EET DEN
Total Recoverable	Analysis	6020B		1			593149	11/10/22 17:44	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	593167	11/11/22 13:27	PFM	EET DEN
Total/NA	Analysis	7470A		1			593325	11/11/22 19:31	PFM	EET DEN
Total/NA	Analysis	9040B		1			593471	11/14/22 17:07	KEG	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	595327	12/03/22 17:28	MEC	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	593895	11/19/22 10:46	EJS	EET DEN
Total/NA	Analysis	SM 2320B		1			592471	11/04/22 15:18	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	592428	11/04/22 12:15	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	592430	11/04/22 12:17	ASP	EET DEN

Laboratory References:

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

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-1

Laboratory: Eurofins Denver

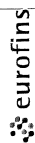
Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-23

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	Ground Water	Calcium
6020B	3005A	Ground Water	Magnesium
6020B	3005A	Ground Water	Potassium
6020B	3005A	Ground Water	Sodium
6020B	3005A	Water	Calcium
6020B	3005A	Water	Magnesium
6020B	3005A	Water	Potassium
6020B	3005A	Water	Sodium
9040B		Ground Water	Temperature
9040B		Water	Temperature

Chain of Custody Record

Environment Testing
America

Client Information		Lab PM:		Carrier Tracking No(s):		COC No:	
Ms. Sierra Schupp		Ryan, Nicole C		280-123950-34647.1		Page: 1 of 2	
HDR Inc		E-Mail: Nicole.Ryan@ET.eurofins.com		State of Origin:		Job #:	
Address: 1670 Broadway Suite 3400		Due Date Requested:		Analysis Requested		Preservation Codes:	
City: Denver		TAT Requested (days):		2540C - TDS, 9040B - pH, 9056A, 28D - Cl, F, SO ₄ , Alkalinity		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO ₄ F - MeOH G - Anchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
State, Zip: CO, 80202		Compliance Project: ☐ Yes ☒ No		9315 - Ra226, 9320 - Ra228		M - Hexane N - None O - AsNaO ₂ P - Na2O4S Q - Na2SO ₃ R - Na2SO ₄ S - H2SO ₄ T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)	
Phone: 734-263-7138(Tel)		PO #: DEN-021		2540D - TSS		Total Number of Containers	
Email: Sierra.Schupp@hdrinc.com		WO #: 28014376		Field Filtered Sample (Yes or No)		Special Instructions/Note:	
Project Name: Xcel Energy GW CCR Monitoring - Comanche		SSOW#:		Perform MS/MSD (Yes or No)			
Site: Colorado				2540C - TDS, 9040B - pH, 9056A, 28D - Cl, F, SO ₄ , Alkalinity			
App. III and IV +TSS, Additional Methods				9315 - Ra226, 9320 - Ra228			
				6010C, 6020B, 7470A - Dissolved Metals/Mercury			
				6010C, 6020B, 7470A - Total Metals/Mercury + Mg, K, Na			
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix (Water, Solid, O=Water, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Special Instructions/Note:
W-1	10/27/22	13:30	G	Water	☒	☒	
W-2C	10/27/22	11:00	G	Water	☒	☒	
W-3B	10/27/22	13:25	G	Water	☒	☒	
W-5B	10/27/22	18:53	G	Water	☒	☒	
W-6B1	10/28/22	16:40	G	Water	☒	☒	
W-7	10/24/22	13:50	G	Water	☒	☒	
W-9	10/28/22	14:00	G	Water	☒	☒	
W-10B	10/22/22	12:30	G	Water	☒	☒	
W-11	10/24/22	16:45	G	Water	☒	☒	
W-12	10/28/22	19:30	G	Water	☒	☒	
W-105EB							
Possible Hazard Identification ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☒ Poison B ☐ Unknown ☐ Radiological							
Deliverable Requested: I, II, III, IV, Other (specify)							
Empty Kit Relinquished by:							
Relinquished by: <i>Julia</i> Date: 11/3/22 9:30 Company: HDR							
Relinquished by: Date/Time: Company:							
Relinquished by: Date/Time: Company:							
Custody Seals Intact: ☒ Yes ☐ No Custody Seal No.: N/A							
Cooler Temperature(s) °C and Other Remarks: IR# 12 Temp 1.3, CF(0.0)							
Ver: 01/16/2019							

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-168613-1

Login Number: 168613

List Number: 1

Creator: Roehsner, Karen P

List Source: Eurofins Denver

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

ANALYTICAL REPORT

PREPARED FOR

Attn: Molly Reeves

HDR Inc

1670 Broadway

Suite 3400

Denver, Colorado 80202

Generated 1/6/2023 3:57:29 PM Revision 1

JOB DESCRIPTION

Xcel Energy GW CCR Monitoring - Comanche

JOB NUMBER

280-168613-2

Eurofins Denver

Job Notes

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the Eurofins TestAmerica Denver Project Manager.

The Lab Certification ID# is 4025.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

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 TestAmerica Project Manager.

Authorization



Authorized for release by
Nicole Ryan, Project Manager I
Nicole.Ryan@ET.eurofinsus.com
(303)736-0100

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Revision 1

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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-2

Qualifiers

Rad

Qualifier	Qualifier Description
G	The Sample MDC is greater than the requested RL.
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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-2

Job ID: 280-168613-2

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-168613-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

Revision 1, January 6, 2022

This report has been revised to include the combined RAD226 and RAD228 result for all samples.

Receipt

The samples were received on 11/3/2022 9:30 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 1.3° C, 1.8° C and 1.9° C.

Receipt Exceptions

280-168613-A-9 and 280-168613-B-9 were received with a pH >2 SU. We added the minimum amount of HNO₃ to preserve. W-2C (280-168613-1), W-3B (280-168613-2), W-5B (280-168613-3), W-6B1 (280-168613-4), W-7 (280-168613-5), W-9 (280-168613-6), W-10B (280-168613-7), W-11 (280-168613-8), W-12 (280-168613-9) and W-10BEB (280-168613-10)

RADIUM-226 (GFPC)

Samples W-2C (280-168613-1), W-3B (280-168613-2), W-5B (280-168613-3), W-6B1 (280-168613-4), W-7 (280-168613-5), W-9 (280-168613-6), W-10B (280-168613-7), W-11 (280-168613-8), W-12 (280-168613-9) and W-10BEB (280-168613-10) were analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 11/08/2022 and analyzed on 12/02/2022.

The following samples were prepared at a reduced aliquot due to Matrix: W-2C (280-168613-1), W-3B (280-168613-2), W-5B (280-168613-3), W-6B1 (280-168613-4), W-7 (280-168613-5), W-9 (280-168613-6), W-10B (280-168613-7), W-11 (280-168613-8) and W-12 (280-168613-9). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

The following samples were prepared at a reduced aliquot due to Matrix: W-6B1 (280-168613-4), W-7 (280-168613-5) and W-9 (280-168613-6). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Insufficient sample volume was available to perform a sample duplicate for the following samples: W-6B1 (280-168613-4), W-7 (280-168613-5) and W-9 (280-168613-6). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-2

Job ID: 280-168613-2 (Continued)

Laboratory: Eurofins Denver (Continued)

RADIUM-228

Samples W-2C (280-168613-1), W-3B (280-168613-2), W-5B (280-168613-3), W-6B1 (280-168613-4), W-7 (280-168613-5), W-9 (280-168613-6), W-10B (280-168613-7), W-11 (280-168613-8), W-12 (280-168613-9) and W-10BEB (280-168613-10) were analyzed for Radium-228 in accordance with 9320. The samples were prepared on 11/08/2022 and 11/09/2022 and analyzed on 11/22/2022 and 12/01/2022.

Insufficient sample volume was available to perform a sample duplicate for the following samples: W-7 (280-168613-5) and W-9 (280-168613-6). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

The following samples were prepared at a reduced aliquot due to Matrix: W-2C (280-168613-1), W-3B (280-168613-2), W-5B (280-168613-3), W-6B1 (280-168613-4), W-7 (280-168613-5), W-9 (280-168613-6), W-10B (280-168613-7), W-11 (280-168613-8) and W-12 (280-168613-9). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

The following samples were prepared at a reduced aliquot due to Matrix: W-7 (280-168613-5) and W-9 (280-168613-6). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

The following sample(s) did not meet the requested limit (RL) due to the reduced sample volume attributed to the presence of matrix interference. During preparation the analyst visually noted matrix effects. The data have been reported with this narrative.W-11 (280-168613-8).

The detection goal was not met for the following sample(s). Samples were prepped at a reduced volume due to the presence of matrix interferences: W-6B1 (280-168613-4) and W-9 (280-168613-6). Analytical results are reported with the detection limit achieved.

The Ra-228 laboratory control sample (LCS) associated with the following samples recovered at 137% : (LCS 160-589263/2-A). The limits in our LIMS system at (75-125%) reflect the requirements of a regulatory agency that represents a large amount of our work. However the samples associated with this LCS are not from this agency and are therefore held to our in-house statistical limits of (62-148%) per method requirements. The LCS is within criteria and no further action is required.

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

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-2

Client Sample ID: W-2C

Lab Sample ID: 280-168613-1

☐ No Detections.

Client Sample ID: W-3B

Lab Sample ID: 280-168613-2

☐ No Detections.

Client Sample ID: W-5B

Lab Sample ID: 280-168613-3

☐ No Detections.

Client Sample ID: W-6B1

Lab Sample ID: 280-168613-4

☐ No Detections.

Client Sample ID: W-7

Lab Sample ID: 280-168613-5

☐ No Detections.

Client Sample ID: W-9

Lab Sample ID: 280-168613-6

☐ No Detections.

Client Sample ID: W-10B

Lab Sample ID: 280-168613-7

☐ No Detections.

Client Sample ID: W-11

Lab Sample ID: 280-168613-8

☐ No Detections.

Client Sample ID: W-12

Lab Sample ID: 280-168613-9

☐ No Detections.

Client Sample ID: W-10BEB

Lab Sample ID: 280-168613-10

☐ No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Method Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-2

Method	Method Description	Protocol	Laboratory
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
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL

Protocol References:

None = None

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

Sample Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-168613-1	W-2C	Water	10/27/22 13:30	11/03/22 09:30
280-168613-2	W-3B	Water	10/27/22 11:00	11/03/22 09:30
280-168613-3	W-5B	Water	10/27/22 13:25	11/03/22 09:30
280-168613-4	W-6B1	Water	10/27/22 18:55	11/03/22 09:30
280-168613-5	W-7	Water	10/28/22 16:40	11/03/22 09:30
280-168613-6	W-9	Water	10/29/22 13:50	11/03/22 09:30
280-168613-7	W-10B	Water	10/28/22 19:00	11/03/22 09:30
280-168613-8	W-11	Water	10/29/22 12:30	11/03/22 09:30
280-168613-9	W-12	Water	10/29/22 10:45	11/03/22 09:30
280-168613-10	W-10BEB	Ground Water	10/28/22 19:30	11/03/22 09:30

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-2

Method: SW846 9315 - Radium-226 (GFPC)

Client Sample ID: W-2C
Date Collected: 10/27/22 13:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.88		0.305	0.349	1.00	0.169	pCi/L	11/08/22 11:58	12/02/22 12:40	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	73.2		40 - 110					11/08/22 11:58	12/02/22 12:40	1

Client Sample ID: W-3B
Date Collected: 10/27/22 11:00
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	3.83		0.407	0.533	1.00	0.149	pCi/L	11/08/22 11:58	12/02/22 12:40	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.4		40 - 110					11/08/22 11:58	12/02/22 12:40	1

Client Sample ID: W-5B
Date Collected: 10/27/22 13:25
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.608		0.187	0.195	1.00	0.183	pCi/L	11/08/22 11:58	12/02/22 12:41	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	78.5		40 - 110					11/08/22 11:58	12/02/22 12:41	1

Client Sample ID: W-6B1
Date Collected: 10/27/22 18:55
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	3.35		0.408	0.507	1.00	0.192	pCi/L	11/08/22 11:58	12/02/22 12:45	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	68.6		40 - 110					11/08/22 11:58	12/02/22 12:45	1

Client Sample ID: W-7
Date Collected: 10/28/22 16:40
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.97		0.329	0.373	1.00	0.216	pCi/L	11/08/22 11:58	12/02/22 12:45	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	66.9		40 - 110					11/08/22 11:58	12/02/22 12:45	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-2

Method: SW846 9315 - Radium-226 (GFPC)

Client Sample ID: W-9
Date Collected: 10/29/22 13:50
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.531		0.202	0.208	1.00	0.226	pCi/L	11/08/22 11:58	12/02/22 12:45	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	61.4		40 - 110					11/08/22 11:58	12/02/22 12:45	1

Client Sample ID: W-10B
Date Collected: 10/28/22 19:00
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.05		0.230	0.248	1.00	0.164	pCi/L	11/08/22 11:58	12/02/22 12:45	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	74.6		40 - 110					11/08/22 11:58	12/02/22 12:45	1

Client Sample ID: W-11
Date Collected: 10/29/22 12:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.55		0.368	0.394	1.00	0.286	pCi/L	11/08/22 11:58	12/02/22 12:45	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	63.8		40 - 110					11/08/22 11:58	12/02/22 12:45	1

Client Sample ID: W-12
Date Collected: 10/29/22 10:45
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.789		0.206	0.218	1.00	0.180	pCi/L	11/08/22 11:58	12/02/22 12:56	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	77.8		40 - 110					11/08/22 11:58	12/02/22 12:56	1

Client Sample ID: W-10BEB
Date Collected: 10/28/22 19:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-10
Matrix: Ground Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.116		0.0807	0.0814	1.00	0.112	pCi/L	11/08/22 11:58	12/02/22 12:57	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	83.6		40 - 110					11/08/22 11:58	12/02/22 12:57	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-2

Method: SW846 9320 - Radium-228 (GFPC)

Client Sample ID: W-2C
Date Collected: 10/27/22 13:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	3.95		0.893	0.964	1.00	0.882	pCi/L	11/08/22 13:41	11/22/22 15:31	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	73.2		40 - 110					11/08/22 13:41	11/22/22 15:31	1
Y Carrier	84.9		40 - 110					11/08/22 13:41	11/22/22 15:31	1

Client Sample ID: W-3B
Date Collected: 10/27/22 11:00
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	7.06		1.03	1.22	1.00	0.727	pCi/L	11/08/22 13:42	11/22/22 15:32	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.4		40 - 110					11/08/22 13:42	11/22/22 15:32	1
Y Carrier	83.4		40 - 110					11/08/22 13:42	11/22/22 15:32	1

Client Sample ID: W-5B
Date Collected: 10/27/22 13:25
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.01		0.708	0.732	1.00	0.879	pCi/L	11/08/22 13:42	11/22/22 15:32	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	78.5		40 - 110					11/08/22 13:42	11/22/22 15:32	1
Y Carrier	83.4		40 - 110					11/08/22 13:42	11/22/22 15:32	1

Client Sample ID: W-6B1
Date Collected: 10/27/22 18:55
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	4.53	G	1.25	1.32	1.00	1.33	pCi/L	11/09/22 11:20	12/01/22 12:00	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.5		40 - 110					11/09/22 11:20	12/01/22 12:00	1
Y Carrier	85.6		40 - 110					11/09/22 11:20	12/01/22 12:00	1

Client Sample ID: W-7
Date Collected: 10/28/22 16:40
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	3.06		0.849	0.895	1.00	0.920	pCi/L	11/08/22 13:42	11/22/22 15:32	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-2

Method: SW846 9320 - Radium-228 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	66.9		40 - 110	11/08/22 13:42	11/22/22 15:32	1
Y Carrier	86.7		40 - 110	11/08/22 13:42	11/22/22 15:32	1

Client Sample ID: W-9
Date Collected: 10/29/22 13:50
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.891	U G	0.963	0.967	1.00	1.57	pCi/L	11/09/22 11:20	12/01/22 12:00	1
Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac				
Ba Carrier	95.2		40 - 110	11/09/22 11:20	12/01/22 12:00	1				
Y Carrier	84.5		40 - 110	11/09/22 11:20	12/01/22 12:00	1				

Client Sample ID: W-10B
Date Collected: 10/28/22 19:00
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	3.33		0.852	0.905	1.00	0.921	pCi/L	11/08/22 13:42	11/22/22 15:32	1
Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac				
Ba Carrier	74.6		40 - 110	11/08/22 13:42	11/22/22 15:32	1				
Y Carrier	83.0		40 - 110	11/08/22 13:42	11/22/22 15:32	1				

Client Sample ID: W-11
Date Collected: 10/29/22 12:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	4.95	G	1.37	1.45	1.00	1.55	pCi/L	11/08/22 13:42	11/22/22 15:32	1
Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac				
Ba Carrier	63.8		40 - 110	11/08/22 13:42	11/22/22 15:32	1				
Y Carrier	87.5		40 - 110	11/08/22 13:42	11/22/22 15:32	1				

Client Sample ID: W-12
Date Collected: 10/29/22 10:45
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	3.17		0.786	0.838	1.00	0.807	pCi/L	11/08/22 13:42	11/22/22 15:32	1
Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac				
Ba Carrier	77.8		40 - 110	11/08/22 13:42	11/22/22 15:32	1				
Y Carrier	84.5		40 - 110	11/08/22 13:42	11/22/22 15:32	1				

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-2

Method: SW846 9320 - Radium-228 (GFPC)

Client Sample ID: W-10BEB
Date Collected: 10/28/22 19:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-10
Matrix: Ground Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.493	U	0.354	0.357	1.00	0.530	pCi/L	11/08/22 13:42	11/22/22 15:32	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	83.6		40 - 110					11/08/22 13:42	11/22/22 15:32	1
Y Carrier	86.0		40 - 110					11/08/22 13:42	11/22/22 15:32	1

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

Client Sample ID: W-2C
Date Collected: 10/27/22 13:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	5.83		0.944	1.03	5.00	0.882	pCi/L		01/06/23 15:53	1

Client Sample ID: W-3B
Date Collected: 10/27/22 11:00
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	10.9		1.11	1.33	5.00	0.727	pCi/L		01/06/23 15:53	1

Client Sample ID: W-5B
Date Collected: 10/27/22 13:25
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.62		0.732	0.758	5.00	0.879	pCi/L		01/06/23 15:53	1

Client Sample ID: W-6B1
Date Collected: 10/27/22 18:55
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-4
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	7.88		1.31	1.41	5.00	1.33	pCi/L		01/06/23 15:53	1

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-2

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

Client Sample ID: W-7
Date Collected: 10/28/22 16:40
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-5
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	5.03		0.911	0.970	5.00	0.920	pCi/L		01/06/23 15:53	1

Client Sample ID: W-9
Date Collected: 10/29/22 13:50
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-6
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.42	U	0.984	0.989	5.00	1.57	pCi/L		01/06/23 15:53	1

Client Sample ID: W-10B
Date Collected: 10/28/22 19:00
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-7
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	4.38		0.882	0.938	5.00	0.921	pCi/L		01/06/23 15:53	1

Client Sample ID: W-11
Date Collected: 10/29/22 12:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-8
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	6.49		1.42	1.50	5.00	1.55	pCi/L		01/06/23 15:53	1

Client Sample ID: W-12
Date Collected: 10/29/22 10:45
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-9
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	3.96		0.813	0.866	5.00	0.807	pCi/L		01/06/23 15:53	1

Client Sample ID: W-10BEB
Date Collected: 10/28/22 19:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-10
Matrix: Ground Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.609		0.363	0.366	5.00	0.530	pCi/L		01/06/23 15:53	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-2

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-589246/1-A

Matrix: Water

Analysis Batch: 592074

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 589246

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.04342	U	0.0735	0.0736	1.00	0.128	pCi/L	11/08/22 11:58	12/02/22 07:37	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.1		40 - 110					11/08/22 11:58	12/02/22 07:37	1

Lab Sample ID: LCS 160-589246/2-A

Matrix: Water

Analysis Batch: 592074

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 589246

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226		11.3	10.75		1.13	1.00	0.114	pCi/L	95	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits							
Ba Carrier	84.1		40 - 110							

Lab Sample ID: LCSD 160-589246/3-A

Matrix: Water

Analysis Batch: 592074

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 589246

Analyte		Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-226		11.3	11.70		1.22	1.00	0.136	pCi/L	103	75 - 125	0.40	1
Carrier	LCSD %Yield	LCSD Qualifier	Limits									
Ba Carrier	81.4		40 - 110									

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-589263/1-A

Matrix: Water

Analysis Batch: 590931

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 589263

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.06416	U	0.311	0.311	1.00	0.564	pCi/L	11/08/22 13:41	11/22/22 15:29	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.1		40 - 110					11/08/22 13:41	11/22/22 15:29	1
Y Carrier	84.1		40 - 110					11/08/22 13:41	11/22/22 15:29	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-2

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

Lab Sample ID: LCS 160-589263/2-A
Matrix: Water
Analysis Batch: 590932

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 589263

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-228		8.42	11.52		1.51	1.00	0.587	pCi/L	137	75 - 125		
	LCS	LCS										
Carrier	%Yield	Qualifier	Limits									
Ba Carrier	84.1		40 - 110									
Y Carrier	87.5		40 - 110									

Lab Sample ID: LCSD 160-589263/3-A
Matrix: Water
Analysis Batch: 590932

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 589263

Analyte		Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-228		8.42	10.24		1.42	1.00	0.575	pCi/L	122	75 - 125	0.44	1
	LCSD	LCSD										
Carrier	%Yield	Qualifier	Limits									
Ba Carrier	81.4		40 - 110									
Y Carrier	83.7		40 - 110									

Lab Sample ID: MB 160-589415/1-A
Matrix: Water
Analysis Batch: 591877

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 589415

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.009089	U	0.353	0.353	1.00	0.648	pCi/L	11/09/22 11:20	12/01/22 11:58	1
	MB	MB								
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.3		40 - 110					11/09/22 11:20	12/01/22 11:58	1
Y Carrier	84.5		40 - 110					11/09/22 11:20	12/01/22 11:58	1

Lab Sample ID: LCS 160-589415/2-A
Matrix: Water
Analysis Batch: 591877

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 589415

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-228		8.40	10.06		1.36	1.00	0.553	pCi/L	120	75 - 125		
	LCS	LCS										
Carrier	%Yield	Qualifier	Limits									
Ba Carrier	91.3		40 - 110									
Y Carrier	84.9		40 - 110									

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-2

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

Lab Sample ID: LCSD 160-589415/3-A
Matrix: Water
Analysis Batch: 591877

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 589415

Analyte		Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-228		8.40	9.743		1.33	1.00	0.535	pCi/L	116	75 - 125	0.12	1
Carrier	LCSD %Yield	LCSD Qualifier	Limits									
Ba Carrier	91.8		40 - 110									
Y Carrier	86.0		40 - 110									

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-2

Rad

Prep Batch: 589246

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168613-1	W-2C	Total/NA	Water	PrecSep-21	
280-168613-2	W-3B	Total/NA	Water	PrecSep-21	
280-168613-3	W-5B	Total/NA	Water	PrecSep-21	
280-168613-4	W-6B1	Total/NA	Water	PrecSep-21	
280-168613-5	W-7	Total/NA	Water	PrecSep-21	
280-168613-6	W-9	Total/NA	Water	PrecSep-21	
280-168613-7	W-10B	Total/NA	Water	PrecSep-21	
280-168613-8	W-11	Total/NA	Water	PrecSep-21	
280-168613-9	W-12	Total/NA	Water	PrecSep-21	
280-168613-10	W-10BEB	Total/NA	Ground Water	PrecSep-21	
MB 160-589246/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-589246/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-589246/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 589263

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168613-1	W-2C	Total/NA	Water	PrecSep_0	
280-168613-2	W-3B	Total/NA	Water	PrecSep_0	
280-168613-3	W-5B	Total/NA	Water	PrecSep_0	
280-168613-5	W-7	Total/NA	Water	PrecSep_0	
280-168613-7	W-10B	Total/NA	Water	PrecSep_0	
280-168613-8	W-11	Total/NA	Water	PrecSep_0	
280-168613-9	W-12	Total/NA	Water	PrecSep_0	
280-168613-10	W-10BEB	Total/NA	Ground Water	PrecSep_0	
MB 160-589263/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-589263/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-589263/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Prep Batch: 589415

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168613-4	W-6B1	Total/NA	Water	PrecSep_0	
280-168613-6	W-9	Total/NA	Water	PrecSep_0	
MB 160-589415/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-589415/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-589415/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-2

Client Sample ID: W-2C

Date Collected: 10/27/22 13:30

Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			748.29 mL	1.0 g	589246	11/08/22 11:58	BMP	EET SL
Total/NA	Analysis	9315		1			592071	12/02/22 12:40	FLC	EET SL
Total/NA	Prep	PrecSep_0			748.29 mL	1.0 g	589263	11/08/22 13:41	BMP	EET SL
Total/NA	Analysis	9320		1			590932	11/22/22 15:31	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			595882	01/06/23 15:53	EMH	EET SL

Client Sample ID: W-3B

Date Collected: 10/27/22 11:00

Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			763.49 mL	1.0 g	589246	11/08/22 11:58	BMP	EET SL
Total/NA	Analysis	9315		1			592071	12/02/22 12:40	FLC	EET SL
Total/NA	Prep	PrecSep_0			763.49 mL	1.0 g	589263	11/08/22 13:42	BMP	EET SL
Total/NA	Analysis	9320		1			590932	11/22/22 15:32	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			595882	01/06/23 15:53	EMH	EET SL

Client Sample ID: W-5B

Date Collected: 10/27/22 13:25

Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			756.29 mL	1.0 g	589246	11/08/22 11:58	BMP	EET SL
Total/NA	Analysis	9315		1			592071	12/02/22 12:41	FLC	EET SL
Total/NA	Prep	PrecSep_0			756.29 mL	1.0 g	589263	11/08/22 13:42	BMP	EET SL
Total/NA	Analysis	9320		1			590932	11/22/22 15:32	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			595882	01/06/23 15:53	EMH	EET SL

Client Sample ID: W-6B1

Date Collected: 10/27/22 18:55

Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			754.51 mL	1.0 g	589246	11/08/22 11:58	BMP	EET SL
Total/NA	Analysis	9315		1			592074	12/02/22 12:45	FLC	EET SL
Total/NA	Prep	PrecSep_0			412.49 mL	1.0 g	589415	11/09/22 11:20	BMP	EET SL
Total/NA	Analysis	9320		1			591877	12/01/22 12:00	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			595882	01/06/23 15:53	EMH	EET SL

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-2

Client Sample ID: W-7

Date Collected: 10/28/22 16:40

Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			744.08 mL	1.0 g	589246	11/08/22 11:58	BMP	EET SL
Total/NA	Analysis	9315		1			592074	12/02/22 12:45	FLC	EET SL
Total/NA	Prep	PrecSep_0			744.08 mL	1.0 g	589263	11/08/22 13:42	BMP	EET SL
Total/NA	Analysis	9320		1			590932	11/22/22 15:32	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			595882	01/06/23 15:53	EMH	EET SL

Client Sample ID: W-9

Date Collected: 10/29/22 13:50

Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			754.91 mL	1.0 g	589246	11/08/22 11:58	BMP	EET SL
Total/NA	Analysis	9315		1			592074	12/02/22 12:45	FLC	EET SL
Total/NA	Prep	PrecSep_0			357.14 mL	1.0 g	589415	11/09/22 11:20	BMP	EET SL
Total/NA	Analysis	9320		1			591877	12/01/22 12:00	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			595882	01/06/23 15:53	EMH	EET SL

Client Sample ID: W-10B

Date Collected: 10/28/22 19:00

Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			748.84 mL	1.0 g	589246	11/08/22 11:58	BMP	EET SL
Total/NA	Analysis	9315		1			592074	12/02/22 12:45	FLC	EET SL
Total/NA	Prep	PrecSep_0			748.84 mL	1.0 g	589263	11/08/22 13:42	BMP	EET SL
Total/NA	Analysis	9320		1			590932	11/22/22 15:32	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			595882	01/06/23 15:53	EMH	EET SL

Client Sample ID: W-11

Date Collected: 10/29/22 12:30

Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			517.12 mL	1.0 g	589246	11/08/22 11:58	BMP	EET SL
Total/NA	Analysis	9315		1			592074	12/02/22 12:45	FLC	EET SL
Total/NA	Prep	PrecSep_0			517.12 mL	1.0 g	589263	11/08/22 13:42	BMP	EET SL
Total/NA	Analysis	9320		1			590932	11/22/22 15:32	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			595882	01/06/23 15:53	EMH	EET SL

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-2

Client Sample ID: W-12

Date Collected: 10/29/22 10:45

Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			752.98 mL	1.0 g	589246	11/08/22 11:58	BMP	EET SL
Total/NA	Analysis	9315		1			592075	12/02/22 12:56	FLC	EET SL
Total/NA	Prep	PrecSep_0			752.98 mL	1.0 g	589263	11/08/22 13:42	BMP	EET SL
Total/NA	Analysis	9320		1			590932	11/22/22 15:32	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			595882	01/06/23 15:53	EMH	EET SL

Client Sample ID: W-10BEB

Date Collected: 10/28/22 19:30

Date Received: 11/03/22 09:30

Lab Sample ID: 280-168613-10

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1007.31 mL	1.0 g	589246	11/08/22 11:58	BMP	EET SL
Total/NA	Analysis	9315		1			592071	12/02/22 12:57	FLC	EET SL
Total/NA	Prep	PrecSep_0			1007.31 mL	1.0 g	589263	11/08/22 13:42	BMP	EET SL
Total/NA	Analysis	9320		1			590932	11/22/22 15:32	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			595882	01/06/23 15:53	EMH	EET SL

Laboratory References:

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

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-2

Laboratory: Eurofins St. Louis

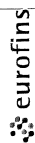
All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-23
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-23
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-23
Iowa	State	373	12-01-24
Kansas	NELAP	E-10236	10-31-23
Kentucky (DW)	State	KY90125	12-31-22 *
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-23
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-23
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	04-01-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-23
South Carolina	State	85002001	06-30-23
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-24
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-23

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

Eurofins Denver

Chain of Custody Record

Environment Testing
America

Client Information		Lab PM:		Carrier Tracking No(s):		COC No:	
Ms. Sierra Schupp		Ryan, Nicole C		280-123950-34647.1		Page: 1 of 2	
Company: HDR Inc		E-Mail: Nicole.Ryan@ET.eurofins.com		State of Origin:		Job #:	
Address: 1670 Broadway Suite 3400		Due Date Requested:		Analysis Requested		Preservation Codes:	
City: Denver		TAT Requested (days):		280-168613 Chain of Custody		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Anichlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
State, Zip: CO, 80202		Compliance Project: ☐ Yes ☐ No		2540C - TDS, 9040B - pH, 9056A, 28D - Cl, F, SO4, Alkalinity		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)	
Phone: 734-263-7138(Tel)		PO #: DEN-021		9315 - Ra226, 9320 - Ra228		Total Number of Containers	
Email: Sierra.Schupp@hdrinc.com		WO #: 28014376		2540D - TSS		Special Instructions/Note:	
Project Name: Xcel Energy GW CCR Monitoring - Comanche		SSOW#:		Field Filtered Sample (Yes or No)			
Site: Colorado				Perform MS/MSD (Yes or No)			
App. III and IV +TSS, Additional Methods				6010C, 6020B, 7470A - Dissolved Metals/Mercury			
				6010C, 6020B, 7470A - Total Metals/Mercury + Mg, K, Na			
Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=Grab)	
W-1		10/27/22		13:30		Water	
W-2C		10/27/22		11:00		Water	
W-3B		10/27/22		13:25		Water	
W-5B		10/27/22		18:53		Water	
W-6B1		10/28/22		16:40		Water	
W-7		10/24/22		13:50		Water	
W-9		10/28/22		14:00		Water	
W-10B		10/22/22		12:30		Water	
W-11		10/24/22		16:45		Water	
W-12		10/28/22		09:30		Water	
W-105EB							
Possible Hazard Identification		Poison B ☒ Unknown ☐ Radiological ☐		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months	
Deliverable Requested: I, II, III, IV, Other (specify)		Empty Kit Relinquished by:		Special Instructions/QC Requirements:			
Relinquished by: <i>Julia</i>		Date: 11/3/22 9:30		Method of Shipment:			
Relinquished by:		Date: 11/3/22 9:30		Received by: <i>27M</i>		Date/Time: 11/3/22 09:30	
Relinquished by:		Date: 11/3/22 9:30		Received by:		Date/Time:	
Relinquished by:		Date: 11/3/22 9:30		Received by:		Date/Time:	
Custody Seals Intact: ☐ Yes ☐ No		Custody Seal No.: N/A		Cooler Temperature(s) °C and Other Remarks: <i>IR# 12 Temp 1.3, CF(0.0)</i>		Company: <i>ETADEN</i>	

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone: 303-736-0100 Fax: 303-431-7171

Chain of Custody Record



Environment Testing

Client Information (Sub Contract Lab)		Sampler: Ryan, Nicole C		Lab PM: Ryan, Nicole C		Carrier Tracking No(s):		COC No: 280-634966.1	
Client Contact: Shipping/Receiving		Phone:		E-Mail: Nicole.Ryan@ET.eurofins.com		State of Origin: Colorado		Page: Page 1 of 2	
Company: TestAmerica Laboratories, Inc.		Address: 13715 Rider Trail North, MO. 63045		Phone: 314-298-8566(Tel) 314-298-8757(Fax)		Email:		Job #: 280-168613-1	
City: Earth City		State: MO		Zip: 63045		Project Name: Xcel Energy GW CCR Monitoring - Comanche		Preservation Codes:	
PO #:		WO #:		Project #: 28014376		SSOW#:		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)	
Due Date Requested: 11/16/2022		TAT Requested (days):		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		9315_Ra226/PreSep_21 Ra226 (1/3) - SUB	
Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=soil, BT=tissue, A=air)		9320_Ra228/PreSep_0 Ra228 (2/3) - SUB	
Sample Identification - Client ID (Lab ID)		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=soil, BT=tissue, A=air)	
W-2C (280-168613-1)		10/27/22		13:30 Mountain		Water		X	
W-3B (280-168613-2)		10/27/22		11:00 Mountain		Water		X	
W-5B (280-168613-3)		10/27/22		13:25 Mountain		Water		X	
W-6B1 (280-168613-4)		10/27/22		18:55 Mountain		Water		X	
W-7 (280-168613-5)		10/28/22		16:40 Mountain		Water		X	
W-9 (280-168613-6)		10/29/22		13:50 Mountain		Water		X	
W-10B (280-168613-7)		10/28/22		19:00 Mountain		Water		X	
W-11 (280-168613-8)		10/29/22		12:30 Mountain		Water		X	
W-12 (280-168613-9)		10/29/22		10:45 Mountain		Water		X	
Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins TestAmerica		Special Instructions/Note:		Total Number of Containers		Special Instructions/Note:			
Possible Hazard Identification		Unconfirmed		Deliverable Requested: I, II, III, IV, Other (specify)		Primary Deliverable Rank: 2		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	
Empty Kit Relinquished by:		Date: 11/14/22		Time: 16:25		Company: LADEN		Received by: Autumn R. Johnson	
Relinquished by:		Date/Time: 11/14/22		Date/Time: 16:25		Company: LADEN		Received by: Autumn R. Johnson	
Relinquished by:		Date/Time:		Date/Time:		Company:		Received by: Autumn R. Johnson	
Custody Seals Intact: ☐ Yes ☐ No		Custody Seal No:		Cooler Temperature(s) °C and Other Remarks:					

4955 Yarrow Street
Arvada, CO 80002
Phone: 303-736-0100 Fax: 303-431-7171

Chain of Custody Record



Environment Testing

[illegible]

Chain of Custody Record



Environment Testing

Client Information (Sub Contract Lab)		Sampler:	Lab PM	Carrier Tracking No(s):	COC No
Client Contact:		Phone:	Ryan, Nicole C		280-634966.1
Shipping/Receiving			E-Mail:	State of Origin:	Page
Company:			Nicole.Ryan@ET.eurofins.com	Colorado	Page 1 of 2
TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #	
Address:		DoD - A2LA		280-168613-1	
City:		Due Date Requested:		Preservation Codes:	
Earth City		11/16/2022		A - HCL 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)	
State Zip		TAT Requested (days):			
MO, 63045					
Phone:		PO #			
314-298-8566(Tel) 314-298-8757(Fax)					
Email:		WO #			
Project Name:		Project #			
Xcel Energy GW CCR Monitoring - Comanche		28014376			
Site:		SSOW#			
Xcel Energy CCR - Comanche Station					

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=soil, A=air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226/PreSep_21 Ra226 (1/3) - SUB	9320_Ra226/PreSep_0 Ra226 (2/3) - SUB	Total Number of Containers	Special Instructions/Note:
W-2C (280-168613-1)	10/27/22	13:30 Mountain		Water			X	X	2	
W-3B (280-168613-2)	10/27/22	11:00 Mountain		Water			X	X	2	
W-5B (280-168613-3)	10/27/22	13:25 Mountain		Water			X	X	2	
W-6B1 (280-168613-4)	10/27/22	18:55 Mountain		Water			X	X	2	
W-7 (280-168613-5)	10/28/22	16:40 Mountain		Water			X	X	2	
W-9 (280-168613-6)	10/29/22	13:50 Mountain		Water			X	X	2	
W-10B (280-168613-7)	10/28/22	19:00 Mountain		Water			X	X	2	
W-11 (280-168613-8)	10/29/22	12:30 Mountain		Water			X	X	2	
W-12 (280-168613-9)	10/29/22	10:45 Mountain		Water			X	X	2	

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

Possible Hazard Identification		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	
Unconfirmed		Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months	
Deliverable Requested: I, II, III, IV, Other (specify)		Special Instructions/QC Requirements:	
Primary Deliverable Rank: 2		Method of Shipment	
Empty Kit Relinquished by:		Date:	
Relinquished by:		Date/Time:	
Relinquished by:		Date/Time:	
Relinquished by:		Date/Time:	
Custody Seals Intact: ☐ Yes ☐ No		Custody Seal No.:	

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-168613-2

Login Number: 168613

List Number: 1

Creator: Roehsner, Karen P

List Source: Eurofins Denver

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

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-168613-2

Login Number: 168613

List Number: 2

Creator: Bohlmann, Jessica M

List Source: Eurofins St. Louis

List Creation: 11/07/22 11:54 AM

Question	Answer	Comment
Radioactivity wasn't checked or is <= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
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.	False	280-168613-A-9 and B-9, were received with a pH >2 SU
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: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168613-2

Method: 9315 - Radium-226 (GFPC)

Matrix: Ground Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	
280-168613-10	W-10BEB	83.6	
Tracer/Carrier Legend			
Ba = Ba Carrier			

Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	
280-168613-1	W-2C	73.2	
280-168613-2	W-3B	82.4	
280-168613-3	W-5B	78.5	
280-168613-4	W-6B1	68.6	
280-168613-5	W-7	66.9	
280-168613-6	W-9	61.4	
280-168613-7	W-10B	74.6	
280-168613-8	W-11	63.8	
280-168613-9	W-12	77.8	
LCS 160-589246/2-A	Lab Control Sample	84.1	
LCSD 160-589246/3-A	Lab Control Sample Dup	81.4	
MB 160-589246/1-A	Method Blank	89.1	
Tracer/Carrier Legend			
Ba = Ba Carrier			

Method: 9320 - Radium-228 (GFPC)

Matrix: Ground Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)
280-168613-10	W-10BEB	83.6	86.0
Tracer/Carrier Legend			
Ba = Ba Carrier			
Y = Y Carrier			

Method: 9320 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)
280-168613-1	W-2C	73.2	84.9
280-168613-2	W-3B	82.4	83.4
280-168613-3	W-5B	78.5	83.4
280-168613-4	W-6B1	85.5	85.6
280-168613-5	W-7	66.9	86.7
280-168613-6	W-9	95.2	84.5
280-168613-7	W-10B	74.6	83.0

Eurofins Denver

Tracer/Carrier Summary

Client: HDR Inc

Job ID: 280-168613-2

Project/Site: Xcel Energy GW CCR Monitoring - Comanche

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

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)
280-168613-8	W-11	63.8	87.5
280-168613-9	W-12	77.8	84.5
LCS 160-589263/2-A	Lab Control Sample	84.1	87.5
LCS 160-589415/2-A	Lab Control Sample	91.3	84.9
LCSD 160-589263/3-A	Lab Control Sample Dup	81.4	83.7
LCSD 160-589415/3-A	Lab Control Sample Dup	91.8	86.0
MB 160-589263/1-A	Method Blank	89.1	84.1
MB 160-589415/1-A	Method Blank	90.3	84.5

Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier



ANALYTICAL REPORT

PREPARED FOR

Attn: Molly Reeves

HDR Inc

1670 Broadway

Suite 3400

Denver, Colorado 80202

Generated 12/30/2022 9:50:27 AM

JOB DESCRIPTION

Xcel Energy GW CCR Monitoring - Comanche

JOB NUMBER

280-168614-1

Eurofins Denver

Job Notes

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the Eurofins TestAmerica Denver Project Manager.

The Lab Certification ID# is 4025.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

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 TestAmerica Project Manager.

Authorization



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12/30/2022 9:50:27 AM

Authorized for release by
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Nicole.Ryan@ET.eurofinsus.com
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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168614-1

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.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
^+	Continuing Calibration Verification (CCV) is outside acceptance limits, high biased.
B	Compound was found in the blank and sample.
E	Result exceeded calibration range.
F1	MS and/or MSD recovery exceeds control limits.
F5	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL, and the absolute difference between results is < the upper reporting limits for both.
H	Sample was prepped or analyzed beyond the specified holding time
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Eurofins Denver

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168614-1

Job ID: 280-168614-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-168614-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

The presence of the '4' qualifier indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount.

Receipt

The samples were received on 11/3/2022 9:30 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 was 0.1° C.

TOTAL RECOVERABLE METALS

Samples MW-1B (280-168614-1), MW-2B (280-168614-2), MW-4B (280-168614-3), MW-7 (280-168614-4) and MW-2BD (280-168614-5) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 11/13/2022 and analyzed on 11/14/2022 and 11/15/2022.

Samples MW-2B (280-168614-2)[2X] and MW-2BD (280-168614-5)[2X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

TOTAL RECOVERABLE METALS (ICP/MS)

Samples MW-1B (280-168614-1), MW-2B (280-168614-2), MW-4B (280-168614-3), MW-7 (280-168614-4) and MW-2BD (280-168614-5) were analyzed for Total Recoverable Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 11/04/2022 and 11/07/2022 and analyzed on 11/07/2022, 11/08/2022 and 11/09/2022.

Calcium, Magnesium and Sodium were detected in method blank MB 280-592417/1-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Calcium, Magnesium and Sodium failed the recovery criteria low for the MS of sample 280-168612-3 in batch 280-592825.

Sodium failed the recovery criteria low for the MSD of sample 280-168612-3 in batch 280-592825. Potassium, Calcium and Magnesium failed the recovery criteria high.

Calcium, Potassium and Potassium failed the recovery criteria low for the MS of sample MW-2BDMS (280-168614-5) in batch

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168614-1

Job ID: 280-168614-1 (Continued)

Laboratory: Eurofins Denver (Continued)

280-592932. Magnesium and Sodium failed the recovery criteria high.

For the MSD of sample MW-2BDMSD (280-168614-5) in batch 280-592932, Calcium failed the recovery criteria low. Magnesium, Sodium, Potassium and Potassium failed the recovery criteria high. Also, Calcium exceeded the RPD limit.

Samples MW-1B (280-168614-1)[50X], MW-2B (280-168614-2)[50X], MW-4B (280-168614-3)[50X], MW-7 (280-168614-4)[50X] and MW-2BD (280-168614-5)[50X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

ALKALINITY

Samples MW-1B (280-168614-1), MW-2B (280-168614-2), MW-4B (280-168614-3), MW-7 (280-168614-4) and MW-2BD (280-168614-5) were analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 11/04/2022.

Alkalinity was detected in method blank MB 280-592471/6 at a level exceeding the reporting limit. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

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

TOTAL DISSOLVED SOLIDS

Samples MW-1B (280-168614-1), MW-2B (280-168614-2), MW-4B (280-168614-3), MW-7 (280-168614-4) and MW-2BD (280-168614-5) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 11/07/2022 and 11/08/2022.

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

TOTAL SUSPENDED SOLIDS

Samples MW-1B (280-168614-1), MW-2B (280-168614-2), MW-4B (280-168614-3), MW-7 (280-168614-4) and MW-2BD (280-168614-5) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 11/04/2022.

Total Suspended Solids exceeded the RPD limit for the duplicate of sample MW-1BDU (280-168614-1). Total Suspended Solids exceeded the RPD limit for the duplicate of sample MW-2BDDU (280-168614-5). Refer to the QC report for details.

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

CORROSIVITY (PH)

Samples MW-1B (280-168614-1), MW-2B (280-168614-2), MW-4B (280-168614-3), MW-7 (280-168614-4) and MW-2BD (280-168614-5) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 11/09/2022.

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

ANIONS (28 DAYS)

Samples MW-1B (280-168614-1), MW-2B (280-168614-2), MW-4B (280-168614-3), MW-7 (280-168614-4) and MW-2BD (280-168614-5) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days). The samples were analyzed on 11/19/2022, 11/30/2022, 12/03/2022, 12/04/2022 and 12/10/2022.

Reanalysis of the following samples was performed outside of the analytical holding time due to the samples requiring further dilution and quality control failures involving fluoride : MW-1B (280-168614-1), MW-2B (280-168614-2), MW-4B (280-168614-3), MW-7 (280-168614-4) and MW-2BD (280-168614-5).

Reanalysis of the following sample was performed outside of the analytical holding time due to quality control failures involving fluoride : (280-168506-M-1).

Reanalysis of the following sample(s) was performed outside of the analytical holding time due to instrument issues caused an increased backlog which lead to extended turn around times. : MW-7 (280-168614-4).

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168614-1

Job ID: 280-168614-1 (Continued)

Laboratory: Eurofins Denver (Continued)

Chloride failed the recovery criteria high for the MS of sample MW-2BMS (280-168614-2) in batch 280-594088.

Fluoride failed the recovery criteria low for the MS of sample 280-168810-11 in batch 280-594925.

Fluoride exceeded the RPD limit for the MSD of sample 280-168810-11 in batch 280-594925.

Chloride, Fluoride and Sulfate failed the recovery criteria low for the MS of sample 280-168910-6 in batch 280-594925.

Chloride and Fluoride failed the recovery criteria low for the MSD of sample 280-168910-6 in batch 280-594925.

Sulfate failed the recovery criteria low for the MS of sample 280-169085-5 in batch 280-596213. Fluoride failed the recovery criteria high.

Sulfate failed the recovery criteria low for the MSD of sample 280-169085-5 in batch 280-596213. Fluoride failed the recovery criteria high.

Samples MW-1B (280-168614-1)[50X], MW-1B (280-168614-1)[500X], MW-2B (280-168614-2)[20X], MW-2B (280-168614-2)[500X], MW-4B (280-168614-3)[20X], MW-4B (280-168614-3)[50X], MW-7 (280-168614-4)[100X], MW-7 (280-168614-4)[20X], MW-2BD (280-168614-5) [20X] and MW-2BD (280-168614-5)[500X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168614-1

Client Sample ID: MW-1B

Lab Sample ID: 280-168614-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.72		0.10	0.0015	mg/L	1		6010C	Total Recoverable
Magnesium	2000		2.5	1.1	mg/L	50		6020B	Total Recoverable
Sodium	3200		7.5	3.2	mg/L	50		6020B	Total Recoverable
Potassium	35		6.0	2.6	mg/L	50		6020B	Total Recoverable
Calcium	440		10	1.9	mg/L	50		6020B	Total Recoverable
pH adj. to 25 deg C	7.3	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	360		150	51	mg/L	50		9056A	Total/NA
Fluoride	0.29	J H	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	15000	E	250	52	mg/L	50		9056A	Total/NA
Sulfate	16000	H	2500	520	mg/L	500		9056A	Total/NA
Alkalinity	1200	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	1200		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	19000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	1.6	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-2B

Lab Sample ID: 280-168614-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.73		0.20	0.0029	mg/L	2		6010C	Total Recoverable
Magnesium	3600		2.5	1.1	mg/L	50		6020B	Total Recoverable
Sodium	7300		7.5	3.2	mg/L	50		6020B	Total Recoverable
Potassium	69		6.0	2.6	mg/L	50		6020B	Total Recoverable
Calcium	450		10	1.9	mg/L	50		6020B	Total Recoverable
pH adj. to 25 deg C	7.1	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.3	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	600	F1	60	20	mg/L	20		9056A	Total/NA
Fluoride	0.36	J H	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	26000	E	100	21	mg/L	20		9056A	Total/NA
Sulfate	34000	H	2500	520	mg/L	500		9056A	Total/NA
Alkalinity	1600	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	1600		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	34000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	2.4	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-4B

Lab Sample ID: 280-168614-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.48		0.10	0.0015	mg/L	1		6010C	Total Recoverable
Magnesium	300	B	2.5	1.1	mg/L	50		6020B	Total Recoverable
Sodium	920	B	7.5	3.2	mg/L	50		6020B	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168614-1

Client Sample ID: MW-4B (Continued)

Lab Sample ID: 280-168614-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Potassium	21		6.0	2.6	mg/L	50		6020B	Total Recoverable
Calcium	620	B	10	1.9	mg/L	50		6020B	Total Recoverable
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	22.7	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	230		60	20	mg/L	20		9056A	Total/NA
Fluoride	0.33	J	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	3300	E	100	21	mg/L	20		9056A	Total/NA
Sulfate	3300	H	250	52	mg/L	50		9056A	Total/NA
Alkalinity	650	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	650		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	5700		40	19	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	4.0		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-7

Lab Sample ID: 280-168614-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.70		0.10	0.0015	mg/L	1		6010C	Total Recoverable
Magnesium	950		2.5	1.1	mg/L	50		6020B	Total Recoverable
Sodium	2600		7.5	3.2	mg/L	50		6020B	Total Recoverable
Potassium	29		6.0	2.6	mg/L	50		6020B	Total Recoverable
Calcium	420		10	1.9	mg/L	50		6020B	Total Recoverable
pH adj. to 25 deg C	7.2	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	23.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	360		60	20	mg/L	20		9056A	Total/NA
Fluoride	0.27	J H	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	9300	E	100	21	mg/L	20		9056A	Total/NA
Sulfate	2100	H	500	100	mg/L	100		9056A	Total/NA
Alkalinity	770	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	770		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	11000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	3.2	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-2BD

Lab Sample ID: 280-168614-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.73		0.20	0.0029	mg/L	2		6010C	Total Recoverable
Magnesium	3600		2.5	1.1	mg/L	50		6020B	Total Recoverable
Sodium	7200		7.5	3.2	mg/L	50		6020B	Total Recoverable
Potassium	68		6.0	2.6	mg/L	50		6020B	Total Recoverable
Calcium	440		10	1.9	mg/L	50		6020B	Total Recoverable
pH adj. to 25 deg C	7.3	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	23.5	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	610		60	20	mg/L	20		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168614-1

Client Sample ID: MW-2BD (Continued)

Lab Sample ID: 280-168614-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoride	0.38	J H	0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	28000	E	100	21	mg/L	20		9056A	Total/NA
Sulfate	34000	H	2500	520	mg/L	500		9056A	Total/NA
Alkalinity	1700	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	1700		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	33000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	4.0		4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Method Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168614-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	EET DEN
6020B	Metals (ICP/MS)	SW846	EET DEN
9040B	pH	SW846	EET DEN
9056A	Anions, Ion Chromatography	SW846	EET DEN
SM 2320B	Alkalinity	SM	EET DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET DEN
SM 2540D	Solids, Total Suspended (TSS)	SM	EET DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET DEN

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

Sample Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168614-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-168614-1	MW-1B	Water	11/01/22 14:50	11/03/22 09:30
280-168614-2	MW-2B	Water	11/01/22 11:20	11/03/22 09:30
280-168614-3	MW-4B	Water	11/02/22 13:00	11/03/22 09:30
280-168614-4	MW-7	Water	11/01/22 13:30	11/03/22 09:30
280-168614-5	MW-2BD	Water	11/01/22 11:30	11/03/22 09:30

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168614-1

Method: SW846 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: MW-1B
Date Collected: 11/01/22 14:50
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168614-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.72		0.10	0.0015	mg/L		11/13/22 17:20	11/14/22 16:26	1

Client Sample ID: MW-2B
Date Collected: 11/01/22 11:20
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168614-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.73		0.20	0.0029	mg/L		11/13/22 17:20	11/15/22 21:02	2

Client Sample ID: MW-4B
Date Collected: 11/02/22 13:00
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168614-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.48		0.10	0.0015	mg/L		11/13/22 17:20	11/14/22 16:50	1

Client Sample ID: MW-7
Date Collected: 11/01/22 13:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168614-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.70		0.10	0.0015	mg/L		11/13/22 17:20	11/14/22 16:54	1

Client Sample ID: MW-2BD
Date Collected: 11/01/22 11:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168614-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.73		0.20	0.0029	mg/L		11/13/22 17:20	11/15/22 21:06	2

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

Client Sample ID: MW-1B
Date Collected: 11/01/22 14:50
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168614-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	2000		2.5	1.1	mg/L		11/07/22 14:42	11/08/22 17:07	50
Sodium	3200		7.5	3.2	mg/L		11/07/22 14:42	11/08/22 17:07	50
Potassium	35		6.0	2.6	mg/L		11/07/22 14:42	11/09/22 13:55	50
Calcium	440		10	1.9	mg/L		11/07/22 14:42	11/08/22 17:07	50

Client Sample ID: MW-2B
Date Collected: 11/01/22 11:20
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168614-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	3600		2.5	1.1	mg/L		11/07/22 14:42	11/08/22 17:11	50
Sodium	7300		7.5	3.2	mg/L		11/07/22 14:42	11/08/22 17:11	50
Potassium	69		6.0	2.6	mg/L		11/07/22 14:42	11/09/22 13:58	50
Calcium	450		10	1.9	mg/L		11/07/22 14:42	11/08/22 17:11	50

Client Sample ID: MW-4B
Date Collected: 11/02/22 13:00
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168614-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	300	B	2.5	1.1	mg/L		11/04/22 14:50	11/08/22 16:03	50

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168614-1

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

Client Sample ID: MW-4B
Date Collected: 11/02/22 13:00
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168614-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	920	B	7.5	3.2	mg/L		11/04/22 14:50	11/08/22 16:03	50
Potassium	21		6.0	2.6	mg/L		11/04/22 14:50	11/07/22 17:48	50
Calcium	620	B	10	1.9	mg/L		11/04/22 14:50	11/08/22 16:03	50

Client Sample ID: MW-7
Date Collected: 11/01/22 13:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168614-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	950		2.5	1.1	mg/L		11/07/22 14:42	11/08/22 17:15	50
Sodium	2600		7.5	3.2	mg/L		11/07/22 14:42	11/08/22 17:15	50
Potassium	29		6.0	2.6	mg/L		11/07/22 14:42	11/09/22 14:02	50
Calcium	420		10	1.9	mg/L		11/07/22 14:42	11/08/22 17:15	50

Client Sample ID: MW-2BD
Date Collected: 11/01/22 11:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168614-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	3600		2.5	1.1	mg/L		11/07/22 14:42	11/08/22 17:19	50
Sodium	7200		7.5	3.2	mg/L		11/07/22 14:42	11/08/22 17:19	50
Potassium	68		6.0	2.6	mg/L		11/07/22 14:42	11/09/22 14:06	50
Calcium	440		10	1.9	mg/L		11/07/22 14:42	11/08/22 17:19	50

General Chemistry

Client Sample ID: MW-1B
Date Collected: 11/01/22 14:50
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168614-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C (SW846 9040B)	7.3	HF	0.1	0.1	SU			11/09/22 17:43	1
Temperature (SW846 9040B)	22.6	HF	1.0	1.0	Degrees C			11/09/22 17:43	1
Chloride (SW846 9056A)	360		150	51	mg/L			11/19/22 02:30	50
Fluoride (SW846 9056A)	0.29	J H	0.50	0.17	mg/L			12/03/22 10:40	1
Sulfate (SW846 9056A)	15000	E	250	52	mg/L			11/19/22 02:30	50
Sulfate (SW846 9056A)	16000	H	2500	520	mg/L			12/03/22 10:57	500
Alkalinity (SM 2320B)	1200	B	10	3.1	mg/L			11/04/22 12:01	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	1200		10	3.1	mg/L			11/04/22 12:01	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			11/04/22 12:01	1
Total Dissolved Solids (TDS) (SM 2540C)	19000		1000	470	mg/L			11/07/22 12:02	1
Total Suspended Solids (SM 2540D)	1.6	J	4.0	1.1	mg/L			11/04/22 12:18	1

Client Sample ID: MW-2B
Date Collected: 11/01/22 11:20
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168614-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C (SW846 9040B)	7.1	HF	0.1	0.1	SU			11/09/22 17:46	1
Temperature (SW846 9040B)	22.3	HF	1.0	1.0	Degrees C			11/09/22 17:46	1
Chloride (SW846 9056A)	600	F1	60	20	mg/L			11/19/22 03:38	20
Fluoride (SW846 9056A)	0.36	J H	0.50	0.17	mg/L			12/03/22 11:48	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168614-1

General Chemistry (Continued)

Client Sample ID: MW-2B
Date Collected: 11/01/22 11:20
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168614-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate (SW846 9056A)	26000	E	100	21	mg/L			11/19/22 03:38	20
Sulfate (SW846 9056A)	34000	H	2500	520	mg/L			12/03/22 12:05	500
Alkalinity (SM 2320B)	1600	B	10	3.1	mg/L			11/04/22 12:17	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	1600		10	3.1	mg/L			11/04/22 12:17	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			11/04/22 12:17	1
Total Dissolved Solids (TDS) (SM 2540C)	34000		1000	470	mg/L			11/07/22 12:02	1
Total Suspended Solids (SM 2540D)	2.4	J	4.0	1.1	mg/L			11/04/22 12:18	1

Client Sample ID: MW-4B
Date Collected: 11/02/22 13:00
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168614-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C (SW846 9040B)	7.2	HF	0.1	0.1	SU			11/09/22 17:50	1
Temperature (SW846 9040B)	22.7	HF	1.0	1.0	Degrees C			11/09/22 17:50	1
Chloride (SW846 9056A)	230		60	20	mg/L			11/19/22 05:20	20
Fluoride (SW846 9056A)	0.33	J	0.50	0.17	mg/L			11/30/22 23:24	1
Sulfate (SW846 9056A)	3300	E	100	21	mg/L			11/19/22 05:20	20
Sulfate (SW846 9056A)	3300	H	250	52	mg/L			12/04/22 02:15	50
Alkalinity (SM 2320B)	650	B	10	3.1	mg/L			11/04/22 12:28	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	650		10	3.1	mg/L			11/04/22 12:28	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			11/04/22 12:28	1
Total Dissolved Solids (TDS) (SM 2540C)	5700		40	19	mg/L			11/08/22 11:32	1
Total Suspended Solids (SM 2540D)	4.0		4.0	1.1	mg/L			11/04/22 12:18	1

Client Sample ID: MW-7
Date Collected: 11/01/22 13:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168614-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C (SW846 9040B)	7.2	HF	0.1	0.1	SU			11/09/22 17:53	1
Temperature (SW846 9040B)	23.0	HF	1.0	1.0	Degrees C			11/09/22 17:53	1
Chloride (SW846 9056A)	360		60	20	mg/L			11/19/22 05:37	20
Fluoride (SW846 9056A)	0.27	J H	0.50	0.17	mg/L			12/03/22 12:22	1
Sulfate (SW846 9056A)	9300	E	100	21	mg/L			11/19/22 05:37	20
Sulfate (SW846 9056A)	2100	H	500	100	mg/L			12/10/22 09:15	100
Alkalinity (SM 2320B)	770	B	10	3.1	mg/L			11/04/22 12:39	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	770		10	3.1	mg/L			11/04/22 12:39	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			11/04/22 12:39	1
Total Dissolved Solids (TDS) (SM 2540C)	11000		1000	470	mg/L			11/07/22 12:02	1
Total Suspended Solids (SM 2540D)	3.2	J	4.0	1.1	mg/L			11/04/22 12:18	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168614-1

General Chemistry

Client Sample ID: MW-2BD
Date Collected: 11/01/22 11:30
Date Received: 11/03/22 09:30

Lab Sample ID: 280-168614-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C (SW846 9040B)	7.3	HF	0.1	0.1	SU			11/09/22 17:57	1
Temperature (SW846 9040B)	23.5	HF	1.0	1.0	Degrees C			11/09/22 17:57	1
Chloride (SW846 9056A)	610		60	20	mg/L			11/19/22 05:54	20
Fluoride (SW846 9056A)	0.38	J H	0.50	0.17	mg/L			12/03/22 12:56	1
Sulfate (SW846 9056A)	28000	E	100	21	mg/L			11/19/22 05:54	20
Sulfate (SW846 9056A)	34000	H	2500	520	mg/L			12/03/22 13:13	500
Alkalinity (SM 2320B)	1700	B	10	3.1	mg/L			11/04/22 12:56	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	1700		10	3.1	mg/L			11/04/22 12:56	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			11/04/22 12:56	1
Total Dissolved Solids (TDS) (SM 2540C)	33000		1000	470	mg/L			11/07/22 12:02	1
Total Suspended Solids (SM 2540D)	4.0		4.0	1.1	mg/L			11/04/22 12:18	1

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168614-1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-592625/1-A
Matrix: Water
Analysis Batch: 593456

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 592625

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.0015	mg/L		11/13/22 17:20	11/14/22 14:53	1

Lab Sample ID: LCS 280-592625/2-A
Matrix: Water
Analysis Batch: 593456

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 592625

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	2.03		mg/L		102	86 - 110

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-592417/1-A
Matrix: Water
Analysis Batch: 592687

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 592417

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium	ND		0.12	0.052	mg/L		11/04/22 14:50	11/07/22 16:30	1

Lab Sample ID: MB 280-592417/1-A
Matrix: Water
Analysis Batch: 592825

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 592417

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	0.0342	J	0.050	0.021	mg/L		11/04/22 14:50	11/08/22 14:40	1
Sodium	0.0870	J	0.15	0.065	mg/L		11/04/22 14:50	11/08/22 14:40	1
Calcium	0.0781	J	0.20	0.038	mg/L		11/04/22 14:50	11/08/22 14:40	1

Lab Sample ID: LCS 280-592417/2-A
Matrix: Water
Analysis Batch: 592687

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 592417

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Potassium	0.800	0.809		mg/L		101	80 - 120

Lab Sample ID: LCS 280-592417/2-A
Matrix: Water
Analysis Batch: 592825

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 592417

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Magnesium	0.800	0.837		mg/L		105	80 - 120
Sodium	0.800	0.896		mg/L		112	80 - 120
Calcium	0.800	0.917		mg/L		115	80 - 120

Lab Sample ID: MB 280-592586/1-A
Matrix: Water
Analysis Batch: 592825

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 592586

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	ND		0.050	0.021	mg/L		11/07/22 14:42	11/08/22 16:14	1
Sodium	ND		0.15	0.065	mg/L		11/07/22 14:42	11/08/22 16:14	1

Eurofins Denver

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168614-1

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

Lab Sample ID: MB 280-592586/1-A

Matrix: Water

Analysis Batch: 592825

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 592586

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium	ND		0.12	0.052	mg/L		11/07/22 14:42	11/08/22 16:14	1
Calcium	ND		0.20	0.038	mg/L		11/07/22 14:42	11/08/22 16:14	1

Lab Sample ID: MB 280-592586/1-A

Matrix: Water

Analysis Batch: 592932

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 592586

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium	ND		0.12	0.052	mg/L		11/07/22 14:42	11/09/22 13:32	1

Lab Sample ID: LCS 280-592586/2-A

Matrix: Water

Analysis Batch: 592825

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 592586

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Magnesium	0.800	0.787		mg/L		98	80 - 120
Sodium	0.800	0.796		mg/L		99	80 - 120
Potassium	0.800	0.786		mg/L		98	80 - 120
Calcium	0.800	0.807		mg/L		101	80 - 120

Lab Sample ID: LCS 280-592586/2-A

Matrix: Water

Analysis Batch: 592932

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 592586

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Potassium	0.800	0.798		mg/L		100	80 - 120

Lab Sample ID: 280-168614-5 MS

Matrix: Water

Analysis Batch: 592825

Client Sample ID: MW-2BD

Prep Type: Total Recoverable

Prep Batch: 592586

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Magnesium	3600		0.800	3650	4	mg/L		6755	80 - 120
Sodium	7200		0.800	7330	4	mg/L		10530	80 - 120
Calcium	440		0.800	454	4	mg/L		1740	80 - 120
Calcium	440		0.800	454	4	mg/L		1740	80 - 120

Lab Sample ID: 280-168614-5 MS

Matrix: Water

Analysis Batch: 592932

Client Sample ID: MW-2BD

Prep Type: Total Recoverable

Prep Batch: 592586

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Potassium	68		0.800	67.5	4	mg/L		-15	80 - 120
Potassium	68		0.800	67.5	4	mg/L		-15	80 - 120

Eurofins Denver

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168614-1

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

Lab Sample ID: 280-168614-5 MSD

Matrix: Water

Analysis Batch: 592825

Client Sample ID: MW-2BD

Prep Type: Total Recoverable

Prep Batch: 592586

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Magnesium	3600		0.800	3650	4	mg/L		5951	80 - 120	0	20
Sodium	7200		0.800	7330	4	mg/L		10720	80 - 120	0	20
Calcium	440		0.800	457	4	mg/L		2025	80 - 120	0	20
Calcium	440		0.800	457	4	mg/L		2025	80 - 120	0	20

Lab Sample ID: 280-168614-5 MSD

Matrix: Water

Analysis Batch: 592932

Client Sample ID: MW-2BD

Prep Type: Total Recoverable

Prep Batch: 592586

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Potassium	68		0.800	73.6	4	mg/L		752	80 - 120	9	20
Potassium	68		0.800	73.6	4	mg/L		752	80 - 120	9	20

Method: 9040B - pH

Lab Sample ID: LCS 280-592975/50

Matrix: Water

Analysis Batch: 592975

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH adj. to 25 deg C	7.00	7.1		SU		101	99 - 101

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-594088/39

Matrix: Water

Analysis Batch: 594088

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			11/19/22 03:21	1

Lab Sample ID: MB 280-594088/6

Matrix: Water

Analysis Batch: 594088

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			11/18/22 17:59	1

Lab Sample ID: LCS 280-594088/37

Matrix: Water

Analysis Batch: 594088

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	52.2		mg/L		104	90 - 110

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168614-1

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

Lab Sample ID: LCS 280-594088/4

Matrix: Water

Analysis Batch: 594088

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	52.0		mg/L		104	90 - 110

Lab Sample ID: LCSD 280-594088/38

Matrix: Water

Analysis Batch: 594088

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	52.3		mg/L		105	90 - 110	0	10

Lab Sample ID: LCSD 280-594088/5

Matrix: Water

Analysis Batch: 594088

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	51.9		mg/L		104	90 - 110	0	10

Lab Sample ID: MRL 280-594088/3

Matrix: Water

Analysis Batch: 594088

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	2.50	2.39	J	mg/L		96	50 - 150

Lab Sample ID: 280-168614-2 MS

Matrix: Water

Analysis Batch: 594088

Client Sample ID: MW-2B

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	600	F1	1000	1970	F1	mg/L		137	80 - 120

Lab Sample ID: 280-168614-2 MSD

Matrix: Water

Analysis Batch: 594088

Client Sample ID: MW-2B

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	600	F1	1000	1750		mg/L		115	80 - 120	12	20

Lab Sample ID: 280-168614-2 DU

Matrix: Water

Analysis Batch: 594088

Client Sample ID: MW-2B

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	600	F1	668		mg/L		11	15

Lab Sample ID: MB 280-594925/101

Matrix: Water

Analysis Batch: 594925

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			11/30/22 19:25	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168614-1

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

Lab Sample ID: MB 280-594925/101

Matrix: Water

Analysis Batch: 594925

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.50	0.17	mg/L			11/30/22 19:25	1
Sulfate	ND	^+	5.0	1.0	mg/L			11/30/22 19:25	1

Lab Sample ID: MB 280-594925/13

Matrix: Water

Analysis Batch: 594925

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			11/29/22 18:29	1
Fluoride	ND		0.50	0.17	mg/L			11/29/22 18:29	1
Sulfate	ND		5.0	1.0	mg/L			11/29/22 18:29	1

Lab Sample ID: MB 280-594925/66

Matrix: Water

Analysis Batch: 594925

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			11/30/22 09:30	1
Fluoride	ND		0.50	0.17	mg/L			11/30/22 09:30	1
Sulfate	ND		5.0	1.0	mg/L			11/30/22 09:30	1

Lab Sample ID: LCS 280-594925/64

Matrix: Water

Analysis Batch: 594925

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	50.6		mg/L		101	90 - 110
Fluoride	2.50	2.26		mg/L		90	90 - 110
Sulfate	50.0	50.8		mg/L		102	90 - 110

Lab Sample ID: LCS 280-594925/99

Matrix: Water

Analysis Batch: 594925

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	54.0		mg/L		108	90 - 110
Fluoride	2.50	2.40		mg/L		96	90 - 110

Lab Sample ID: LCSD 280-594925/100

Matrix: Water

Analysis Batch: 594925

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	53.9		mg/L		108	90 - 110	0	10
Fluoride	2.50	2.45		mg/L		98	90 - 110	2	10

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168614-1

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

Lab Sample ID: LCSD 280-594925/65

Matrix: Water

Analysis Batch: 594925

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	50.7		mg/L		101	90 - 110	0	10
Fluoride	2.50	2.35		mg/L		94	90 - 110	4	10
Sulfate	50.0	51.0		mg/L		102	90 - 110	0	10

Lab Sample ID: MRL 280-594925/10

Matrix: Water

Analysis Batch: 594925

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	2.50	2.39	J	mg/L		96	50 - 150
Fluoride	0.250	0.225	J	mg/L		90	50 - 150
Sulfate	2.50	2.13	J	mg/L		85	50 - 150

Lab Sample ID: MB 280-595327/110

Matrix: Water

Analysis Batch: 595327

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			12/03/22 23:59	1
Fluoride	ND		0.50	0.17	mg/L			12/03/22 23:59	1
Sulfate	ND		5.0	1.0	mg/L			12/03/22 23:59	1

Lab Sample ID: MB 280-595327/52

Matrix: Water

Analysis Batch: 595327

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			12/03/22 07:32	1
Fluoride	ND		0.50	0.17	mg/L			12/03/22 07:32	1
Sulfate	ND		5.0	1.0	mg/L			12/03/22 07:32	1

Lab Sample ID: LCS 280-595327/108

Matrix: Water

Analysis Batch: 595327

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	52.7		mg/L		105	90 - 110
Fluoride	2.50	2.29		mg/L		92	90 - 110
Sulfate	50.0	53.7		mg/L		107	90 - 110

Lab Sample ID: LCS 280-595327/50

Matrix: Water

Analysis Batch: 595327

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	53.5		mg/L		107	90 - 110
Fluoride	2.50	2.35		mg/L		94	90 - 110
Sulfate	50.0	53.8		mg/L		108	90 - 110

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168614-1

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

Lab Sample ID: LCSD 280-595327/109

Matrix: Water

Analysis Batch: 595327

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	52.7		mg/L		105	90 - 110	0	10
Fluoride	2.50	2.38		mg/L		95	90 - 110	4	10
Sulfate	50.0	53.7		mg/L		107	90 - 110	0	10

Lab Sample ID: LCSD 280-595327/51

Matrix: Water

Analysis Batch: 595327

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	53.4		mg/L		107	90 - 110	0	10
Fluoride	2.50	2.44		mg/L		98	90 - 110	4	10
Sulfate	50.0	53.6		mg/L		107	90 - 110	0	10

Lab Sample ID: MRL 280-595327/3

Matrix: Water

Analysis Batch: 595327

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	2.50	2.46	J	mg/L		98	50 - 150		
Fluoride	0.250	0.212	J	mg/L		85	50 - 150		
Sulfate	2.50	2.22	J	mg/L		89	50 - 150		

Lab Sample ID: MB 280-596213/55

Matrix: Water

Analysis Batch: 596213

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			12/10/22 05:15	1
Fluoride	ND		0.50	0.17	mg/L			12/10/22 05:15	1
Sulfate	ND		5.0	1.0	mg/L			12/10/22 05:15	1

Lab Sample ID: LCS 280-596213/51

Matrix: Water

Analysis Batch: 596213

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	50.0	50.7		mg/L		101	90 - 110		
Fluoride	2.50	2.26		mg/L		90	90 - 110		
Sulfate	50.0	48.0		mg/L		96	90 - 110		

Lab Sample ID: LCSD 280-596213/52

Matrix: Water

Analysis Batch: 596213

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	50.7		mg/L		101	90 - 110	0	10
Fluoride	2.50	2.29		mg/L		92	90 - 110	1	10
Sulfate	50.0	48.0		mg/L		96	90 - 110	0	10

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168614-1

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

Lab Sample ID: MRL 280-596213/3

Matrix: Water

Analysis Batch: 596213

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	2.50	2.22	J	mg/L		89	50 - 150
Fluoride	0.250	0.233	J	mg/L		93	50 - 150
Sulfate	2.50	1.59	J	mg/L		63	50 - 150

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-592471/6

Matrix: Water

Analysis Batch: 592471

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	3.30	J	10	3.1	mg/L			11/04/22 11:32	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			11/04/22 11:32	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			11/04/22 11:32	1

Lab Sample ID: LCS 280-592471/4

Matrix: Water

Analysis Batch: 592471

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	200	195		mg/L		98	89 - 109

Lab Sample ID: LCSD 280-592471/5

Matrix: Water

Analysis Batch: 592471

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Alkalinity	200	200		mg/L		100	89 - 109	2	10

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

Lab Sample ID: MB 280-592606/1

Matrix: Water

Analysis Batch: 592606

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 (TDS)	ND		10	4.7	mg/L			11/07/22 12:02	1

Lab Sample ID: LCS 280-592606/2

Matrix: Water

Analysis Batch: 592606

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 (TDS)	501	489		mg/L		98	88 - 114

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168614-1

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

Lab Sample ID: LCSD 280-592606/3

Matrix: Water

Analysis Batch: 592606

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids (TDS)	501	482		mg/L		96	88 - 114	1	20

Lab Sample ID: MB 280-592737/1

Matrix: Water

Analysis Batch: 592737

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 (TDS)	ND		10	4.7	mg/L			11/08/22 11:32	1

Lab Sample ID: LCS 280-592737/2

Matrix: Water

Analysis Batch: 592737

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 (TDS)	501	505		mg/L		101	88 - 114		

Lab Sample ID: LCSD 280-592737/3

Matrix: Water

Analysis Batch: 592737

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids (TDS)	500	493		mg/L		99	88 - 114	2	20

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 280-592431/2

Matrix: Water

Analysis Batch: 592431

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			11/04/22 12:18	1

Lab Sample ID: LCS 280-592431/1

Matrix: Water

Analysis Batch: 592431

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Suspended Solids	501	450		mg/L		90	79 - 114		

Lab Sample ID: 280-168614-1 DU

Matrix: Water

Analysis Batch: 592431

Client Sample ID: MW-1B

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D		RPD	RPD Limit
Total Suspended Solids	1.6	J	1.20	J F5	mg/L			29	10

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168614-1

Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

Lab Sample ID: 280-168614-5 DU
Matrix: Water
Analysis Batch: 592431

Client Sample ID: MW-2BD
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	4.0		1.20	J F5	mg/L		108	10

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168614-1

Metals

Prep Batch: 592417

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168614-3	MW-4B	Total Recoverable	Water	3005A	
MB 280-592417/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-592417/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 592586

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168614-1	MW-1B	Total Recoverable	Water	3005A	
280-168614-2	MW-2B	Total Recoverable	Water	3005A	
280-168614-4	MW-7	Total Recoverable	Water	3005A	
280-168614-5	MW-2BD	Total Recoverable	Water	3005A	
MB 280-592586/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-592586/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-168614-5 MS	MW-2BD	Total Recoverable	Water	3005A	
280-168614-5 MSD	MW-2BD	Total Recoverable	Water	3005A	

Prep Batch: 592625

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168614-1	MW-1B	Total Recoverable	Water	3005A	
280-168614-2	MW-2B	Total Recoverable	Water	3005A	
280-168614-3	MW-4B	Total Recoverable	Water	3005A	
280-168614-4	MW-7	Total Recoverable	Water	3005A	
280-168614-5	MW-2BD	Total Recoverable	Water	3005A	
MB 280-592625/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-592625/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 592687

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168614-3	MW-4B	Total Recoverable	Water	6020B	592417
MB 280-592417/1-A	Method Blank	Total Recoverable	Water	6020B	592417
LCS 280-592417/2-A	Lab Control Sample	Total Recoverable	Water	6020B	592417

Analysis Batch: 592825

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168614-1	MW-1B	Total Recoverable	Water	6020B	592586
280-168614-2	MW-2B	Total Recoverable	Water	6020B	592586
280-168614-3	MW-4B	Total Recoverable	Water	6020B	592417
280-168614-4	MW-7	Total Recoverable	Water	6020B	592586
280-168614-5	MW-2BD	Total Recoverable	Water	6020B	592586
MB 280-592417/1-A	Method Blank	Total Recoverable	Water	6020B	592417
MB 280-592586/1-A	Method Blank	Total Recoverable	Water	6020B	592586
LCS 280-592417/2-A	Lab Control Sample	Total Recoverable	Water	6020B	592417
LCS 280-592586/2-A	Lab Control Sample	Total Recoverable	Water	6020B	592586
280-168614-5 MS	MW-2BD	Total Recoverable	Water	6020B	592586
280-168614-5 MSD	MW-2BD	Total Recoverable	Water	6020B	592586

Analysis Batch: 592932

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168614-1	MW-1B	Total Recoverable	Water	6020B	592586
280-168614-2	MW-2B	Total Recoverable	Water	6020B	592586
280-168614-4	MW-7	Total Recoverable	Water	6020B	592586
280-168614-5	MW-2BD	Total Recoverable	Water	6020B	592586

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168614-1

Metals (Continued)

Analysis Batch: 592932 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-592586/1-A	Method Blank	Total Recoverable	Water	6020B	592586
LCS 280-592586/2-A	Lab Control Sample	Total Recoverable	Water	6020B	592586
280-168614-5 MS	MW-2BD	Total Recoverable	Water	6020B	592586
280-168614-5 MSD	MW-2BD	Total Recoverable	Water	6020B	592586

Analysis Batch: 593456

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168614-1	MW-1B	Total Recoverable	Water	6010C	592625
280-168614-3	MW-4B	Total Recoverable	Water	6010C	592625
280-168614-4	MW-7	Total Recoverable	Water	6010C	592625
MB 280-592625/1-A	Method Blank	Total Recoverable	Water	6010C	592625
LCS 280-592625/2-A	Lab Control Sample	Total Recoverable	Water	6010C	592625

Analysis Batch: 593627

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168614-2	MW-2B	Total Recoverable	Water	6010C	592625
280-168614-5	MW-2BD	Total Recoverable	Water	6010C	592625

General Chemistry

Analysis Batch: 592431

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168614-1	MW-1B	Total/NA	Water	SM 2540D	
280-168614-2	MW-2B	Total/NA	Water	SM 2540D	
280-168614-3	MW-4B	Total/NA	Water	SM 2540D	
280-168614-4	MW-7	Total/NA	Water	SM 2540D	
280-168614-5	MW-2BD	Total/NA	Water	SM 2540D	
MB 280-592431/2	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-592431/1	Lab Control Sample	Total/NA	Water	SM 2540D	
280-168614-1 DU	MW-1B	Total/NA	Water	SM 2540D	
280-168614-5 DU	MW-2BD	Total/NA	Water	SM 2540D	

Analysis Batch: 592471

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168614-1	MW-1B	Total/NA	Water	SM 2320B	
280-168614-2	MW-2B	Total/NA	Water	SM 2320B	
280-168614-3	MW-4B	Total/NA	Water	SM 2320B	
280-168614-4	MW-7	Total/NA	Water	SM 2320B	
280-168614-5	MW-2BD	Total/NA	Water	SM 2320B	
MB 280-592471/6	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-592471/4	Lab Control Sample	Total/NA	Water	SM 2320B	
LCSD 280-592471/5	Lab Control Sample Dup	Total/NA	Water	SM 2320B	

Analysis Batch: 592606

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168614-1	MW-1B	Total/NA	Water	SM 2540C	
280-168614-2	MW-2B	Total/NA	Water	SM 2540C	
280-168614-4	MW-7	Total/NA	Water	SM 2540C	
280-168614-5	MW-2BD	Total/NA	Water	SM 2540C	
MB 280-592606/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-592606/2	Lab Control Sample	Total/NA	Water	SM 2540C	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168614-1

General Chemistry (Continued)

Analysis Batch: 592606 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 280-592606/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 592737

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168614-3	MW-4B	Total/NA	Water	SM 2540C	
MB 280-592737/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-592737/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-592737/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 592975

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168614-1	MW-1B	Total/NA	Water	9040B	
280-168614-2	MW-2B	Total/NA	Water	9040B	
280-168614-3	MW-4B	Total/NA	Water	9040B	
280-168614-4	MW-7	Total/NA	Water	9040B	
280-168614-5	MW-2BD	Total/NA	Water	9040B	
LCS 280-592975/50	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 594088

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168614-1	MW-1B	Total/NA	Water	9056A	
280-168614-2	MW-2B	Total/NA	Water	9056A	
280-168614-3	MW-4B	Total/NA	Water	9056A	
280-168614-4	MW-7	Total/NA	Water	9056A	
280-168614-5	MW-2BD	Total/NA	Water	9056A	
MB 280-594088/39	Method Blank	Total/NA	Water	9056A	
MB 280-594088/6	Method Blank	Total/NA	Water	9056A	
LCS 280-594088/37	Lab Control Sample	Total/NA	Water	9056A	
LCS 280-594088/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-594088/38	Lab Control Sample Dup	Total/NA	Water	9056A	
LCSD 280-594088/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-594088/3	Lab Control Sample	Total/NA	Water	9056A	
280-168614-2 MS	MW-2B	Total/NA	Water	9056A	
280-168614-2 MSD	MW-2B	Total/NA	Water	9056A	
280-168614-2 DU	MW-2B	Total/NA	Water	9056A	

Analysis Batch: 594925

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168614-3	MW-4B	Total/NA	Water	9056A	
MB 280-594925/101	Method Blank	Total/NA	Water	9056A	
MB 280-594925/13	Method Blank	Total/NA	Water	9056A	
MB 280-594925/66	Method Blank	Total/NA	Water	9056A	
LCS 280-594925/64	Lab Control Sample	Total/NA	Water	9056A	
LCS 280-594925/99	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-594925/100	Lab Control Sample Dup	Total/NA	Water	9056A	
LCSD 280-594925/65	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-594925/10	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 595327

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168614-1	MW-1B	Total/NA	Water	9056A	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168614-1

General Chemistry (Continued)

Analysis Batch: 595327 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168614-1	MW-1B	Total/NA	Water	9056A	
280-168614-2	MW-2B	Total/NA	Water	9056A	
280-168614-2	MW-2B	Total/NA	Water	9056A	
280-168614-3	MW-4B	Total/NA	Water	9056A	
280-168614-4	MW-7	Total/NA	Water	9056A	
280-168614-5	MW-2BD	Total/NA	Water	9056A	
280-168614-5	MW-2BD	Total/NA	Water	9056A	
MB 280-595327/110	Method Blank	Total/NA	Water	9056A	
MB 280-595327/52	Method Blank	Total/NA	Water	9056A	
LCS 280-595327/108	Lab Control Sample	Total/NA	Water	9056A	
LCS 280-595327/50	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-595327/109	Lab Control Sample Dup	Total/NA	Water	9056A	
LCSD 280-595327/51	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-595327/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 596213

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-168614-4	MW-7	Total/NA	Water	9056A	
MB 280-596213/55	Method Blank	Total/NA	Water	9056A	
LCS 280-596213/51	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-596213/52	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-596213/3	Lab Control Sample	Total/NA	Water	9056A	

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168614-1

Client Sample ID: MW-1B

Date Collected: 11/01/22 14:50

Date Received: 11/03/22 09:30

Lab Sample ID: 280-168614-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	592625	11/13/22 17:20	MCR	EET DEN
Total Recoverable	Analysis	6010C		1			593456	11/14/22 16:26	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592586	11/07/22 14:42	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			592825	11/08/22 17:07	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592586	11/07/22 14:42	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			592932	11/09/22 13:55	LMT	EET DEN
Total/NA	Analysis	9040B		1			592975	11/09/22 17:43	KEG	EET DEN
Total/NA	Analysis	9056A		50	10 mL	10 mL	594088	11/19/22 02:30	MEC	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	595327	12/03/22 10:40	MEC	EET DEN
Total/NA	Analysis	9056A		500	10 mL	10 mL	595327	12/03/22 10:57	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			592471	11/04/22 12:01	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	592606	11/07/22 12:02	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	592431	11/04/22 12:18	ASP	EET DEN

Client Sample ID: MW-2B

Date Collected: 11/01/22 11:20

Date Received: 11/03/22 09:30

Lab Sample ID: 280-168614-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	592625	11/13/22 17:20	MCR	EET DEN
Total Recoverable	Analysis	6010C		2			593627	11/15/22 21:02	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592586	11/07/22 14:42	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			592825	11/08/22 17:11	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592586	11/07/22 14:42	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			592932	11/09/22 13:58	LMT	EET DEN
Total/NA	Analysis	9040B		1			592975	11/09/22 17:46	KEG	EET DEN
Total/NA	Analysis	9056A		20	10 mL	10 mL	594088	11/19/22 03:38	MEC	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	595327	12/03/22 11:48	MEC	EET DEN
Total/NA	Analysis	9056A		500	10 mL	10 mL	595327	12/03/22 12:05	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			592471	11/04/22 12:17	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	592606	11/07/22 12:02	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	592431	11/04/22 12:18	ASP	EET DEN

Client Sample ID: MW-4B

Date Collected: 11/02/22 13:00

Date Received: 11/03/22 09:30

Lab Sample ID: 280-168614-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	592625	11/13/22 17:20	MCR	EET DEN
Total Recoverable	Analysis	6010C		1			593456	11/14/22 16:50	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592417	11/04/22 14:50	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			592687	11/07/22 17:48	LMT	EET DEN

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168614-1

Client Sample ID: MW-4B

Date Collected: 11/02/22 13:00

Date Received: 11/03/22 09:30

Lab Sample ID: 280-168614-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	592417	11/04/22 14:50	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			592825	11/08/22 16:03	LMT	EET DEN
Total/NA	Analysis	9040B		1			592975	11/09/22 17:50	KEG	EET DEN
Total/NA	Analysis	9056A		20	10 mL	10 mL	594088	11/19/22 05:20	MEC	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	594925	11/30/22 23:24	EJS	EET DEN
Total/NA	Analysis	9056A		50	10 mL	10 mL	595327	12/04/22 02:15	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			592471	11/04/22 12:28	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	592737	11/08/22 11:32	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	592431	11/04/22 12:18	ASP	EET DEN

Client Sample ID: MW-7

Date Collected: 11/01/22 13:30

Date Received: 11/03/22 09:30

Lab Sample ID: 280-168614-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	592625	11/13/22 17:20	MCR	EET DEN
Total Recoverable	Analysis	6010C		1			593456	11/14/22 16:54	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592586	11/07/22 14:42	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			592825	11/08/22 17:15	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592586	11/07/22 14:42	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			592932	11/09/22 14:02	LMT	EET DEN
Total/NA	Analysis	9040B		1			592975	11/09/22 17:53	KEG	EET DEN
Total/NA	Analysis	9056A		100	5 mL	5 mL	596213	12/10/22 09:15	MEC	EET DEN
Total/NA	Analysis	9056A		20	10 mL	10 mL	594088	11/19/22 05:37	MEC	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	595327	12/03/22 12:22	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			592471	11/04/22 12:39	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	592606	11/07/22 12:02	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	592431	11/04/22 12:18	ASP	EET DEN

Client Sample ID: MW-2BD

Date Collected: 11/01/22 11:30

Date Received: 11/03/22 09:30

Lab Sample ID: 280-168614-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	592625	11/13/22 17:20	MCR	EET DEN
Total Recoverable	Analysis	6010C		2			593627	11/15/22 21:06	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592586	11/07/22 14:42	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			592825	11/08/22 17:19	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	592586	11/07/22 14:42	MCR	EET DEN
Total Recoverable	Analysis	6020B		50			592932	11/09/22 14:06	LMT	EET DEN
Total/NA	Analysis	9040B		1			592975	11/09/22 17:57	KEG	EET DEN
Total/NA	Analysis	9056A		20	10 mL	10 mL	594088	11/19/22 05:54	MEC	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	595327	12/03/22 12:56	MEC	EET DEN

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168614-1

Client Sample ID: MW-2BD

Lab Sample ID: 280-168614-5

Date Collected: 11/01/22 11:30

Matrix: Water

Date Received: 11/03/22 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		500	10 mL	10 mL	595327	12/03/22 13:13	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			592471	11/04/22 12:56	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	592606	11/07/22 12:02	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	592431	11/04/22 12:18	ASP	EET DEN

Laboratory References:

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

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-168614-1

Laboratory: Eurofins Denver

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

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-23

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	Calcium
6020B	3005A	Water	Magnesium
6020B	3005A	Water	Potassium
6020B	3005A	Water	Sodium
9040B		Water	Temperature

Chain of Custody Record

Client Information Client Contact: Ms. Sierra Schupp Company: HDR Inc		Sampler: <i>Janet Buzda</i> Phone: 769-943-0853 PWSID:	Lab PM: Ryan, Nicole C E-Mail: Nicole.Ryan@ET.eurofins.com	Carrier Tracking No(s): 280-123984-34657.1 State of Origin: Page 1 of 2 Job #:	COC No: 280-123984-34657.1
Address: 1670 Broadway Suite 3400 City: Denver State: CO, Zip: 80202 Phone: 734-263-7138(Tel) Email: Sierra.Schupp@hdrinc.com		Analysis Requested Due Date Requested: TAT Requested (days): Compliance Project: ☐ Yes ☒ No PO #: DEN-021 WO #: Project #: 28014376 SOW#:			
Project Name: Xcel Energy GW CCR Monitoring - Comanche Site: Colorado App. III + TSS, Additional Methods		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 - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)			
Sample Identification MW-1 MW-1B MW-2 MW-2B MW-3 MW-4 MW-4B MW-5 MW-6 MW-7 MW-7B		Sample Date 11/1/22 11/1/22 11/2/22 11/1/22 11/1/22	Sample Time 14:50 11:20 13:00 13:30 11:30	Sample Type (C=Comp, G=Grab) G G G G G G G G G	Matrix (Water, Solid, On-water, BT=Tissue, AA=Air) Water Water Water Water Water Water Water Water Water
Field Filtered Sample (Yes or No) ☒ Yes ☒ No		Perform MS/MSD (Yes or No) ☒ Yes ☒ No			
6010C - Total Boron, 6020B - Total Ca, Mg, K, Na 2220B - Alkalinity, 2540B - TSS 2540C - Calcd - TDS, 9040B - pH, 9056A - 280 - Cl, F, SO4 6010C - Diss. B, 6020B - Diss. Ca		Total Number of Containers Special Instructions/Note:			
Possible Hazard Identification ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological					
Deliverable Requested: I, II, III, IV, Other (specify)					
Empty Kit Relinquished by:					
Relinquished by: <i>Sierra Schupp</i> Date: 11/3/22 9:30 Company: HDR					
Relinquished by: Date/Time: Company:					
Relinquished by: Date/Time: Company:					
Custody Seal Intact: ☒ Yes ☐ No Custody Seal No.: <i>1/A</i>					

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-168614-1

Login Number: 168614

List Number: 1

Creator: Roehsner, Karen P

List Source: Eurofins Denver

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



ANALYTICAL REPORT

PREPARED FOR

Attn: Molly Reeves

HDR Inc

1670 Broadway

Suite 3400

Denver, Colorado 80202

Generated 12/20/2022 11:48:43 AM Revision 1

JOB DESCRIPTION

Xcel Energy GW CCR Monitoring - Comanche

JOB NUMBER

280-169258-1

Eurofins Denver

Job Notes

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the Eurofins TestAmerica Denver Project Manager.

The Lab Certification ID# is 4025.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

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 TestAmerica Project Manager.

Authorization



Authorized for release by
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Generated
12/20/2022 11:48:43 AM
Revision 1

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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169258-1

Qualifiers

Metals

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

General Chemistry

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
H3	Sample was received and analyzed past holding time.
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169258-1

Job ID: 280-169258-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-169258-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

The presence of the '4' qualifier indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount.

Revision 1, December 20, 2022

The original report was logged under the wrong project. The report has been revised to report under the correct project ID.

Receipt

The sample was received on 11/16/2022 8:35 AM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.9° C.

Receipt Exceptions

The following methods were received outside of holding time: TSS & TDS.

TOTAL RECOVERABLE METALS

Sample MW-6 (280-169258-1) was analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 11/18/2022 and analyzed on 11/24/2022 and 11/29/2022.

Boron was detected in method blank MB 280-593966/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Boron failed the recovery criteria high for the MS and MSD of sample MW-6MS (280-169258-1) in batch 280-594648.

Sample MW-6 (280-169258-1)[2X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

TOTAL RECOVERABLE METALS (ICP/MS)

Sample MW-6 (280-169258-1) was analyzed for Total Recoverable Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 11/21/2022 and analyzed on 11/21/2022 and 12/02/2022.

Potassium was detected in method blank MB 280-593956/1-A at a level that was above the method detection limit but below the reporting

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169258-1

Job ID: 280-169258-1 (Continued)

Laboratory: Eurofins Denver (Continued)

limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

The instrument blank for analytical batch 280-595427 contained 63 ppb K which is greater than one-half the reporting limit (RL of 120 ppb), and were not re-analyzed because the sample is $> 10\times$ the blank. The data have been qualified and reported.

Barium, Calcium and Potassium failed the recovery criteria low for the MS of sample 280-168757-1 in batch 280-595427. Magnesium and Sodium failed the recovery criteria high.

Several analytes failed the recovery criteria low for the MSD of sample 280-168757-1 in batch 280-595427. Sodium failed the recovery criteria high.

Sample MW-6 (280-169258-1)[50X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

TOTAL MERCURY

Sample MW-6 (280-169258-1) was analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared on 11/22/2022 and analyzed on 11/23/2022.

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

ALKALINITY

Sample MW-6 (280-169258-1) was analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 11/21/2022.

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

TOTAL DISSOLVED SOLIDS

Sample MW-6 (280-169258-1) was analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 11/17/2022.

The following sample was received with less than 2 days remaining on the holding time or less than one shift (8 hours) remaining on a test with a holding time of 48 hours or less. As such, the laboratory had insufficient time remaining to perform the analysis within holding time: MW-6 (280-169258-1).

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

TOTAL SUSPENDED SOLIDS

Sample MW-6 (280-169258-1) was analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 11/17/2022.

The following sample was received with less than 2 days remaining on the holding time or less than one shift (8 hours) remaining on a test with a holding time of 48 hours or less. As such, the laboratory had insufficient time remaining to perform the analysis within holding time: MW-6 (280-169258-1).

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

CORROSIVITY (PH)

Sample MW-6 (280-169258-1) was analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 11/17/2022.

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

ANIONS (28 DAYS)

Sample MW-6 (280-169258-1) was analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days). The samples

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169258-1

Job ID: 280-169258-1 (Continued)

Laboratory: Eurofins Denver (Continued)

were analyzed on 12/04/2022 and 12/10/2022.

Reanalysis of the following sample(s) was performed outside of the analytical holding time due to instrument issues caused an increased backlog which lead to extended turn around times: MW-6 (280-169258-1).

Sulfate failed the recovery criteria low for the MS and MSD of sample 280-169085-5 in batch 280-596213. Fluoride failed the recovery criteria high.

Samples MW-6 (280-169258-1)[10X] and MW-6 (280-169258-1)[100X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169258-1

Client Sample ID: MW-6

Lab Sample ID: 280-169258-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	2.4	F1 B	0.10	0.0015	mg/L	1		6010C	Total
Lithium	230		40	18	ug/L	2		6010C	Recoverable
Magnesium	350		2.5	1.1	mg/L	50		6020B	Total
Arsenic	0.00086	J	0.0050	0.00033	mg/L	1		6020B	Recoverable
Sodium	980		7.5	3.2	mg/L	50		6020B	Total
Barium	0.0064		0.0010	0.00029	mg/L	1		6020B	Recoverable
Potassium	9.8	B	0.12	0.052	mg/L	1		6020B	Total
Chromium	0.0012	J	0.0020	0.00050	mg/L	1		6020B	Recoverable
Cobalt	0.00026	J	0.0010	0.000092	mg/L	1		6020B	Total
Molybdenum	0.010		0.0020	0.00014	mg/L	1		6020B	Recoverable
Selenium	0.93		0.0050	0.00037	mg/L	1		6020B	Total
Calcium	450		10	1.9	mg/L	50		6020B	Recoverable
pH adj. to 25 deg C	7.9	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	23.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	230		30	10	mg/L	10		9056A	Total/NA
Fluoride	0.59		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	4000	H	500	100	mg/L	100		9056A	Total/NA
Alkalinity	140		10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	140		10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	6000	H H3	40	19	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	2.0	J H H3	4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Method Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169258-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	EET DEN
6020B	Metals (ICP/MS)	SW846	EET DEN
7470A	Mercury (CVAA)	SW846	EET DEN
9040B	pH	SW846	EET DEN
9056A	Anions, Ion Chromatography	SW846	EET DEN
SM 2320B	Alkalinity	SM	EET DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET DEN
SM 2540D	Solids, Total Suspended (TSS)	SM	EET DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET DEN
7470A	Preparation, Mercury	SW846	EET DEN

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

Sample Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169258-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-169258-1	MW-6	Water	11/08/22 10:17	11/16/22 08:35

1

2

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14

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169258-1

Method: SW846 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: MW-6
Date Collected: 11/08/22 10:17
Date Received: 11/16/22 08:35

Lab Sample ID: 280-169258-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	2.4	F1 B	0.10	0.0015	mg/L		11/18/22 21:51	11/24/22 03:47	1
Lithium	230		40	18	ug/L		11/18/22 21:51	11/29/22 13:35	2

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

Client Sample ID: MW-6
Date Collected: 11/08/22 10:17
Date Received: 11/16/22 08:35

Lab Sample ID: 280-169258-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		11/21/22 08:12	11/21/22 18:50	1
Magnesium	350		2.5	1.1	mg/L		11/21/22 08:12	12/02/22 13:31	50
Arsenic	0.00086	J	0.0050	0.00033	mg/L		11/21/22 08:12	11/21/22 18:50	1
Sodium	980		7.5	3.2	mg/L		11/21/22 08:12	12/02/22 13:31	50
Barium	0.0064		0.0010	0.00029	mg/L		11/21/22 08:12	12/02/22 10:27	1
Potassium	9.8	B	0.12	0.052	mg/L		11/21/22 08:12	12/02/22 13:39	1
Beryllium	ND		0.0010	0.000080	mg/L		11/21/22 08:12	11/21/22 18:50	1
Cadmium	ND		0.0010	0.00027	mg/L		11/21/22 08:12	11/21/22 18:50	1
Chromium	0.0012	J	0.0020	0.00050	mg/L		11/21/22 08:12	11/21/22 18:50	1
Cobalt	0.00026	J	0.0010	0.000092	mg/L		11/21/22 08:12	11/21/22 18:50	1
Lead	ND		0.0010	0.00018	mg/L		11/21/22 08:12	11/21/22 18:50	1
Molybdenum	0.010		0.0020	0.00014	mg/L		11/21/22 08:12	11/21/22 18:50	1
Selenium	0.93		0.0050	0.00037	mg/L		11/21/22 08:12	11/21/22 18:50	1
Thallium	ND		0.0010	0.000089	mg/L		11/21/22 08:12	11/21/22 18:50	1
Calcium	450		10	1.9	mg/L		11/21/22 08:12	12/02/22 13:31	50

Method: SW846 7470A - Mercury (CVAA)

Client Sample ID: MW-6
Date Collected: 11/08/22 10:17
Date Received: 11/16/22 08:35

Lab Sample ID: 280-169258-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		11/22/22 19:02	11/23/22 10:19	1

General Chemistry

Client Sample ID: MW-6
Date Collected: 11/08/22 10:17
Date Received: 11/16/22 08:35

Lab Sample ID: 280-169258-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C (SW846 9040B)	7.9	HF	0.1	0.1	SU			11/17/22 17:28	1
Temperature (SW846 9040B)	23.6	HF	1.0	1.0	Degrees C			11/17/22 17:28	1
Chloride (SW846 9056A)	230		30	10	mg/L			12/04/22 23:12	10
Fluoride (SW846 9056A)	0.59		0.50	0.17	mg/L			12/04/22 22:55	1
Sulfate (SW846 9056A)	4000	H	500	100	mg/L			12/10/22 08:59	100
Alkalinity (SM 2320B)	140		10	3.1	mg/L			11/21/22 16:02	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	140		10	3.1	mg/L			11/21/22 16:02	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			11/21/22 16:02	1
Total Dissolved Solids (TDS) (SM 2540C)	6000	H H3	40	19	mg/L			11/17/22 12:00	1

Eurofins Denver

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169258-1

General Chemistry (Continued)

Client Sample ID: MW-6
Date Collected: 11/08/22 10:17
Date Received: 11/16/22 08:35

Lab Sample ID: 280-169258-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D)	2.0	J H H3	4.0	1.1	mg/L			11/17/22 12:02	1

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169258-1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-593966/1-A
Matrix: Water
Analysis Batch: 594648

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 593966

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.00289	J	0.10	0.0015	mg/L		11/18/22 21:51	11/24/22 02:58	1

Lab Sample ID: MB 280-593966/1-A
Matrix: Water
Analysis Batch: 595031

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 593966

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		20	9.1	ug/L		11/18/22 21:51	11/29/22 12:15	1

Lab Sample ID: LCS 280-593966/2-A
Matrix: Water
Analysis Batch: 594648

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 593966

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	2.20		mg/L		110	86 - 110

Lab Sample ID: LCS 280-593966/2-A
Matrix: Water
Analysis Batch: 595031

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 593966

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Lithium	1000	970		ug/L		97	90 - 112

Lab Sample ID: LCSD 280-593966/3-A
Matrix: Water
Analysis Batch: 594648

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 593966

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	2.00	2.21		mg/L		110	86 - 110	0	20

Lab Sample ID: LCSD 280-593966/3-A
Matrix: Water
Analysis Batch: 595031

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 593966

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Lithium	1000	982		ug/L		98	90 - 112	1	20

Lab Sample ID: 280-169258-1 MS
Matrix: Water
Analysis Batch: 594648

Client Sample ID: MW-6
Prep Type: Total Recoverable
Prep Batch: 593966

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.4	F1 B	2.00	4.65	F1	mg/L		114	87 - 113

Lab Sample ID: 280-169258-1 MS
Matrix: Water
Analysis Batch: 595031

Client Sample ID: MW-6
Prep Type: Total Recoverable
Prep Batch: 593966

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Lithium	230		1000	1370		ug/L		114	89 - 114

Eurofins Denver

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169258-1

Method: 6010C - Metals (ICP)

Lab Sample ID: 280-169258-1 MSD
Matrix: Water
Analysis Batch: 594648

Client Sample ID: MW-6
Prep Type: Total Recoverable
Prep Batch: 593966

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	2.4	F1 B	2.00	4.75	F1	mg/L		118	87 - 113	2	20

Lab Sample ID: 280-169258-1 MSD
Matrix: Water
Analysis Batch: 595031

Client Sample ID: MW-6
Prep Type: Total Recoverable
Prep Batch: 593966

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Lithium	230		1000	1370		ug/L		114	89 - 114	0	20

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-593956/1-A
Matrix: Water
Analysis Batch: 594350

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 593956

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.40	ug/L		11/21/22 08:12	11/21/22 18:47	1
Arsenic	ND		5.0	0.33	ug/L		11/21/22 08:12	11/21/22 18:47	1
Beryllium	ND		1.0	0.080	ug/L		11/21/22 08:12	11/21/22 18:47	1
Cadmium	ND		1.0	0.27	ug/L		11/21/22 08:12	11/21/22 18:47	1
Chromium	ND		2.0	0.50	ug/L		11/21/22 08:12	11/21/22 18:47	1
Cobalt	ND		1.0	0.092	ug/L		11/21/22 08:12	11/21/22 18:47	1
Lead	ND		1.0	0.18	ug/L		11/21/22 08:12	11/21/22 18:47	1
Molybdenum	ND		2.0	0.14	ug/L		11/21/22 08:12	11/21/22 18:47	1
Selenium	ND		5.0	0.37	ug/L		11/21/22 08:12	11/21/22 18:47	1
Thallium	ND		1.0	0.089	ug/L		11/21/22 08:12	11/21/22 18:47	1

Lab Sample ID: MB 280-593956/1-A
Matrix: Water
Analysis Batch: 595386

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 593956

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	ND		0.15	0.065	mg/L		11/21/22 08:12	12/02/22 10:19	1
Barium	ND		1.0	0.29	ug/L		11/21/22 08:12	12/02/22 10:19	1
Calcium	ND		200	38	ug/L		11/21/22 08:12	12/02/22 10:19	1

Lab Sample ID: MB 280-593956/1-A
Matrix: Water
Analysis Batch: 595427

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 593956

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium	0.0548	J	0.12	0.052	mg/L		11/21/22 08:12	12/02/22 13:32	1

Lab Sample ID: LCS 280-593956/2-A
Matrix: Water
Analysis Batch: 594350

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 593956

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	40.0	39.9		ug/L		100	85 - 115
Arsenic	40.0	40.1		ug/L		100	85 - 117

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169258-1

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

Lab Sample ID: LCS 280-593956/2-A

Matrix: Water

Analysis Batch: 594350

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 593956

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Beryllium	40.0	37.9		ug/L		95	80 - 125
Cadmium	40.0	38.8		ug/L		97	85 - 115
Chromium	40.0	40.1		ug/L		100	84 - 121
Cobalt	40.0	38.7		ug/L		97	85 - 120
Lead	40.0	39.7		ug/L		99	85 - 118
Molybdenum	40.0	38.3		ug/L		96	85 - 119
Selenium	40.0	40.1		ug/L		100	77 - 122
Thallium	40.0	39.4		ug/L		99	85 - 118

Lab Sample ID: LCS 280-593956/2-A

Matrix: Water

Analysis Batch: 595386

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 593956

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Barium	40.0	39.4		ug/L		98	85 - 118
Calcium	800	859		ug/L		107	80 - 120

Lab Sample ID: LCS 280-593956/2-A

Matrix: Water

Analysis Batch: 595418

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 593956

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sodium	0.800	0.826		mg/L		103	80 - 120

Lab Sample ID: LCS 280-593956/2-A

Matrix: Water

Analysis Batch: 595427

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 593956

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Potassium	0.800	0.852		mg/L		107	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-594468/1-A

Matrix: Water

Analysis Batch: 594603

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 594468

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		11/22/22 19:02	11/23/22 09:31	1

Lab Sample ID: LCS 280-594468/2-A

Matrix: Water

Analysis Batch: 594603

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 594468

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00502		mg/L		100	84 - 120

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169258-1

Method: 9040B - pH

Lab Sample ID: LCS 280-593984/50

Matrix: Water

Analysis Batch: 593984

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH adj. to 25 deg C	7.00	7.0		SU		101	99 - 101

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-595483/6

Matrix: Water

Analysis Batch: 595483

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			12/04/22 17:32	1
Fluoride	ND		0.50	0.17	mg/L			12/04/22 17:32	1
Sulfate	ND		5.0	1.0	mg/L			12/04/22 17:32	1

Lab Sample ID: LCS 280-595483/4

Matrix: Water

Analysis Batch: 595483

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	48.7		mg/L		97	90 - 110
Fluoride	2.50	2.26		mg/L		90	90 - 110
Sulfate	50.0	50.8		mg/L		102	90 - 110

Lab Sample ID: LCSD 280-595483/5

Matrix: Water

Analysis Batch: 595483

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	48.7		mg/L		97	90 - 110	0	10
Fluoride	2.50	2.29		mg/L		92	90 - 110	1	10
Sulfate	50.0	50.8		mg/L		102	90 - 110	0	10

Lab Sample ID: MRL 280-595483/3

Matrix: Water

Analysis Batch: 595483

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	2.50	2.42	J	mg/L		97	50 - 150
Fluoride	0.250	0.209	J	mg/L		84	50 - 150
Sulfate	2.50	2.16	J	mg/L		86	50 - 150

Lab Sample ID: MB 280-596213/55

Matrix: Water

Analysis Batch: 596213

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			12/10/22 05:15	1
Fluoride	ND		0.50	0.17	mg/L			12/10/22 05:15	1
Sulfate	ND		5.0	1.0	mg/L			12/10/22 05:15	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169258-1

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

Lab Sample ID: LCS 280-596213/51

Matrix: Water

Analysis Batch: 596213

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	50.7		mg/L		101	90 - 110
Fluoride	2.50	2.26		mg/L		90	90 - 110
Sulfate	50.0	48.0		mg/L		96	90 - 110

Lab Sample ID: LCSD 280-596213/52

Matrix: Water

Analysis Batch: 596213

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	50.7		mg/L		101	90 - 110	0	10
Fluoride	2.50	2.29		mg/L		92	90 - 110	1	10
Sulfate	50.0	48.0		mg/L		96	90 - 110	0	10

Lab Sample ID: MRL 280-596213/3

Matrix: Water

Analysis Batch: 596213

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	2.50	2.22	J	mg/L		89	50 - 150
Fluoride	0.250	0.233	J	mg/L		93	50 - 150
Sulfate	2.50	1.59	J	mg/L		63	50 - 150

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-594347/32

Matrix: Water

Analysis Batch: 594347

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	ND		10	3.1	mg/L			11/21/22 15:06	1
Bicarbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			11/21/22 15:06	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			11/21/22 15:06	1

Lab Sample ID: LCS 280-594347/31

Matrix: Water

Analysis Batch: 594347

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	200	202		mg/L		101	89 - 109

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

Lab Sample ID: MB 280-593859/1

Matrix: Water

Analysis Batch: 593859

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 (TDS)	ND		10	4.7	mg/L			11/17/22 11:59	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169258-1

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

Lab Sample ID: LCS 280-593859/2

Matrix: Water

Analysis Batch: 593859

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 (TDS)	502	479		mg/L		95	88 - 114

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 280-593861/3

Matrix: Water

Analysis Batch: 593861

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			11/17/22 12:02	1

Lab Sample ID: LCS 280-593861/1

Matrix: Water

Analysis Batch: 593861

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	503	448		mg/L		89	79 - 114

Lab Sample ID: LCSD 280-593861/2

Matrix: Water

Analysis Batch: 593861

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	503	468		mg/L		93	79 - 114	5	20

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169258-1

Metals

Prep Batch: 593956

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169258-1	MW-6	Total Recoverable	Water	3005A	
MB 280-593956/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-593956/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 593966

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169258-1	MW-6	Total Recoverable	Water	3005A	
MB 280-593966/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-593966/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCSD 280-593966/3-A	Lab Control Sample Dup	Total Recoverable	Water	3005A	
280-169258-1 MS	MW-6	Total Recoverable	Water	3005A	
280-169258-1 MSD	MW-6	Total Recoverable	Water	3005A	

Analysis Batch: 594350

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169258-1	MW-6	Total Recoverable	Water	6020B	593956
MB 280-593956/1-A	Method Blank	Total Recoverable	Water	6020B	593956
LCS 280-593956/2-A	Lab Control Sample	Total Recoverable	Water	6020B	593956

Prep Batch: 594468

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169258-1	MW-6	Total/NA	Water	7470A	
MB 280-594468/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-594468/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 594603

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169258-1	MW-6	Total/NA	Water	7470A	594468
MB 280-594468/1-A	Method Blank	Total/NA	Water	7470A	594468
LCS 280-594468/2-A	Lab Control Sample	Total/NA	Water	7470A	594468

Analysis Batch: 594648

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169258-1	MW-6	Total Recoverable	Water	6010C	593966
MB 280-593966/1-A	Method Blank	Total Recoverable	Water	6010C	593966
LCS 280-593966/2-A	Lab Control Sample	Total Recoverable	Water	6010C	593966
LCSD 280-593966/3-A	Lab Control Sample Dup	Total Recoverable	Water	6010C	593966
280-169258-1 MS	MW-6	Total Recoverable	Water	6010C	593966
280-169258-1 MSD	MW-6	Total Recoverable	Water	6010C	593966

Analysis Batch: 595031

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169258-1	MW-6	Total Recoverable	Water	6010C	593966
MB 280-593966/1-A	Method Blank	Total Recoverable	Water	6010C	593966
LCS 280-593966/2-A	Lab Control Sample	Total Recoverable	Water	6010C	593966
LCSD 280-593966/3-A	Lab Control Sample Dup	Total Recoverable	Water	6010C	593966
280-169258-1 MS	MW-6	Total Recoverable	Water	6010C	593966
280-169258-1 MSD	MW-6	Total Recoverable	Water	6010C	593966

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169258-1

Metals

Analysis Batch: 595386

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169258-1	MW-6	Total Recoverable	Water	6020B	593956
MB 280-593956/1-A	Method Blank	Total Recoverable	Water	6020B	593956
LCS 280-593956/2-A	Lab Control Sample	Total Recoverable	Water	6020B	593956

Analysis Batch: 595418

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169258-1	MW-6	Total Recoverable	Water	6020B	593956
LCS 280-593956/2-A	Lab Control Sample	Total Recoverable	Water	6020B	593956

Analysis Batch: 595427

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169258-1	MW-6	Total Recoverable	Water	6020B	593956
MB 280-593956/1-A	Method Blank	Total Recoverable	Water	6020B	593956
LCS 280-593956/2-A	Lab Control Sample	Total Recoverable	Water	6020B	593956

General Chemistry

Analysis Batch: 593859

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169258-1	MW-6	Total/NA	Water	SM 2540C	
MB 280-593859/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-593859/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 593861

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169258-1	MW-6	Total/NA	Water	SM 2540D	
MB 280-593861/3	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-593861/1	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-593861/2	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 593984

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169258-1	MW-6	Total/NA	Water	9040B	
LCS 280-593984/50	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 594347

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169258-1	MW-6	Total/NA	Water	SM 2320B	
MB 280-594347/32	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-594347/31	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 595483

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169258-1	MW-6	Total/NA	Water	9056A	
280-169258-1	MW-6	Total/NA	Water	9056A	
MB 280-595483/6	Method Blank	Total/NA	Water	9056A	
LCS 280-595483/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-595483/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-595483/3	Lab Control Sample	Total/NA	Water	9056A	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169258-1

General Chemistry

Analysis Batch: 596213

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169258-1	MW-6	Total/NA	Water	9056A	
MB 280-596213/55	Method Blank	Total/NA	Water	9056A	
LCS 280-596213/51	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-596213/52	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-596213/3	Lab Control Sample	Total/NA	Water	9056A	

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169258-1

Client Sample ID: MW-6

Lab Sample ID: 280-169258-1

Date Collected: 11/08/22 10:17

Matrix: Water

Date Received: 11/16/22 08:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	593966	11/18/22 21:51	MCR	EET DEN
Total Recoverable	Analysis	6010C		1			594648	11/24/22 03:47	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	593966	11/18/22 21:51	MCR	EET DEN
Total Recoverable	Analysis	6010C		2			595031	11/29/22 13:35	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	593956	11/21/22 08:12	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			595427	12/02/22 13:39	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	593956	11/21/22 08:12	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			594350	11/21/22 18:50	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	593956	11/21/22 08:12	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			595386	12/02/22 10:27	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	593956	11/21/22 08:12	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			595418	12/02/22 13:31	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	594468	11/22/22 19:02	PFM	EET DEN
Total/NA	Analysis	7470A		1			594603	11/23/22 10:19	PFM	EET DEN
Total/NA	Analysis	9040B		1			593984	11/17/22 17:28	KEG	EET DEN
Total/NA	Analysis	9056A		100	5 mL	5 mL	596213	12/10/22 08:59	MEC	EET DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	595483	12/04/22 22:55	MEC	EET DEN
Total/NA	Analysis	9056A		10	10 mL	10 mL	595483	12/04/22 23:12	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			594347	11/21/22 16:02	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	593859	11/17/22 12:00	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	593861	11/17/22 12:02	ASP	EET DEN

Laboratory References:

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

Eurofins Denver

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169258-1

Laboratory: Eurofins Denver

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

Authority	Program	Identification Number	Expiration Date
Oregon	NELAP	4025-011	01-09-23

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
9040B		Water	Temperature
SM 2320B		Water	Bicarbonate Alkalinity as CaCO ₃
SM 2320B		Water	Carbonate Alkalinity as CaCO ₃

[illegible]

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-169258-1

Login Number: 169258

List Number: 1

Creator: Rystrom, Joshua R

List Source: Eurofins Denver

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

ANALYTICAL REPORT

PREPARED FOR

Attn: Molly Reeves

HDR Inc

1670 Broadway

Suite 3400

Denver, Colorado 80202

Generated 1/10/2023 5:03:05 PM Revision 1

JOB DESCRIPTION

Xcel Energy GW CCR Monitoring - Comanche

JOB NUMBER

280-169800-1

Eurofins Denver

Job Notes

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the Eurofins TestAmerica Denver Project Manager.

The Lab Certification ID# is 4025.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

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 TestAmerica Project Manager.

Authorization



Authorized for release by
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(303)736-0100

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Revision 1

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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-1

Qualifiers

Metals

Qualifier	Qualifier Description
^2	Calibration Blank (ICB and/or CCB) is outside acceptance limits.
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.
B	Compound was found in the blank and sample.
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
L	A negative instrument reading had an absolute value greater than the reporting limit

General Chemistry

Qualifier	Qualifier Description
^-	Continuing Calibration Verification (CCV) is outside acceptance limits, low biased.
^+	Continuing Calibration Verification (CCV) is outside acceptance limits, high biased.
B	Compound was found in the blank and sample.
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-1

Job ID: 280-169800-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-169800-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

The presence of the '4' qualifier indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount.

Revision 1, January 10, 2023

This report has been revised to include Na, Mg, and K results on all samples per the clients request.

Receipt

The samples were received on 12/1/2022 2:25 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 was 0.3° C.

TOTAL RECOVERABLE METALS

Samples MW-3 (280-169800-1), MW-5 (280-169800-2) and W-1 (280-169800-3) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 12/08/2022 and analyzed on 12/09/2022.

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

TOTAL RECOVERABLE METALS (ICP/MS)

Samples MW-3 (280-169800-1), MW-5 (280-169800-2) and W-1 (280-169800-3) were analyzed for Total Recoverable Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 12/06/2022 and 12/08/2022 and analyzed on 12/07/2022, 12/08/2022, 12/09/2022 and 12/14/2022.

An instrument blank (CCB) for analytical batch 280-595882 contained Mg and Na greater than one-half the reporting limit (RL), and were not re-analyzed because samples contained greater than 10x the level in the blank. The data have been qualified and reported.

The method blank for preparation batch 280-595856 and analytical batch 280-596140 read a negative value greater than one-half the reporting limit (RL). Associated sample(s) were not re-extracted and/or re-analyzed because results were greater than 10X the value found in the method blank.

An instrument blank (CCB) for analytical batch 280-596140 contained K, Mg, and Na greater than one-half the reporting limit (RL). Associated QC samples (MB, LCS) were not re-analyzed because the results were acceptable, they preceded the high CCB and the high results in the CCB were due to carryover from samples run after the QC samples. Reanalysis was not possible because samples are no longer available; analyte requests were added one month later. The data have been qualified and reported.

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-1

Job ID: 280-169800-1 (Continued)

Laboratory: Eurofins Denver (Continued)

Arsenic, Cadmium and Selenium were detected in method blank MB 280-595533/1-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Calcium failed the recovery criteria low for the MS of sample 280-169454-10 in batch 280-595882.

Calcium failed the recovery criteria high for the MSD of sample 280-169454-10 in batch 280-595882.

Several analytes failed the recovery criteria low for the MS of sample MW-5MS (280-169800-2) in batch 280-596307. Beryllium failed the recovery criteria high.

Several analytes failed the recovery criteria low for the MSD of sample MW-5MSD (280-169800-2) in batch 280-596307. Beryllium failed the recovery criteria high.

Samples MW-3 (280-169800-1)[50X], MW-5 (280-169800-2)[50X] and W-1 (280-169800-3)[50X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

TOTAL MERCURY

Samples MW-3 (280-169800-1), MW-5 (280-169800-2) and W-1 (280-169800-3) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 12/06/2022.

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

ALKALINITY

Samples MW-3 (280-169800-1), MW-5 (280-169800-2) and W-1 (280-169800-3) were analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 12/02/2022.

Alkalinity was detected in method blank MB 280-595501/31 at a level exceeding the reporting limit. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Bicarbonate Alkalinity as CaCO₃ was detected in method blank MB 280-595501/31 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Alkalinity was detected in method blank MB 280-595501/57 at a level exceeding the reporting limit. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Bicarbonate Alkalinity as CaCO₃ was detected in method blank MB 280-595501/57 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

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

TOTAL DISSOLVED SOLIDS

Samples MW-3 (280-169800-1), MW-5 (280-169800-2) and W-1 (280-169800-3) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 12/02/2022.

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

TOTAL SUSPENDED SOLIDS

Samples MW-3 (280-169800-1), MW-5 (280-169800-2) and W-1 (280-169800-3) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 12/02/2022.

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

CORROSIVITY (PH)

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-1

Job ID: 280-169800-1 (Continued)

Laboratory: Eurofins Denver (Continued)

Samples MW-3 (280-169800-1), MW-5 (280-169800-2) and W-1 (280-169800-3) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 12/05/2022.

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

ANIONS (28 DAYS)

Samples MW-3 (280-169800-1), MW-5 (280-169800-2) and W-1 (280-169800-3) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days). The samples were analyzed on 12/15/2022.

Chloride and Sulfate failed the recovery criteria low for the MS and MSD of sample 280-169569-2 in batch 280-596701.

Samples MW-3 (280-169800-1)[100X], MW-3 (280-169800-1)[500X], MW-5 (280-169800-2)[100X], MW-5 (280-169800-2)[500X], W-1 (280-169800-3)[100X] and W-1 (280-169800-3)[500X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-1

Client Sample ID: MW-3

Lab Sample ID: 280-169800-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.67		0.10	0.0015	mg/L	1		6010C	Total
									Recoverable
Lithium	2.6		0.020	0.0091	mg/L	1		6010C	Total
									Recoverable
Arsenic	0.0012	J B	0.0050	0.00033	mg/L	1		6020B	Total
									Recoverable
Barium	0.013		0.0010	0.00029	mg/L	1		6020B	Total
									Recoverable
Cadmium	0.014	B	0.0010	0.00027	mg/L	1		6020B	Total
									Recoverable
Chromium	0.0060		0.0020	0.00050	mg/L	1		6020B	Total
									Recoverable
Cobalt	0.017		0.0010	0.000092	mg/L	1		6020B	Total
									Recoverable
Lead	0.0051		0.0010	0.00018	mg/L	1		6020B	Total
									Recoverable
Molybdenum	0.014		0.0020	0.00014	mg/L	1		6020B	Total
									Recoverable
Selenium	0.45	B	0.0050	0.00037	mg/L	1		6020B	Total
									Recoverable
Thallium	0.0050		0.0010	0.000089	mg/L	1		6020B	Total
									Recoverable
Calcium	470		10	1.9	mg/L	50		6020B	Total
									Recoverable
Sodium	6800	^2	7.5	3.2	mg/L	50		6020B	Total
									Recoverable
Potassium	59		6.0	2.6	mg/L	50		6020B	Total
									Recoverable
Magnesium	5400	^2	2.5	1.1	mg/L	50		6020B	Total
									Recoverable
pH adj. to 25 deg C	7.5	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	25.0	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	420		300	100	mg/L	100		9056A	Total/NA
Fluoride	40	J	50	17	mg/L	100		9056A	Total/NA
Sulfate	39000		2500	520	mg/L	500		9056A	Total/NA
Alkalinity	850	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	850	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	45000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	4.4		4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: MW-5

Lab Sample ID: 280-169800-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.74		0.10	0.0015	mg/L	1		6010C	Total
									Recoverable
Lithium	3.4		0.020	0.0091	mg/L	1		6010C	Total
									Recoverable
Antimony	0.0014	J	0.0020	0.00040	mg/L	1		6020B	Total
									Recoverable
Arsenic	0.0016	J	0.0050	0.00033	mg/L	1		6020B	Total
									Recoverable
Barium	0.023		0.0010	0.00029	mg/L	1		6020B	Total
									Recoverable
Beryllium	0.000092	J F1	0.0010	0.000080	mg/L	1		6020B	Total
									Recoverable
Cadmium	0.00097	J	0.0010	0.00027	mg/L	1		6020B	Total
									Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-1

Client Sample ID: MW-5 (Continued)

Lab Sample ID: 280-169800-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	0.0030		0.0020	0.00050	mg/L	1		6020B	Total
									Recoverable
Cobalt	0.010	F1	0.0010	0.000092	mg/L	1		6020B	Total
									Recoverable
Lead	0.00025	J F1	0.0010	0.00018	mg/L	1		6020B	Total
									Recoverable
Molybdenum	0.024		0.0020	0.00014	mg/L	1		6020B	Total
									Recoverable
Selenium	0.16		0.0050	0.00037	mg/L	1		6020B	Total
									Recoverable
Thallium	0.0024	F1	0.0010	0.000089	mg/L	1		6020B	Total
									Recoverable
Calcium	420		10	1.9	mg/L	50		6020B	Total
									Recoverable
Sodium	5200	B	7.5	3.2	mg/L	50		6020B	Total
									Recoverable
Potassium	37		6.0	2.6	mg/L	50		6020B	Total
									Recoverable
Magnesium	2100	B	2.5	1.1	mg/L	50		6020B	Total
									Recoverable
pH adj. to 25 deg C	7.4	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	24.6	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1700		300	100	mg/L	100		9056A	Total/NA
Fluoride	2.5		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	19000		2500	520	mg/L	500		9056A	Total/NA
Alkalinity	1400	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	1400	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	25000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	2.0	J	4.0	1.1	mg/L	1		SM 2540D	Total/NA

Client Sample ID: W-1

Lab Sample ID: 280-169800-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	3.0		0.10	0.0015	mg/L	1		6010C	Total
									Recoverable
Lithium	2.2		0.020	0.0091	mg/L	1		6010C	Total
									Recoverable
Arsenic	0.00077	J B	0.0050	0.00033	mg/L	1		6020B	Total
									Recoverable
Barium	0.015		0.0010	0.00029	mg/L	1		6020B	Total
									Recoverable
Cadmium	0.00060	J B	0.0010	0.00027	mg/L	1		6020B	Total
									Recoverable
Chromium	0.0030		0.0020	0.00050	mg/L	1		6020B	Total
									Recoverable
Cobalt	0.0018		0.0010	0.000092	mg/L	1		6020B	Total
									Recoverable
Lead	0.0014		0.0010	0.00018	mg/L	1		6020B	Total
									Recoverable
Molybdenum	0.014		0.0020	0.00014	mg/L	1		6020B	Total
									Recoverable
Selenium	0.57	B	0.0050	0.00037	mg/L	1		6020B	Total
									Recoverable
Thallium	0.00035	J	0.0010	0.000089	mg/L	1		6020B	Total
									Recoverable
Calcium	470		10	1.9	mg/L	50		6020B	Total
									Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-1

Client Sample ID: W-1 (Continued)

Lab Sample ID: 280-169800-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	6500		7.5	3.2	mg/L	50		6020B	Total
Potassium	13		0.12	0.052	mg/L	1		6020B	Total
Magnesium	2900		2.5	1.1	mg/L	50		6020B	Total
pH adj. to 25 deg C	7.5	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	24.5	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	770		300	100	mg/L	100		9056A	Total/NA
Fluoride	96		50	17	mg/L	100		9056A	Total/NA
Sulfate	25000		2500	520	mg/L	500		9056A	Total/NA
Alkalinity	660	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	660	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	31000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	4.8		4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Method Summary

Client: HDR Inc

Job ID: 280-169800-1

Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	EET DEN
6020B	Metals (ICP/MS)	SW846	EET DEN
7470A	Mercury (CVAA)	SW846	EET DEN
9040B	pH	SW846	EET DEN
9056A	Anions, Ion Chromatography	SW846	EET DEN
SM 2320B	Alkalinity	SM	EET DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET DEN
SM 2540D	Solids, Total Suspended (TSS)	SM	EET DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET DEN
7470A	Preparation, Mercury	SW846	EET DEN

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

Sample Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-169800-1	MW-3	Water	11/29/22 12:40	12/01/22 14:25
280-169800-2	MW-5	Water	11/29/22 15:45	12/01/22 14:25
280-169800-3	W-1	Water	11/30/22 13:25	12/01/22 14:25

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-1

Method: SW846 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: MW-3
Date Collected: 11/29/22 12:40
Date Received: 12/01/22 14:25

Lab Sample ID: 280-169800-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.67		0.10	0.0015	mg/L		12/08/22 16:40	12/09/22 12:41	1
Lithium	2.6		0.020	0.0091	mg/L		12/08/22 16:40	12/09/22 12:41	1

Client Sample ID: MW-5
Date Collected: 11/29/22 15:45
Date Received: 12/01/22 14:25

Lab Sample ID: 280-169800-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.74		0.10	0.0015	mg/L		12/08/22 16:40	12/09/22 12:53	1
Lithium	3.4		0.020	0.0091	mg/L		12/08/22 16:40	12/09/22 12:53	1

Client Sample ID: W-1
Date Collected: 11/30/22 13:25
Date Received: 12/01/22 14:25

Lab Sample ID: 280-169800-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	3.0		0.10	0.0015	mg/L		12/08/22 16:40	12/09/22 13:27	1
Lithium	2.2		0.020	0.0091	mg/L		12/08/22 16:40	12/09/22 13:27	1

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

Client Sample ID: MW-3
Date Collected: 11/29/22 12:40
Date Received: 12/01/22 14:25

Lab Sample ID: 280-169800-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		12/06/22 07:58	12/07/22 01:54	1
Arsenic	0.0012	J B	0.0050	0.00033	mg/L		12/06/22 07:58	12/07/22 01:54	1
Barium	0.013		0.0010	0.00029	mg/L		12/08/22 08:20	12/08/22 19:36	1
Beryllium	ND		0.0010	0.000080	mg/L		12/06/22 07:58	12/07/22 01:54	1
Cadmium	0.014	B	0.0010	0.00027	mg/L		12/06/22 07:58	12/07/22 01:54	1
Chromium	0.0060		0.0020	0.00050	mg/L		12/08/22 08:20	12/08/22 19:36	1
Cobalt	0.017		0.0010	0.000092	mg/L		12/06/22 07:58	12/07/22 01:54	1
Lead	0.0051		0.0010	0.00018	mg/L		12/08/22 08:20	12/08/22 19:36	1
Molybdenum	0.014		0.0020	0.00014	mg/L		12/06/22 07:58	12/07/22 01:54	1
Selenium	0.45	B	0.0050	0.00037	mg/L		12/06/22 07:58	12/07/22 01:54	1
Thallium	0.0050		0.0010	0.000089	mg/L		12/06/22 07:58	12/07/22 01:54	1
Calcium	470		10	1.9	mg/L		12/06/22 07:58	12/07/22 11:19	50
Sodium	6800	^2	7.5	3.2	mg/L		12/06/22 07:58	12/07/22 11:19	50
Potassium	59		6.0	2.6	mg/L		12/06/22 07:58	12/07/22 11:19	50
Magnesium	5400	^2	2.5	1.1	mg/L		12/06/22 07:58	12/07/22 11:19	50

Client Sample ID: MW-5
Date Collected: 11/29/22 15:45
Date Received: 12/01/22 14:25

Lab Sample ID: 280-169800-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0014	J	0.0020	0.00040	mg/L		12/08/22 08:20	12/08/22 20:55	1
Arsenic	0.0016	J	0.0050	0.00033	mg/L		12/08/22 08:20	12/08/22 20:55	1
Barium	0.023		0.0010	0.00029	mg/L		12/08/22 08:20	12/08/22 20:55	1
Beryllium	0.000092	J F1	0.0010	0.000080	mg/L		12/08/22 08:20	12/08/22 20:55	1
Cadmium	0.00097	J	0.0010	0.00027	mg/L		12/08/22 08:20	12/14/22 19:46	1
Chromium	0.0030		0.0020	0.00050	mg/L		12/08/22 08:20	12/09/22 11:05	1
Cobalt	0.010	F1	0.0010	0.000092	mg/L		12/08/22 08:20	12/09/22 11:05	1
Lead	0.00025	J F1	0.0010	0.00018	mg/L		12/08/22 08:20	12/08/22 20:55	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-1

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

Client Sample ID: MW-5
Date Collected: 11/29/22 15:45
Date Received: 12/01/22 14:25

Lab Sample ID: 280-169800-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	0.024		0.0020	0.00014	mg/L		12/08/22 08:20	12/08/22 20:55	1
Selenium	0.16		0.0050	0.00037	mg/L		12/08/22 08:20	12/08/22 20:55	1
Thallium	0.0024	F1	0.0010	0.000089	mg/L		12/08/22 08:20	12/08/22 20:55	1
Calcium	420		10	1.9	mg/L		12/08/22 08:20	12/09/22 17:17	50
Sodium	5200	B	7.5	3.2	mg/L		12/08/22 08:20	12/09/22 17:17	50
Potassium	37		6.0	2.6	mg/L		12/08/22 08:20	12/09/22 17:17	50
Magnesium	2100	B	2.5	1.1	mg/L		12/08/22 08:20	12/09/22 17:17	50

Client Sample ID: W-1
Date Collected: 11/30/22 13:25
Date Received: 12/01/22 14:25

Lab Sample ID: 280-169800-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		12/06/22 07:58	12/07/22 01:58	1
Arsenic	0.00077	J B	0.0050	0.00033	mg/L		12/06/22 07:58	12/07/22 01:58	1
Barium	0.015		0.0010	0.00029	mg/L		12/08/22 08:20	12/08/22 19:39	1
Beryllium	ND		0.0010	0.000080	mg/L		12/06/22 07:58	12/07/22 01:58	1
Cadmium	0.00060	J B	0.0010	0.00027	mg/L		12/06/22 07:58	12/07/22 01:58	1
Chromium	0.0030		0.0020	0.00050	mg/L		12/08/22 08:20	12/08/22 19:39	1
Cobalt	0.0018		0.0010	0.000092	mg/L		12/06/22 07:58	12/07/22 01:58	1
Lead	0.0014		0.0010	0.00018	mg/L		12/08/22 08:20	12/08/22 19:39	1
Molybdenum	0.014		0.0020	0.00014	mg/L		12/06/22 07:58	12/07/22 01:58	1
Selenium	0.57	B	0.0050	0.00037	mg/L		12/06/22 07:58	12/07/22 01:58	1
Thallium	0.00035	J	0.0010	0.000089	mg/L		12/06/22 07:58	12/07/22 01:58	1
Calcium	470		10	1.9	mg/L		12/06/22 07:58	12/07/22 11:21	50
Sodium	6500		7.5	3.2	mg/L		12/06/22 07:58	12/07/22 11:21	50
Potassium	13		0.12	0.052	mg/L		12/06/22 07:58	12/07/22 11:17	1
Magnesium	2900		2.5	1.1	mg/L		12/06/22 07:58	12/07/22 11:21	50

Method: SW846 7470A - Mercury (CVAA)

Client Sample ID: MW-3
Date Collected: 11/29/22 12:40
Date Received: 12/01/22 14:25

Lab Sample ID: 280-169800-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		12/06/22 13:39	12/06/22 21:28	1

Client Sample ID: MW-5
Date Collected: 11/29/22 15:45
Date Received: 12/01/22 14:25

Lab Sample ID: 280-169800-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		12/06/22 13:39	12/06/22 21:31	1

Client Sample ID: W-1
Date Collected: 11/30/22 13:25
Date Received: 12/01/22 14:25

Lab Sample ID: 280-169800-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		12/06/22 13:39	12/06/22 21:33	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-1

General Chemistry

Client Sample ID: MW-3
Date Collected: 11/29/22 12:40
Date Received: 12/01/22 14:25

Lab Sample ID: 280-169800-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C (SW846 9040B)	7.5	HF	0.1	0.1	SU			12/05/22 18:44	1
Temperature (SW846 9040B)	25.0	HF	1.0	1.0	Degrees C			12/05/22 18:44	1
Chloride (SW846 9056A)	420		300	100	mg/L			12/15/22 03:00	100
Fluoride (SW846 9056A)	40	J	50	17	mg/L			12/15/22 03:00	100
Sulfate (SW846 9056A)	39000		2500	520	mg/L			12/15/22 20:48	500
Alkalinity (SM 2320B)	850	B	10	3.1	mg/L			12/02/22 20:00	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	850	B	10	3.1	mg/L			12/02/22 20:00	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			12/02/22 20:00	1
Total Dissolved Solids (TDS) (SM 2540C)	45000		1000	470	mg/L			12/02/22 11:24	1
Total Suspended Solids (SM 2540D)	4.4		4.0	1.1	mg/L			12/02/22 11:26	1

Client Sample ID: MW-5
Date Collected: 11/29/22 15:45
Date Received: 12/01/22 14:25

Lab Sample ID: 280-169800-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C (SW846 9040B)	7.4	HF	0.1	0.1	SU			12/05/22 18:48	1
Temperature (SW846 9040B)	24.6	HF	1.0	1.0	Degrees C			12/05/22 18:48	1
Chloride (SW846 9056A)	1700		300	100	mg/L			12/15/22 02:36	100
Fluoride (SW846 9056A)	2.5		0.50	0.17	mg/L			12/15/22 02:28	1
Sulfate (SW846 9056A)	19000		2500	520	mg/L			12/15/22 21:05	500
Alkalinity (SM 2320B)	1400	B	10	3.1	mg/L			12/02/22 20:16	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	1400	B	10	3.1	mg/L			12/02/22 20:16	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			12/02/22 20:16	1
Total Dissolved Solids (TDS) (SM 2540C)	25000		1000	470	mg/L			12/02/22 11:24	1
Total Suspended Solids (SM 2540D)	2.0	J	4.0	1.1	mg/L			12/02/22 11:26	1

Client Sample ID: W-1
Date Collected: 11/30/22 13:25
Date Received: 12/01/22 14:25

Lab Sample ID: 280-169800-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C (SW846 9040B)	7.5	HF	0.1	0.1	SU			12/05/22 18:52	1
Temperature (SW846 9040B)	24.5	HF	1.0	1.0	Degrees C			12/05/22 18:52	1
Chloride (SW846 9056A)	770		300	100	mg/L			12/15/22 02:20	100
Fluoride (SW846 9056A)	96		50	17	mg/L			12/15/22 02:20	100
Sulfate (SW846 9056A)	25000		2500	520	mg/L			12/15/22 21:22	500
Alkalinity (SM 2320B)	660	B	10	3.1	mg/L			12/02/22 20:26	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	660	B	10	3.1	mg/L			12/02/22 20:26	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			12/02/22 20:26	1
Total Dissolved Solids (TDS) (SM 2540C)	31000		1000	470	mg/L			12/02/22 11:24	1
Total Suspended Solids (SM 2540D)	4.8		4.0	1.1	mg/L			12/02/22 11:26	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-595919/1-A
Matrix: Water
Analysis Batch: 596356

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 595919

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.0015	mg/L		12/08/22 16:40	12/09/22 11:40	1
Lithium	ND		0.020	0.0091	mg/L		12/08/22 16:40	12/09/22 11:40	1

Lab Sample ID: LCS 280-595919/2-A
Matrix: Water
Analysis Batch: 596356

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 595919

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	1.97		mg/L		99	86 - 110
Lithium	1.00	0.990		mg/L		99	90 - 112

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-595533/1-A
Matrix: Water
Analysis Batch: 595811

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 595533

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		12/06/22 07:58	12/07/22 01:06	1
Arsenic	0.000790	J	0.0050	0.00033	mg/L		12/06/22 07:58	12/07/22 01:06	1
Beryllium	ND		0.0010	0.000080	mg/L		12/06/22 07:58	12/07/22 01:06	1
Cadmium	0.000283	J	0.0010	0.00027	mg/L		12/06/22 07:58	12/07/22 01:06	1
Cobalt	ND		0.0010	0.000092	mg/L		12/06/22 07:58	12/07/22 01:06	1
Molybdenum	ND		0.0020	0.00014	mg/L		12/06/22 07:58	12/07/22 01:06	1
Selenium	0.000510	J	0.0050	0.00037	mg/L		12/06/22 07:58	12/07/22 01:06	1
Thallium	ND		0.0010	0.000089	mg/L		12/06/22 07:58	12/07/22 01:06	1
Magnesium	ND		0.050	0.021	mg/L		12/06/22 07:58	12/07/22 01:06	1

Lab Sample ID: MB 280-595533/1-A
Matrix: Water
Analysis Batch: 595882

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 595533

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		0.20	0.038	mg/L		12/06/22 07:58	12/07/22 11:09	1
Sodium	ND		0.15	0.065	mg/L		12/06/22 07:58	12/07/22 11:09	1
Potassium	ND		0.12	0.052	mg/L		12/06/22 07:58	12/07/22 11:09	1
Magnesium	ND		0.050	0.021	mg/L		12/06/22 07:58	12/07/22 11:09	1

Lab Sample ID: LCS 280-595533/2-A
Matrix: Water
Analysis Batch: 595811

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 595533

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0404		mg/L		101	85 - 115
Arsenic	0.0400	0.0395		mg/L		99	85 - 117
Beryllium	0.0400	0.0381		mg/L		95	80 - 125
Cadmium	0.0400	0.0397		mg/L		99	85 - 115
Cobalt	0.0400	0.0401		mg/L		100	85 - 120
Molybdenum	0.0400	0.0403		mg/L		101	85 - 119
Selenium	0.0400	0.0399		mg/L		100	77 - 122

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-1

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

Lab Sample ID: LCS 280-595533/2-A
Matrix: Water
Analysis Batch: 595811

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 595533

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Thallium	0.0400	0.0416		mg/L		104	85 - 118
Magnesium	0.800	0.805		mg/L		101	80 - 120

Lab Sample ID: LCS 280-595533/2-A
Matrix: Water
Analysis Batch: 595882

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 595533

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	0.800	0.841		mg/L		105	80 - 120
Sodium	0.800	0.835		mg/L		104	80 - 120
Potassium	0.800	0.809		mg/L		101	80 - 120
Magnesium	0.800	0.799		mg/L		100	80 - 120

Lab Sample ID: MB 280-595856/1-A
Matrix: Water
Analysis Batch: 596140

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 595856

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		12/08/22 08:20	12/08/22 20:47	1
Arsenic	ND		0.0050	0.00033	mg/L		12/08/22 08:20	12/08/22 20:47	1
Barium	ND		0.0010	0.00029	mg/L		12/08/22 08:20	12/08/22 20:47	1
Beryllium	ND		0.0010	0.000080	mg/L		12/08/22 08:20	12/08/22 20:47	1
Lead	ND		0.0010	0.00018	mg/L		12/08/22 08:20	12/08/22 20:47	1
Molybdenum	ND		0.0020	0.00014	mg/L		12/08/22 08:20	12/08/22 20:47	1
Selenium	ND		0.0050	0.00037	mg/L		12/08/22 08:20	12/08/22 20:47	1
Thallium	ND		0.0010	0.000089	mg/L		12/08/22 08:20	12/08/22 20:47	1
Sodium	ND	L	0.15	0.065	mg/L		12/08/22 08:20	12/08/22 20:47	1
Potassium	ND		0.12	0.052	mg/L		12/08/22 08:20	12/08/22 20:47	1
Magnesium	ND		0.050	0.021	mg/L		12/08/22 08:20	12/08/22 20:47	1

Lab Sample ID: MB 280-595856/1-A
Matrix: Water
Analysis Batch: 596192

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 595856

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	ND		0.0020	0.00050	mg/L		12/08/22 08:20	12/09/22 10:58	1
Cobalt	ND		0.0010	0.000092	mg/L		12/08/22 08:20	12/09/22 10:58	1

Lab Sample ID: MB 280-595856/1-A
Matrix: Water
Analysis Batch: 596629

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 595856

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.0010	0.00027	mg/L		12/08/22 08:20	12/13/22 16:11	1
Magnesium	ND		0.050	0.021	mg/L		12/08/22 08:20	12/13/22 16:11	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-1

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

Lab Sample ID: LCS 280-595856/2-A
Matrix: Water
Analysis Batch: 596140

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 595856

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0396		mg/L		99	85 - 115
Arsenic	0.0400	0.0404		mg/L		101	85 - 117
Barium	0.0400	0.0377		mg/L		94	85 - 118
Beryllium	0.0400	0.0386		mg/L		96	80 - 125
Lead	0.0400	0.0392		mg/L		98	85 - 118
Molybdenum	0.0400	0.0395		mg/L		99	85 - 119
Selenium	0.0400	0.0387		mg/L		97	77 - 122
Thallium	0.0400	0.0390		mg/L		97	85 - 118
Sodium	0.800	0.651		mg/L		81	80 - 120
Potassium	0.800	0.856		mg/L		107	80 - 120
Magnesium	0.800	0.732		mg/L		91	80 - 120

Lab Sample ID: LCS 280-595856/2-A
Matrix: Water
Analysis Batch: 596192

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 595856

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chromium	0.0400	0.0377		mg/L		94	84 - 121
Cobalt	0.0400	0.0367		mg/L		92	85 - 120

Lab Sample ID: LCS 280-595856/2-A
Matrix: Water
Analysis Batch: 596629

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 595856

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	0.0400	0.0426		mg/L		107	85 - 115
Magnesium	0.800	0.800		mg/L		100	80 - 120

Lab Sample ID: 280-169800-2 MS
Matrix: Water
Analysis Batch: 596140

Client Sample ID: MW-5
Prep Type: Total Recoverable
Prep Batch: 595856

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0014	J	0.0400	0.0434		mg/L		105	80 - 111
Arsenic	0.0016	J	0.0400	0.0422		mg/L		101	92 - 112
Barium	0.023		0.0400	0.0623		mg/L		99	92 - 117
Beryllium	0.000092	J F1	0.0400	0.0525	F1	mg/L		131	87 - 118
Lead	0.00025	J F1	0.0400	0.0369	F1	mg/L		92	95 - 116
Molybdenum	0.024		0.0400	0.0659		mg/L		105	84 - 117
Selenium	0.16		0.0400	0.197	4	mg/L		82	90 - 115
Thallium	0.0024	F1	0.0400	0.0388	F1	mg/L		91	94 - 115

Lab Sample ID: 280-169800-2 MS
Matrix: Water
Analysis Batch: 596192

Client Sample ID: MW-5
Prep Type: Total Recoverable
Prep Batch: 595856

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chromium	0.0030		0.0400	0.0416		mg/L		97	91 - 114
Cobalt	0.010	F1	0.0400	0.0458	F1	mg/L		89	94 - 115

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-1

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

Lab Sample ID: 280-169800-2 MS

Matrix: Water

Analysis Batch: 596307

Client Sample ID: MW-5

Prep Type: Total Recoverable

Prep Batch: 595856

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	420		0.800	417	4	mg/L		-930	80 - 120
Sodium	5200	B	0.800	5050	4	mg/L		-1962	80 - 120
Potassium	37		0.800	37.4	4	mg/L		-16	80 - 120
Magnesium	2100	B	0.800	2090	4	mg/L		-4240	80 - 120

Lab Sample ID: 280-169800-2 MS

Matrix: Water

Analysis Batch: 596770

Client Sample ID: MW-5

Prep Type: Total Recoverable

Prep Batch: 595856

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	0.00097	J	0.0400	0.0420		mg/L		103	91 - 114

Lab Sample ID: 280-169800-2 MSD

Matrix: Water

Analysis Batch: 596140

Client Sample ID: MW-5

Prep Type: Total Recoverable

Prep Batch: 595856

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	0.0014	J	0.0400	0.0426		mg/L		103	80 - 111	2	20
Arsenic	0.0016	J	0.0400	0.0384		mg/L		92	92 - 112	9	20
Barium	0.023		0.0400	0.0632		mg/L		102	92 - 117	2	20
Beryllium	0.000092	J F1	0.0400	0.0516	F1	mg/L		129	87 - 118	2	20
Lead	0.00025	J F1	0.0400	0.0365	F1	mg/L		91	95 - 116	1	20
Molybdenum	0.024		0.0400	0.0662		mg/L		105	84 - 117	0	20
Selenium	0.16		0.0400	0.199	4	mg/L		88	90 - 115	1	20
Thallium	0.0024	F1	0.0400	0.0383	F1	mg/L		90	94 - 115	1	20

Lab Sample ID: 280-169800-2 MSD

Matrix: Water

Analysis Batch: 596192

Client Sample ID: MW-5

Prep Type: Total Recoverable

Prep Batch: 595856

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chromium	0.0030		0.0400	0.0403		mg/L		93	91 - 114	3	20
Cobalt	0.010	F1	0.0400	0.0453	F1	mg/L		87	94 - 115	1	20

Lab Sample ID: 280-169800-2 MSD

Matrix: Water

Analysis Batch: 596307

Client Sample ID: MW-5

Prep Type: Total Recoverable

Prep Batch: 595856

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	420		0.800	418	4	mg/L		-841	80 - 120	0	20
Sodium	5200	B	0.800	5170	4	mg/L		-4399	80 - 120	2	20
Potassium	37		0.800	37.5	4	mg/L		1	80 - 120	0	20
Magnesium	2100	B	0.800	2130	4	mg/L		682	80 - 120	2	20

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-1

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

Lab Sample ID: 280-169800-2 MSD

Matrix: Water

Analysis Batch: 596770

Client Sample ID: MW-5

Prep Type: Total Recoverable

Prep Batch: 595856

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cadmium	0.00097	J	0.0400	0.0428		mg/L		105	91 - 114	2	20

Lab Sample ID: MB 280-595907/1-A

Matrix: Water

Analysis Batch: 596138

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 595907

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND		0.0010	0.00029	mg/L		12/08/22 08:20	12/08/22 18:43	1
Chromium	ND		0.0020	0.00050	mg/L		12/08/22 08:20	12/08/22 18:43	1
Lead	ND		0.0010	0.00018	mg/L		12/08/22 08:20	12/08/22 18:43	1

Lab Sample ID: LCS 280-595907/2-A

Matrix: Water

Analysis Batch: 596138

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 595907

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Barium	0.0400	0.0383		mg/L		96	85 - 118
Chromium	0.0400	0.0391		mg/L		98	84 - 121
Lead	0.0400	0.0389		mg/L		97	85 - 118

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-595719/1-A

Matrix: Water

Analysis Batch: 595851

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 595719

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		12/06/22 13:39	12/06/22 20:14	1

Lab Sample ID: LCS 280-595719/2-A

Matrix: Water

Analysis Batch: 595851

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 595719

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00477		mg/L		95	84 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-595679/73

Matrix: Water

Analysis Batch: 595679

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH adj. to 25 deg C	7.00	7.1		SU		101	99 - 101

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-596701/40

Matrix: Water

Analysis Batch: 596701

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND	^-	3.0	1.0	mg/L			12/14/22 20:55	1
Fluoride	ND	^-	0.50	0.17	mg/L			12/14/22 20:55	1
Sulfate	ND	^+	5.0	1.0	mg/L			12/14/22 20:55	1

Lab Sample ID: LCS 280-596701/38

Matrix: Water

Analysis Batch: 596701

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	50.2	^-	mg/L		100	90 - 110
Fluoride	2.50	2.48	^-	mg/L		99	90 - 110
Sulfate	50.0	46.0	^+	mg/L		92	90 - 110

Lab Sample ID: LCSD 280-596701/39

Matrix: Water

Analysis Batch: 596701

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	50.2	^-	mg/L		100	90 - 110	0	10
Fluoride	2.50	2.49	^-	mg/L		99	90 - 110	0	10
Sulfate	50.0	46.1	^+	mg/L		92	90 - 110	0	10

Lab Sample ID: MRL 280-596701/3

Matrix: Water

Analysis Batch: 596701

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	2.50	2.33	J	mg/L		93	50 - 150
Fluoride	0.250	0.259	J	mg/L		104	50 - 150
Sulfate	2.50	2.69	J	mg/L		108	50 - 150

Lab Sample ID: MB 280-596883/6

Matrix: Water

Analysis Batch: 596883

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		5.0	1.0	mg/L			12/15/22 17:30	1

Lab Sample ID: LCS 280-596883/4

Matrix: Water

Analysis Batch: 596883

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	50.0	49.4		mg/L		99	90 - 110

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-1

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

Lab Sample ID: LCSD 280-596883/5
Matrix: Water
Analysis Batch: 596883

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	50.0	49.4		mg/L		99	90 - 110	0	10

Lab Sample ID: MRL 280-596883/3
Matrix: Water
Analysis Batch: 596883

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
Sulfate	2.50	2.33	J	mg/L		93	50 - 150		

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-595501/31
Matrix: Water
Analysis Batch: 595501

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	3.19	J	10	3.1	mg/L			12/02/22 13:55	1
Bicarbonate Alkalinity as CaCO3	3.19	J	10	3.1	mg/L			12/02/22 13:55	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			12/02/22 13:55	1

Lab Sample ID: MB 280-595501/57
Matrix: Water
Analysis Batch: 595501

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	3.92	J	10	3.1	mg/L			12/02/22 17:19	1
Bicarbonate Alkalinity as CaCO3	3.92	J	10	3.1	mg/L			12/02/22 17:19	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			12/02/22 17:19	1

Lab Sample ID: LCS 280-595501/56
Matrix: Water
Analysis Batch: 595501

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Alkalinity	200	205		mg/L		102	89 - 109		

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

Lab Sample ID: MB 280-595384/1
Matrix: Water
Analysis Batch: 595384

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 (TDS)	ND		10	4.7	mg/L			12/02/22 11:24	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-1

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

Lab Sample ID: LCS 280-595384/2

Matrix: Water

Analysis Batch: 595384

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 (TDS)	500	477		mg/L		95	88 - 114

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 280-595385/2

Matrix: Water

Analysis Batch: 595385

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			12/02/22 11:25	1

Lab Sample ID: LCS 280-595385/1

Matrix: Water

Analysis Batch: 595385

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	501	479		mg/L		96	79 - 114

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-1

Metals

Prep Batch: 595533

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169800-1	MW-3	Total Recoverable	Water	3005A	
280-169800-3	W-1	Total Recoverable	Water	3005A	
MB 280-595533/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-595533/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 595719

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169800-1	MW-3	Total/NA	Water	7470A	
280-169800-2	MW-5	Total/NA	Water	7470A	
280-169800-3	W-1	Total/NA	Water	7470A	
MB 280-595719/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-595719/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 595811

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169800-1	MW-3	Total Recoverable	Water	6020B	595533
280-169800-3	W-1	Total Recoverable	Water	6020B	595533
MB 280-595533/1-A	Method Blank	Total Recoverable	Water	6020B	595533
LCS 280-595533/2-A	Lab Control Sample	Total Recoverable	Water	6020B	595533

Analysis Batch: 595851

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169800-1	MW-3	Total/NA	Water	7470A	595719
280-169800-2	MW-5	Total/NA	Water	7470A	595719
280-169800-3	W-1	Total/NA	Water	7470A	595719
MB 280-595719/1-A	Method Blank	Total/NA	Water	7470A	595719
LCS 280-595719/2-A	Lab Control Sample	Total/NA	Water	7470A	595719

Prep Batch: 595856

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169800-2	MW-5	Total Recoverable	Water	3005A	
MB 280-595856/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-595856/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-169800-2 MS	MW-5	Total Recoverable	Water	3005A	
280-169800-2 MSD	MW-5	Total Recoverable	Water	3005A	

Analysis Batch: 595882

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169800-1	MW-3	Total Recoverable	Water	6020B	595533
280-169800-3	W-1	Total Recoverable	Water	6020B	595533
280-169800-3	W-1	Total Recoverable	Water	6020B	595533
MB 280-595533/1-A	Method Blank	Total Recoverable	Water	6020B	595533
LCS 280-595533/2-A	Lab Control Sample	Total Recoverable	Water	6020B	595533

Prep Batch: 595907

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169800-1	MW-3	Total Recoverable	Water	3005A	
280-169800-3	W-1	Total Recoverable	Water	3005A	
MB 280-595907/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-595907/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-1

Metals

Prep Batch: 595919

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169800-1	MW-3	Total Recoverable	Water	3005A	
280-169800-2	MW-5	Total Recoverable	Water	3005A	
280-169800-3	W-1	Total Recoverable	Water	3005A	
MB 280-595919/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-595919/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 596138

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169800-1	MW-3	Total Recoverable	Water	6020B	595907
280-169800-3	W-1	Total Recoverable	Water	6020B	595907
MB 280-595907/1-A	Method Blank	Total Recoverable	Water	6020B	595907
LCS 280-595907/2-A	Lab Control Sample	Total Recoverable	Water	6020B	595907

Analysis Batch: 596140

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169800-2	MW-5	Total Recoverable	Water	6020B	595856
MB 280-595856/1-A	Method Blank	Total Recoverable	Water	6020B	595856
LCS 280-595856/2-A	Lab Control Sample	Total Recoverable	Water	6020B	595856
280-169800-2 MS	MW-5	Total Recoverable	Water	6020B	595856
280-169800-2 MSD	MW-5	Total Recoverable	Water	6020B	595856

Analysis Batch: 596192

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169800-2	MW-5	Total Recoverable	Water	6020B	595856
MB 280-595856/1-A	Method Blank	Total Recoverable	Water	6020B	595856
LCS 280-595856/2-A	Lab Control Sample	Total Recoverable	Water	6020B	595856
280-169800-2 MS	MW-5	Total Recoverable	Water	6020B	595856
280-169800-2 MSD	MW-5	Total Recoverable	Water	6020B	595856

Analysis Batch: 596307

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169800-2	MW-5	Total Recoverable	Water	6020B	595856
280-169800-2 MS	MW-5	Total Recoverable	Water	6020B	595856
280-169800-2 MSD	MW-5	Total Recoverable	Water	6020B	595856

Analysis Batch: 596356

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169800-1	MW-3	Total Recoverable	Water	6010C	595919
280-169800-2	MW-5	Total Recoverable	Water	6010C	595919
280-169800-3	W-1	Total Recoverable	Water	6010C	595919
MB 280-595919/1-A	Method Blank	Total Recoverable	Water	6010C	595919
LCS 280-595919/2-A	Lab Control Sample	Total Recoverable	Water	6010C	595919

Analysis Batch: 596629

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-595856/1-A	Method Blank	Total Recoverable	Water	6020B	595856
LCS 280-595856/2-A	Lab Control Sample	Total Recoverable	Water	6020B	595856

Analysis Batch: 596770

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169800-2	MW-5	Total Recoverable	Water	6020B	595856

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-1

Metals (Continued)

Analysis Batch: 596770 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169800-2 MS	MW-5	Total Recoverable	Water	6020B	595856
280-169800-2 MSD	MW-5	Total Recoverable	Water	6020B	595856

General Chemistry

Analysis Batch: 595384

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169800-1	MW-3	Total/NA	Water	SM 2540C	
280-169800-2	MW-5	Total/NA	Water	SM 2540C	
280-169800-3	W-1	Total/NA	Water	SM 2540C	
MB 280-595384/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-595384/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 595385

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169800-1	MW-3	Total/NA	Water	SM 2540D	
280-169800-2	MW-5	Total/NA	Water	SM 2540D	
280-169800-3	W-1	Total/NA	Water	SM 2540D	
MB 280-595385/2	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-595385/1	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 595501

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169800-1	MW-3	Total/NA	Water	SM 2320B	
280-169800-2	MW-5	Total/NA	Water	SM 2320B	
280-169800-3	W-1	Total/NA	Water	SM 2320B	
MB 280-595501/31	Method Blank	Total/NA	Water	SM 2320B	
MB 280-595501/57	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-595501/56	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 595679

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169800-1	MW-3	Total/NA	Water	9040B	
280-169800-2	MW-5	Total/NA	Water	9040B	
280-169800-3	W-1	Total/NA	Water	9040B	
LCS 280-595679/73	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 596701

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169800-1	MW-3	Total/NA	Water	9056A	
280-169800-2	MW-5	Total/NA	Water	9056A	
280-169800-2	MW-5	Total/NA	Water	9056A	
280-169800-3	W-1	Total/NA	Water	9056A	
MB 280-596701/40	Method Blank	Total/NA	Water	9056A	
LCS 280-596701/38	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-596701/39	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-596701/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 596883

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169800-1	MW-3	Total/NA	Water	9056A	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-1

General Chemistry (Continued)

Analysis Batch: 596883 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169800-2	MW-5	Total/NA	Water	9056A	
280-169800-3	W-1	Total/NA	Water	9056A	
MB 280-596883/6	Method Blank	Total/NA	Water	9056A	
LCS 280-596883/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-596883/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-596883/3	Lab Control Sample	Total/NA	Water	9056A	

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-1

Client Sample ID: MW-3

Date Collected: 11/29/22 12:40

Date Received: 12/01/22 14:25

Lab Sample ID: 280-169800-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	595919	12/08/22 16:40	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			596356	12/09/22 12:41	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	595907	12/08/22 08:20	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			596138	12/08/22 19:36	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	595533	12/06/22 07:58	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			595811	12/07/22 01:54	LRD	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	595533	12/06/22 07:58	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			595882	12/07/22 11:19	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	595719	12/06/22 13:39	PFM	EET DEN
Total/NA	Analysis	7470A		1			595851	12/06/22 21:28	PFM	EET DEN
Total/NA	Analysis	9040B		1			595679	12/05/22 18:44	KEG	EET DEN
Total/NA	Analysis	9056A		500	5 mL	5 mL	596883	12/15/22 20:48	EJS	EET DEN
Total/NA	Analysis	9056A		100	5 mL	5 mL	596701	12/15/22 03:00	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			595501	12/02/22 20:00	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	595384	12/02/22 11:24	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	595385	12/02/22 11:26	ASP	EET DEN

Client Sample ID: MW-5

Date Collected: 11/29/22 15:45

Date Received: 12/01/22 14:25

Lab Sample ID: 280-169800-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	595919	12/08/22 16:40	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			596356	12/09/22 12:53	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	595856	12/08/22 08:20	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			596140	12/08/22 20:55	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	595856	12/08/22 08:20	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			596192	12/09/22 11:05	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	595856	12/08/22 08:20	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			596307	12/09/22 17:17	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	595856	12/08/22 08:20	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			596770	12/14/22 19:46	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	595719	12/06/22 13:39	PFM	EET DEN
Total/NA	Analysis	7470A		1			595851	12/06/22 21:31	PFM	EET DEN
Total/NA	Analysis	9040B		1			595679	12/05/22 18:48	KEG	EET DEN
Total/NA	Analysis	9056A		500	5 mL	5 mL	596883	12/15/22 21:05	EJS	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	596701	12/15/22 02:28	MEC	EET DEN
Total/NA	Analysis	9056A		100	5 mL	5 mL	596701	12/15/22 02:36	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			595501	12/02/22 20:16	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	595384	12/02/22 11:24	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	595385	12/02/22 11:26	ASP	EET DEN

Eurofins Denver

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-1

Client Sample ID: W-1

Lab Sample ID: 280-169800-3

Date Collected: 11/30/22 13:25

Matrix: Water

Date Received: 12/01/22 14:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	595919	12/08/22 16:40	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			596356	12/09/22 13:27	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	595907	12/08/22 08:20	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			596138	12/08/22 19:39	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	595533	12/06/22 07:58	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			595811	12/07/22 01:58	LRD	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	595533	12/06/22 07:58	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			595882	12/07/22 11:17	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	595533	12/06/22 07:58	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			595882	12/07/22 11:21	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	595719	12/06/22 13:39	PFM	EET DEN
Total/NA	Analysis	7470A		1			595851	12/06/22 21:33	PFM	EET DEN
Total/NA	Analysis	9040B		1			595679	12/05/22 18:52	KEG	EET DEN
Total/NA	Analysis	9056A		500	5 mL	5 mL	596883	12/15/22 21:22	EJS	EET DEN
Total/NA	Analysis	9056A		100	5 mL	5 mL	596701	12/15/22 02:20	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			595501	12/02/22 20:26	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	595384	12/02/22 11:24	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	595385	12/02/22 11:26	ASP	EET DEN

Laboratory References:

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

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-1

Laboratory: Eurofins Denver

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

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-23

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	Calcium
6020B	3005A	Water	Magnesium
6020B	3005A	Water	Potassium
6020B	3005A	Water	Sodium
9040B		Water	Temperature

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-169800-1

Login Number: 169800

List Number: 1

Creator: Roehsner, Karen P

List Source: Eurofins Denver

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



ANALYTICAL REPORT

PREPARED FOR

Attn: Molly Reeves

HDR Inc

1670 Broadway

Suite 3400

Denver, Colorado 80202

Generated 12/29/2022 3:50:36 PM

JOB DESCRIPTION

Xcel Energy GW CCR Monitoring - Comanche

JOB NUMBER

280-169800-2

Eurofins Denver

Job Notes

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the Eurofins TestAmerica Denver Project Manager.

The Lab Certification ID# is 4025.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

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 TestAmerica Project Manager.

Authorization



Authorized for release by
Nicole Ryan, Project Manager I
Nicole.Ryan@ET.eurofinsus.com
(303)736-0100

Generated
12/29/2022 3:50:36 PM

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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-2

Qualifiers

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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-2

Job ID: 280-169800-2

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-169800-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

Receipt

The samples were received on 12/1/2022 2:25 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 was 0.3° C.

RADIUM-226 (GFPC)

Sample W-1 (280-169800-3) was analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 12/06/2022 and analyzed on 12/28/2022.

The following sample was prepared at a reduced aliquot due to Matrix: W-1 (280-169800-3). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

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

RADIUM-228

Sample W-1 (280-169800-3) was analyzed for Radium-228 in accordance with 9320. The samples were prepared on 12/06/2022 and analyzed on 12/20/2022.

The following sample was prepared at a reduced aliquot due to Matrix: W-1 (280-169800-3). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

The LCS recovered at (127%). The limits in our LIMS system at 75-125 reflect the requirements of a regulatory agency that represents a large amount of our work. However the samples associated with this LCS are not from this agency and are therefore held to our in-house statistical limits of (62-148%) per method requirements. The LCS passes, no further action is required.

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

RADIUM-226/RADIUM-228 (GFPC)

Sample W-1 (280-169800-3) was analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 12/28/2022.

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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-2

Job ID: 280-169800-2 (Continued)

Laboratory: Eurofins Denver (Continued)

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Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-2

Client Sample ID: W-1

Lab Sample ID: 280-169800-3

☐ No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Denver

Method Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-2

Method	Method Description	Protocol	Laboratory
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
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL

Protocol References:

None = None

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

Sample Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-169800-3	W-1	Water	11/30/22 13:25	12/01/22 14:25

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-2

Method: SW846 9315 - Radium-226 (GFPC)

Client Sample ID: W-1
Date Collected: 11/30/22 13:25
Date Received: 12/01/22 14:25

Lab Sample ID: 280-169800-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.587		0.181	0.188	1.00	0.178	pCi/L	12/06/22 09:20	12/28/22 07:53	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.0		40 - 110					12/06/22 09:20	12/28/22 07:53	1

Method: SW846 9320 - Radium-228 (GFPC)

Client Sample ID: W-1
Date Collected: 11/30/22 13:25
Date Received: 12/01/22 14:25

Lab Sample ID: 280-169800-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.03		0.465	0.475	1.00	0.622	pCi/L	12/06/22 09:41	12/20/22 11:54	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.0		40 - 110					12/06/22 09:41	12/20/22 11:54	1
Y Carrier	90.5		40 - 110					12/06/22 09:41	12/20/22 11:54	1

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

Client Sample ID: W-1
Date Collected: 11/30/22 13:25
Date Received: 12/01/22 14:25

Lab Sample ID: 280-169800-3
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.61		0.499	0.511	5.00	0.622	pCi/L		12/28/22 10:36	1

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-2

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-592448/1-A

Matrix: Water

Analysis Batch: 594940

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 592448

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.03531	U	0.0593	0.0594	1.00	0.104	pCi/L	12/06/22 09:20	12/28/22 07:49	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.4		40 - 110					12/06/22 09:20	12/28/22 07:49	1

Lab Sample ID: LCS 160-592448/2-A

Matrix: Water

Analysis Batch: 594940

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 592448

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226		11.3	10.71		1.12	1.00	0.118	pCi/L	94	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits							
Ba Carrier	95.9		40 - 110							

Lab Sample ID: LCSD 160-592448/3-A

Matrix: Water

Analysis Batch: 594940

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 592448

Analyte		Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-226		11.3	11.78		1.23	1.00	0.113	pCi/L	104	75 - 125	0.45	1
Carrier	LCSD %Yield	LCSD Qualifier	Limits									
Ba Carrier	87.4		40 - 110									

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-592449/1-A

Matrix: Water

Analysis Batch: 594393

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 592449

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.3893	U	0.319	0.321	1.00	0.497	pCi/L	12/06/22 09:41	12/20/22 11:52	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.4		40 - 110					12/06/22 09:41	12/20/22 11:52	1
Y Carrier	86.4		40 - 110					12/06/22 09:41	12/20/22 11:52	1

Eurofins Denver

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-2

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

Lab Sample ID: LCS 160-592449/2-A

Matrix: Water

Analysis Batch: 594393

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 592449

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-228		8.35	8.931		1.19	1.00	0.431	pCi/L	107	75 - 125

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	95.9		40 - 110
Y Carrier	88.2		40 - 110

Lab Sample ID: LCSD 160-592449/3-A

Matrix: Water

Analysis Batch: 594393

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 592449

Analyte		Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-228		8.35	10.58		1.42	1.00	0.527	pCi/L	127	75 - 125	0.63	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	87.4		40 - 110
Y Carrier	81.9		40 - 110

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-2

Rad

Prep Batch: 592448

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169800-3	W-1	Total/NA	Water	PrecSep-21	
MB 160-592448/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-592448/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-592448/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 592449

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-169800-3	W-1	Total/NA	Water	PrecSep_0	
MB 160-592449/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-592449/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-592449/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-2

Client Sample ID: W-1

Lab Sample ID: 280-169800-3

Date Collected: 11/30/22 13:25

Matrix: Water

Date Received: 12/01/22 14:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			751.13 mL	1.0 g	592448	12/06/22 09:20	DJP	EET SL
Total/NA	Analysis	9315		1			594942	12/28/22 07:53	FLC	EET SL
Total/NA	Prep	PrecSep_0			751.13 mL	1.0 g	592449	12/06/22 09:41	DJP	EET SL
Total/NA	Analysis	9320		1			594393	12/20/22 11:54	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			594896	12/28/22 10:36	CLP	EET SL

Laboratory References:

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

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-2

Laboratory: Eurofins St. Louis

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

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-23
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-23
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-23
Iowa	State	373	12-01-24
Kansas	NELAP	E-10236	10-31-23
Kentucky (DW)	State	KY90125	12-31-22
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-22
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-22
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	04-01-23
North Dakota	State	R-207	06-30-23
NRC	NRC	24-24817-01	12-31-22
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-23
South Carolina	State	85002001	06-30-23
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-24
Washington	State	C592	08-30-23
West Virginia DEP	State	381	12-31-22

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

Eurofins Denver

Ver: 01/16/2019

4955 Yarrow Street

Arvada, CO 80002

Phone: 303-736-0100 Fax: 303-431-7171

Chain of Custody Record



Environment Testing

Client Information (Sub Contract Lab) Company: TestAmerica Laboratories, Inc. Address: 13715 Rider Trail North, Earth City, MO 63045 Phone: 314-298-8566(Tel) 314-298-8757(Fax) Email:			Lab PM: Ryan, Nicole C E-Mail: Nicole.Ryan@ET.eurolinsus.com State of Origin: Colorado Page 1 of 1			Carrier Tracking No(s): 280-638159.1 Job #: 280-169800-2		
Due Date Requested: 1/3/2023 TAT Requested (days):			Analysis Requested			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:		
Project Name: Xcel Energy GW CCR Monitoring - Comanche Site: Xcel Energy CCR - Comanche Station			PO #: WO #: Project #: 28014376 SSOW#:			Total Number of Containers:		
Sample Identification - Client ID (Lab ID)			Sample Date			Sample Time		
W-1 (280-169800-3)			11/30/22			13:25 Mountain		
Matrix (W=water, S=solid, O=waste/oil, BT=tissue, AA=air)			Sample Type (C=Comp, G=grab)			Preservation Code:		
Water			C=Comp, G=grab			13-25 Mountain		
Perform MS/MSD (Yes or No)			Field Filtered Sample (Yes or No)			9315_Ra226/PreSep_21 Ra226 (1/3) - SUB		
9320_Ra228/PreSep_0 Ra228 (2/3) - SUB			Ra226Ra228 GPPC/Ra226/Ra228 Calc (3/3) - SUB			Total Number of Containers:		
Special Instructions/Note:			Special Instructions/Note:			Special Instructions/Note:		

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

Possible Hazard Identification Unconfirmed Deliverable Requested: I, II, III, IV, Other (specify)			Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) ☐ Return To Client ☐ Disposal By Lab ☐ Archive For		
Empty Kit Relinquished by:			Special Instructions/QC Requirements:		
Relinquished by:			Date:		
Relinquished by:			Date:		
Relinquished by:			Date:		
Custody Seals Intact:			Cooler Temperature(s) °C and Other Remarks:		
A Yes Δ No			Custody Seal No.:		

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-169800-2

Login Number: 169800

List Number: 1

Creator: Roehsner, Karen P

List Source: Eurofins Denver

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

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-169800-2

Login Number: 169800

List Number: 2

Creator: Bohlmann, Jessica M

List Source: Eurofins St. Louis

List Creation: 12/05/22 12:32 PM

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

Tracer/Carrier Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-169800-2

Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	
280-169800-3	W-1	93.0	
LCS 160-592448/2-A	Lab Control Sample	95.9	
LCSD 160-592448/3-A	Lab Control Sample Dup	87.4	
MB 160-592448/1-A	Method Blank	95.4	
Tracer/Carrier Legend			
Ba = Ba Carrier			

Method: 9320 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)
280-169800-3	W-1	93.0	90.5
LCS 160-592449/2-A	Lab Control Sample	95.9	88.2
LCSD 160-592449/3-A	Lab Control Sample Dup	87.4	81.9
MB 160-592449/1-A	Method Blank	95.4	86.4
Tracer/Carrier Legend			
Ba = Ba Carrier			
Y = Y Carrier			

ANALYTICAL REPORT

PREPARED FOR

Attn: Molly Reeves
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202

Generated 1/4/2023 11:01:42 AM

JOB DESCRIPTION

Xcel Energy GW CCR Monitoring - Comanche

JOB NUMBER

280-170243-1

Eurofins Denver

Job Notes

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the Eurofins TestAmerica Denver Project Manager.

The Lab Certification ID# is 4025.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

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 TestAmerica Project Manager.

Authorization



Generated
1/4/2023 11:01:42 AM

Authorized for release by
Nicole Ryan, Project Manager I
Nicole.Ryan@ET.eurofinsus.com
(303)736-0100

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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-1

Qualifiers

Metals

Qualifier	Qualifier Description
^+	Continuing Calibration Verification (CCV) is outside acceptance limits, high biased.
^6+	Interference Check Standard (ICSA and/or ICSAB) is outside acceptance limits, high biased.
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.
B	Compound was found in the blank and sample.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-1

Job ID: 280-170243-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-170243-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

The presence of the '4' qualifier indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount.

Receipt

The samples were received on 12/12/2022 8:30 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 was 0.1° C.

DISSOLVED METALS

Sample MW-8 (280-170243-1) was analyzed for Dissolved Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 12/20/2022 and analyzed on 01/03/2023 and 12/27/2022.

Boron was detected in method blank MB 280-596890/1-B at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Sample MW-8 (280-170243-1)[2X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

TOTAL RECOVERABLE METALS

Samples MW-8 (280-170243-1) and MW-9 (280-170243-2) were analyzed for Total Recoverable Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 12/15/2022 and analyzed on 12/16/2022.

Boron was detected in method blank MB 280-596693/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Boron and Lithium failed the recovery criteria low for the MS of sample 280-169949-3 in batch 280-597034.

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

DISSOLVED METALS (ICP/MS)

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-1

Job ID: 280-170243-1 (Continued)

Laboratory: Eurofins Denver (Continued)

Sample MW-8 (280-170243-1) was analyzed for Dissolved Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 12/20/2022 and analyzed on 12/21/2022 and 12/29/2022.

The interference check standard solution (ICSA) associated with batch 280-598107 had results for one or more elements at a level greater than 2 times the Reporting Limit. The following are the affected analyte: Ba. The vendor acknowledges that these elements are trace impurities in the ICSA standard. These results are not indicative of a matrix interference.

Calcium and Sodium failed the recovery criteria low for the MS of sample 280-169541-1 in batch 280-597566.

Calcium and Sodium failed the recovery criteria low for the MSD of sample 280-169541-1 in batch 280-597566.

Samples MW-8 (280-170243-1)[5X] and MW-8 (280-170243-1)[50X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

TOTAL RECOVERABLE METALS (ICP/MS)

Samples MW-8 (280-170243-1) and MW-9 (280-170243-2) were analyzed for Total Recoverable Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 12/16/2022 and 12/29/2022 and analyzed on 12/19/2022, 12/21/2022 and 12/29/2022.

The interference check standard solution (ICSA) associated with batch 280-598120 had results for one or more elements at a level greater than 2 times the Reporting Limit. The following are the affected analytes: Ba. The vendor acknowledges that these elements are trace impurities in the ICSA standard. These results are not indicative of a matrix interference.

The continuing calibration verification (CCV) associated with batch 280-598120 recovered (111%) above the upper control limit (110%) for Be. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: MW-8 (280-170243-1) and (CCV 280-598120/57).

Barium and Molybdenum were detected in method blank MB 280-596683/1-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Magnesium failed the recovery criteria low for the MS of sample MW-9MS (280-170243-2) in batch 280-597566. Calcium and Sodium failed the recovery criteria high.

Cadmium and Cobalt failed the recovery criteria low for the MSD of sample MW-9MSD (280-170243-2) in batch 280-597566. Calcium, Magnesium and Sodium failed the recovery criteria high.

Potassium failed the recovery criteria low for the MS of sample 280-170710-1 in batch 280-598120.

Potassium failed the recovery criteria low for the MSD of sample 280-170710-1 in batch 280-598120.

Samples MW-8 (280-170243-1)[5X], MW-8 (280-170243-1)[50X] and MW-9 (280-170243-2)[50X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

DISSOLVED MERCURY

Sample MW-8 (280-170243-1) was analyzed for dissolved mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 12/28/2022.

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

TOTAL MERCURY

Samples MW-8 (280-170243-1) and MW-9 (280-170243-2) were analyzed for total mercury in accordance with EPA SW-846 Methods

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-1

Job ID: 280-170243-1 (Continued)

Laboratory: Eurofins Denver (Continued)

7470A. The samples were prepared on 12/13/2022 and analyzed on 12/14/2022.

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

ALKALINITY

Samples MW-8 (280-170243-1) and MW-9 (280-170243-2) were analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 12/13/2022.

Alkalinity was detected in method blank MB 280-596623/32 at a level exceeding the reporting limit. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Bicarbonate Alkalinity as CaCO₃ was detected in method blank MB 280-596623/32 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Alkalinity was detected in method blank MB 280-596623/6 at a level exceeding the reporting limit. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Bicarbonate Alkalinity as CaCO₃ was detected in method blank MB 280-596623/6 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

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

TOTAL DISSOLVED SOLIDS

Samples MW-8 (280-170243-1) and MW-9 (280-170243-2) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 12/14/2022.

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

TOTAL SUSPENDED SOLIDS

Samples MW-8 (280-170243-1) and MW-9 (280-170243-2) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 12/13/2022 and 12/16/2022.

The sample duplicate (DUP) precision for analytical batch 280-597008 was outside control limits. Sample non-homogeneity is suspected.

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

CORROSIVITY (PH)

Samples MW-8 (280-170243-1) and MW-9 (280-170243-2) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9040B. The samples were analyzed on 12/20/2022.

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

ANIONS (28 DAYS)

Samples MW-8 (280-170243-1) and MW-9 (280-170243-2) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days). The samples were analyzed on 12/22/2022, 12/23/2022 and 12/27/2022.

Chloride and Fluoride failed the recovery criteria low for the MS of sample 280-170192-5 in batch 280-597496.

Chloride and Fluoride failed the recovery criteria low for the MSD of sample 280-170192-5 in batch 280-597496.

Samples MW-8 (280-170243-1)[1000X], MW-8 (280-170243-1)[50X], MW-9 (280-170243-2)[50X] and MW-9 (280-170243-2)[500X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-1

Client Sample ID: MW-8

Lab Sample ID: 280-170243-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Boron	1.0	B	0.10	0.0015	mg/L	1			6010C	Total
Lithium	3.3		0.020	0.0091	mg/L	1			6010C	Recoverable
Boron	1.1	B	0.20	0.0029	mg/L	2			6010C	Total
Lithium	3.2		0.020	0.0091	mg/L	1			6010C	Recoverable
Antimony	0.00093	J	0.0020	0.00040	mg/L	1			6020B	Dissolved
Arsenic	0.0021	J	0.0050	0.00033	mg/L	1			6020B	Total
Barium	0.018	B	0.0010	0.00029	mg/L	1			6020B	Recoverable
Cadmium	0.00097	J	0.0010	0.00027	mg/L	1			6020B	Total
Chromium	0.0042		0.0020	0.00050	mg/L	1			6020B	Recoverable
Cobalt	0.0066		0.0010	0.000092	mg/L	1			6020B	Total
Lead	0.0014		0.0010	0.00018	mg/L	1			6020B	Recoverable
Molybdenum	0.0097	B	0.0020	0.00014	mg/L	1			6020B	Total
Selenium	1.7		0.0050	0.00037	mg/L	1			6020B	Recoverable
Thallium	0.0064		0.0010	0.000089	mg/L	1			6020B	Total
Calcium	460		10	1.9	mg/L	50			6020B	Recoverable
Sodium	5900		7.5	3.2	mg/L	50			6020B	Total
Potassium	34		6.0	2.6	mg/L	50			6020B	Recoverable
Magnesium	5000		2.5	1.1	mg/L	50			6020B	Total
Barium	0.020	^6+	0.0050	0.0015	mg/L	5			6020B	Recoverable
Beryllium	0.00079	J ^+	0.0050	0.00040	mg/L	5			6020B	Dissolved
Chromium	0.0058	J	0.010	0.0025	mg/L	5			6020B	Dissolved
Cobalt	0.0085		0.0050	0.00046	mg/L	5			6020B	Dissolved
Calcium	460		10	1.9	mg/L	50			6020B	Dissolved
Molybdenum	0.013		0.010	0.00070	mg/L	5			6020B	Dissolved
Selenium	1.9		0.025	0.0019	mg/L	5			6020B	Dissolved
Thallium	0.0073		0.0050	0.00045	mg/L	5			6020B	Dissolved
Sodium	6000		7.5	3.2	mg/L	50			6020B	Dissolved
Potassium	33		6.0	2.6	mg/L	50			6020B	Dissolved
Magnesium	5100		2.5	1.1	mg/L	50			6020B	Dissolved
Mercury	0.000061	J	0.00020	0.000061	mg/L	1			7470A	Total/NA
pH adj. to 25 deg C	7.6	HF	0.1	0.1	SU	1			9040B	Total/NA
Temperature	23.6	HF	1.0	1.0	Degrees C	1			9040B	Total/NA
Chloride	600		150	51	mg/L	50			9056A	Total/NA
Fluoride	31		25	8.3	mg/L	50			9056A	Total/NA
Sulfate	37000		5000	1000	mg/L	1000			9056A	Total/NA
Alkalinity	1300	B	10	3.1	mg/L	1			SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	1300	B	10	3.1	mg/L	1			SM 2320B	Total/NA
Total Dissolved Solids (TDS)	41000		1000	470	mg/L	1			SM 2540C	Total/NA
Total Suspended Solids	36		4.0	1.1	mg/L	1			SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-1

Client Sample ID: MW-9

Lab Sample ID: 280-170243-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.95	B	0.10	0.0015	mg/L	1		6010C	Total
									Recoverable
Lithium	1.0		0.020	0.0091	mg/L	1		6010C	Total
									Recoverable
Antimony	0.0013	J	0.0020	0.00040	mg/L	1		6020B	Total
									Recoverable
Arsenic	0.0024	J	0.0050	0.00033	mg/L	1		6020B	Total
									Recoverable
Barium	0.012	B	0.0010	0.00029	mg/L	1		6020B	Total
									Recoverable
Cadmium	0.0011	F1	0.0010	0.00027	mg/L	1		6020B	Total
									Recoverable
Chromium	0.0016	J	0.0020	0.00050	mg/L	1		6020B	Total
									Recoverable
Cobalt	0.0085	F1	0.0010	0.000092	mg/L	1		6020B	Total
									Recoverable
Lead	0.00086	J	0.0010	0.00018	mg/L	1		6020B	Total
									Recoverable
Molybdenum	0.0046	B	0.0020	0.00014	mg/L	1		6020B	Total
									Recoverable
Selenium	0.0018	J	0.0050	0.00037	mg/L	1		6020B	Total
									Recoverable
Thallium	0.0019		0.0010	0.000089	mg/L	1		6020B	Total
									Recoverable
Calcium	420	F2	10	1.9	mg/L	50		6020B	Total
									Recoverable
Sodium	7300		7.5	3.2	mg/L	50		6020B	Total
									Recoverable
Potassium	19		0.12	0.052	mg/L	1		6020B	Total
									Recoverable
Magnesium	1000		2.5	1.1	mg/L	50		6020B	Total
									Recoverable
pH adj. to 25 deg C	7.5	HF	0.1	0.1	SU	1		9040B	Total/NA
Temperature	23.5	HF	1.0	1.0	Degrees C	1		9040B	Total/NA
Chloride	1400		150	51	mg/L	50		9056A	Total/NA
Sulfate	19000		2500	520	mg/L	500		9056A	Total/NA
Alkalinity	1400	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	1400	B	10	3.1	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids (TDS)	25000		1000	470	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	10		4.0	1.1	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Denver

Method Summary

Client: HDR Inc

Job ID: 280-170243-1

Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	EET DEN
6020B	Metals (ICP/MS)	SW846	EET DEN
7470A	Mercury (CVAA)	SW846	EET DEN
9040B	pH	SW846	EET DEN
9056A	Anions, Ion Chromatography	SW846	EET DEN
SM 2320B	Alkalinity	SM	EET DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET DEN
SM 2540D	Solids, Total Suspended (TSS)	SM	EET DEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET DEN
7470A	Preparation, Mercury	SW846	EET DEN
FILTRATION	Sample Filtration	None	EET DEN

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.

Laboratory References:

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

Sample Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-170243-1	MW-8	Water	12/08/22 16:00	12/12/22 08:30
280-170243-2	MW-9	Water	12/09/22 14:00	12/12/22 08:30

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-1

Method: SW846 6010C - Metals (ICP) - Total Recoverable

Client Sample ID: MW-8
Date Collected: 12/08/22 16:00
Date Received: 12/12/22 08:30

Lab Sample ID: 280-170243-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.0	B	0.10	0.0015	mg/L		12/15/22 16:37	12/16/22 18:24	1
Lithium	3.3		0.020	0.0091	mg/L		12/15/22 16:37	12/16/22 18:24	1

Client Sample ID: MW-9
Date Collected: 12/09/22 14:00
Date Received: 12/12/22 08:30

Lab Sample ID: 280-170243-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.95	B	0.10	0.0015	mg/L		12/15/22 16:37	12/16/22 18:44	1
Lithium	1.0		0.020	0.0091	mg/L		12/15/22 16:37	12/16/22 18:44	1

Method: SW846 6010C - Metals (ICP) - Dissolved

Client Sample ID: MW-8
Date Collected: 12/08/22 16:00
Date Received: 12/12/22 08:30

Lab Sample ID: 280-170243-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.1	B	0.20	0.0029	mg/L		12/20/22 08:08	01/03/23 13:37	2
Lithium	3.2		0.020	0.0091	mg/L		12/20/22 08:08	12/27/22 14:29	1

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

Client Sample ID: MW-8
Date Collected: 12/08/22 16:00
Date Received: 12/12/22 08:30

Lab Sample ID: 280-170243-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00093	J	0.0020	0.00040	mg/L		12/16/22 07:34	12/19/22 18:21	1
Arsenic	0.0021	J	0.0050	0.00033	mg/L		12/16/22 07:34	12/19/22 18:21	1
Barium	0.018	B	0.0010	0.00029	mg/L		12/16/22 07:34	12/19/22 18:21	1
Beryllium	ND	^+	0.0050	0.00040	mg/L		12/29/22 08:16	12/29/22 18:03	5
Cadmium	0.00097	J	0.0010	0.00027	mg/L		12/16/22 07:34	12/19/22 18:21	1
Chromium	0.0042		0.0020	0.00050	mg/L		12/16/22 07:34	12/19/22 18:21	1
Cobalt	0.0066		0.0010	0.000092	mg/L		12/16/22 07:34	12/19/22 18:21	1
Lead	0.0014		0.0010	0.00018	mg/L		12/16/22 07:34	12/19/22 18:21	1
Molybdenum	0.0097	B	0.0020	0.00014	mg/L		12/16/22 07:34	12/19/22 18:21	1
Selenium	1.7		0.0050	0.00037	mg/L		12/16/22 07:34	12/19/22 18:21	1
Thallium	0.0064		0.0010	0.000089	mg/L		12/16/22 07:34	12/19/22 18:21	1
Calcium	460		10	1.9	mg/L		12/16/22 07:34	12/21/22 15:42	50
Sodium	5900		7.5	3.2	mg/L		12/16/22 07:34	12/21/22 15:42	50
Potassium	34		6.0	2.6	mg/L		12/29/22 08:16	12/29/22 16:56	50
Magnesium	5000		2.5	1.1	mg/L		12/16/22 07:34	12/21/22 15:42	50

Client Sample ID: MW-9
Date Collected: 12/09/22 14:00
Date Received: 12/12/22 08:30

Lab Sample ID: 280-170243-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0013	J	0.0020	0.00040	mg/L		12/16/22 07:34	12/19/22 18:23	1
Arsenic	0.0024	J	0.0050	0.00033	mg/L		12/16/22 07:34	12/19/22 18:23	1
Barium	0.012	B	0.0010	0.00029	mg/L		12/16/22 07:34	12/19/22 18:23	1
Beryllium	ND		0.0010	0.000080	mg/L		12/29/22 08:16	12/29/22 17:00	1
Cadmium	0.0011	F1	0.0010	0.00027	mg/L		12/16/22 07:34	12/19/22 18:23	1
Chromium	0.0016	J	0.0020	0.00050	mg/L		12/16/22 07:34	12/19/22 18:23	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-1

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

Client Sample ID: MW-9
Date Collected: 12/09/22 14:00
Date Received: 12/12/22 08:30

Lab Sample ID: 280-170243-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	0.0085	F1	0.0010	0.000092	mg/L		12/16/22 07:34	12/19/22 18:23	1
Lead	0.00086	J	0.0010	0.00018	mg/L		12/16/22 07:34	12/19/22 18:23	1
Molybdenum	0.0046	B	0.0020	0.00014	mg/L		12/16/22 07:34	12/19/22 18:23	1
Selenium	0.0018	J	0.0050	0.00037	mg/L		12/16/22 07:34	12/19/22 18:23	1
Thallium	0.0019		0.0010	0.000089	mg/L		12/16/22 07:34	12/19/22 18:23	1
Calcium	420	F2	10	1.9	mg/L		12/16/22 07:34	12/21/22 15:46	50
Sodium	7300		7.5	3.2	mg/L		12/16/22 07:34	12/21/22 15:46	50
Potassium	19		0.12	0.052	mg/L		12/29/22 08:16	12/29/22 17:00	1
Magnesium	1000		2.5	1.1	mg/L		12/16/22 07:34	12/21/22 15:46	50

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

Client Sample ID: MW-8
Date Collected: 12/08/22 16:00
Date Received: 12/12/22 08:30

Lab Sample ID: 280-170243-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.010	0.0020	mg/L		12/20/22 08:20	12/29/22 17:41	5
Arsenic	ND		0.025	0.0017	mg/L		12/20/22 08:20	12/29/22 17:41	5
Barium	0.020	^6+	0.0050	0.0015	mg/L		12/20/22 08:20	12/29/22 17:41	5
Beryllium	0.00079	J ^+	0.0050	0.00040	mg/L		12/20/22 08:20	12/29/22 17:41	5
Cadmium	ND		0.0050	0.0013	mg/L		12/20/22 08:20	12/29/22 17:41	5
Chromium	0.0058	J	0.010	0.0025	mg/L		12/20/22 08:20	12/29/22 17:41	5
Cobalt	0.0085		0.0050	0.00046	mg/L		12/20/22 08:20	12/29/22 17:41	5
Lead	ND		0.0050	0.00090	mg/L		12/20/22 08:20	12/29/22 17:41	5
Calcium	460		10	1.9	mg/L		12/20/22 08:20	12/21/22 17:54	50
Molybdenum	0.013		0.010	0.00070	mg/L		12/20/22 08:20	12/29/22 17:41	5
Selenium	1.9		0.025	0.0019	mg/L		12/20/22 08:20	12/29/22 17:41	5
Thallium	0.0073		0.0050	0.00045	mg/L		12/20/22 08:20	12/29/22 17:41	5
Sodium	6000		7.5	3.2	mg/L		12/20/22 08:20	12/21/22 17:54	50
Potassium	33		6.0	2.6	mg/L		12/20/22 08:20	12/29/22 16:22	50
Magnesium	5100		2.5	1.1	mg/L		12/20/22 08:20	12/21/22 17:54	50

Method: SW846 7470A - Mercury (CVAA)

Client Sample ID: MW-8
Date Collected: 12/08/22 16:00
Date Received: 12/12/22 08:30

Lab Sample ID: 280-170243-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000061	J	0.00020	0.000061	mg/L		12/13/22 18:50	12/14/22 21:11	1

Client Sample ID: MW-9
Date Collected: 12/09/22 14:00
Date Received: 12/12/22 08:30

Lab Sample ID: 280-170243-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		12/13/22 18:50	12/14/22 21:24	1

Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-1

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

Client Sample ID: MW-8
Date Collected: 12/08/22 16:00
Date Received: 12/12/22 08:30

Lab Sample ID: 280-170243-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		12/28/22 13:05	12/28/22 20:42	1

General Chemistry

Client Sample ID: MW-8
Date Collected: 12/08/22 16:00
Date Received: 12/12/22 08:30

Lab Sample ID: 280-170243-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C (SW846 9040B)	7.6	HF	0.1	0.1	SU			12/20/22 17:50	1
Temperature (SW846 9040B)	23.6	HF	1.0	1.0	Degrees C			12/20/22 17:50	1
Chloride (SW846 9056A)	600		150	51	mg/L			12/22/22 05:29	50
Fluoride (SW846 9056A)	31		25	8.3	mg/L			12/22/22 05:29	50
Sulfate (SW846 9056A)	37000		5000	1000	mg/L			12/23/22 01:57	1000
Alkalinity (SM 2320B)	1300	B	10	3.1	mg/L			12/13/22 17:06	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	1300	B	10	3.1	mg/L			12/13/22 17:06	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			12/13/22 17:06	1
Total Dissolved Solids (TDS) (SM 2540C)	41000		1000	470	mg/L			12/14/22 11:54	1
Total Suspended Solids (SM 2540D)	36		4.0	1.1	mg/L			12/13/22 12:01	1

Client Sample ID: MW-9
Date Collected: 12/09/22 14:00
Date Received: 12/12/22 08:30

Lab Sample ID: 280-170243-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C (SW846 9040B)	7.5	HF	0.1	0.1	SU			12/20/22 17:54	1
Temperature (SW846 9040B)	23.5	HF	1.0	1.0	Degrees C			12/20/22 17:54	1
Chloride (SW846 9056A)	1400		150	51	mg/L			12/22/22 06:01	50
Fluoride (SW846 9056A)	ND		0.50	0.17	mg/L			12/27/22 17:22	1
Sulfate (SW846 9056A)	19000		2500	520	mg/L			12/23/22 02:42	500
Alkalinity (SM 2320B)	1400	B	10	3.1	mg/L			12/13/22 17:22	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	1400	B	10	3.1	mg/L			12/13/22 17:22	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		10	3.1	mg/L			12/13/22 17:22	1
Total Dissolved Solids (TDS) (SM 2540C)	25000		1000	470	mg/L			12/14/22 11:54	1
Total Suspended Solids (SM 2540D)	10		4.0	1.1	mg/L			12/16/22 14:10	1

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-596693/1-A
Matrix: Water
Analysis Batch: 597034

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 596693

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.00289	J	0.10	0.0015	mg/L		12/15/22 16:37	12/16/22 16:19	1
Lithium	ND		0.020	0.0091	mg/L		12/15/22 16:37	12/16/22 16:19	1

Lab Sample ID: LCS 280-596693/2-A
Matrix: Water
Analysis Batch: 597034

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 596693

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	1.95		mg/L		97	86 - 110
Lithium	1.00	0.998		mg/L		100	90 - 112

Lab Sample ID: MB 280-596890/1-B
Matrix: Water
Analysis Batch: 597466

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 597089

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.10	0.0015	mg/L		12/20/22 08:08	12/20/22 16:28	1

Lab Sample ID: MB 280-596890/1-B
Matrix: Water
Analysis Batch: 597844

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 597089

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.020	0.0091	mg/L		12/20/22 08:08	12/27/22 14:01	1

Lab Sample ID: MB 280-596890/1-B
Matrix: Water
Analysis Batch: 598404

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 597089

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.00196	J	0.10	0.0015	mg/L		12/20/22 08:08	01/03/23 15:24	1

Lab Sample ID: LCS 280-596890/2-B
Matrix: Water
Analysis Batch: 597466

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 597089

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	2.15		mg/L		107	86 - 110

Lab Sample ID: LCS 280-596890/2-B
Matrix: Water
Analysis Batch: 597844

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 597089

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Lithium	1.00	1.02		mg/L		102	90 - 112

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCS 280-596890/2-B
Matrix: Water
Analysis Batch: 598404

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 597089

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	2.00	1.95		mg/L		98	86 - 110

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-596683/1-A
Matrix: Water
Analysis Batch: 597258

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 596683

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		12/16/22 07:34	12/19/22 17:50	1
Arsenic	ND		0.0050	0.00033	mg/L		12/16/22 07:34	12/19/22 17:50	1
Barium	0.000362	J	0.0010	0.00029	mg/L		12/16/22 07:34	12/19/22 17:50	1
Cadmium	ND		0.0010	0.00027	mg/L		12/16/22 07:34	12/19/22 17:50	1
Chromium	ND		0.0020	0.00050	mg/L		12/16/22 07:34	12/19/22 17:50	1
Cobalt	ND		0.0010	0.000092	mg/L		12/16/22 07:34	12/19/22 17:50	1
Lead	ND		0.0010	0.00018	mg/L		12/16/22 07:34	12/19/22 17:50	1
Molybdenum	0.000141	J	0.0020	0.00014	mg/L		12/16/22 07:34	12/19/22 17:50	1
Selenium	ND		0.0050	0.00037	mg/L		12/16/22 07:34	12/19/22 17:50	1
Thallium	ND		0.0010	0.000089	mg/L		12/16/22 07:34	12/19/22 17:50	1

Lab Sample ID: MB 280-596683/1-A
Matrix: Water
Analysis Batch: 597566

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 596683

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.0010	0.000080	mg/L		12/16/22 07:34	12/21/22 15:35	1
Calcium	ND		0.20	0.038	mg/L		12/16/22 07:34	12/21/22 15:35	1
Sodium	ND		0.15	0.065	mg/L		12/16/22 07:34	12/21/22 15:35	1
Magnesium	ND		0.050	0.021	mg/L		12/16/22 07:34	12/21/22 15:35	1

Lab Sample ID: LCS 280-596683/2-A
Matrix: Water
Analysis Batch: 597258

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 596683

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0399		mg/L		100	85 - 115
Arsenic	0.0400	0.0397		mg/L		99	85 - 117
Barium	0.0400	0.0389		mg/L		97	85 - 118
Cadmium	0.0400	0.0382		mg/L		95	85 - 115
Chromium	0.0400	0.0403		mg/L		101	84 - 121
Cobalt	0.0400	0.0398		mg/L		100	85 - 120
Lead	0.0400	0.0398		mg/L		100	85 - 118
Molybdenum	0.0400	0.0399		mg/L		100	85 - 119
Selenium	0.0400	0.0408		mg/L		102	77 - 122
Thallium	0.0400	0.0400		mg/L		100	85 - 118

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-1

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

Lab Sample ID: LCS 280-596683/2-A
Matrix: Water
Analysis Batch: 597566

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 596683

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Beryllium	0.0400	0.0407		mg/L		102	80 - 125
Calcium	0.800	0.894		mg/L		112	80 - 120
Sodium	0.800	0.749		mg/L		94	80 - 120
Magnesium	0.800	0.757		mg/L		95	80 - 120

Lab Sample ID: 280-170243-2 MS
Matrix: Water
Analysis Batch: 597258

Client Sample ID: MW-9
Prep Type: Total Recoverable
Prep Batch: 596683

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0013	J	0.0400	0.0407		mg/L		99	80 - 111
Arsenic	0.0024	J	0.0400	0.0423		mg/L		100	92 - 112
Barium	0.012	B	0.0400	0.0501		mg/L		95	92 - 117
Cadmium	0.0011	F1	0.0400	0.0374		mg/L		91	91 - 114
Chromium	0.0016	J	0.0400	0.0406		mg/L		97	91 - 114
Cobalt	0.0085	F1	0.0400	0.0462		mg/L		94	94 - 115
Lead	0.00086	J	0.0400	0.0414		mg/L		101	95 - 116
Molybdenum	0.0046	B	0.0400	0.0450		mg/L		101	84 - 117
Selenium	0.0018	J	0.0400	0.0419		mg/L		100	90 - 115
Thallium	0.0019		0.0400	0.0425		mg/L		102	94 - 115

Lab Sample ID: 280-170243-2 MS
Matrix: Water
Analysis Batch: 597566

Client Sample ID: MW-9
Prep Type: Total Recoverable
Prep Batch: 596683

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	420	F2	0.800	424	4	mg/L		637	80 - 120
Sodium	7300		0.800	7370	4	mg/L		4604	80 - 120
Magnesium	1000		0.800	1040	4	mg/L		45	80 - 120

Lab Sample ID: 280-170243-2 MSD
Matrix: Water
Analysis Batch: 597258

Client Sample ID: MW-9
Prep Type: Total Recoverable
Prep Batch: 596683

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Antimony	0.0013	J	0.0400	0.0402		mg/L		97	80 - 111	1	20
Arsenic	0.0024	J	0.0400	0.0425		mg/L		100	92 - 112	1	20
Barium	0.012	B	0.0400	0.0488		mg/L		92	92 - 117	3	20
Cadmium	0.0011	F1	0.0400	0.0369	F1	mg/L		89	91 - 114	2	20
Chromium	0.0016	J	0.0400	0.0403		mg/L		97	91 - 114	1	20
Cobalt	0.0085	F1	0.0400	0.0458	F1	mg/L		93	94 - 115	1	20
Lead	0.00086	J	0.0400	0.0414		mg/L		101	95 - 116	0	20
Molybdenum	0.0046	B	0.0400	0.0437		mg/L		98	84 - 117	3	20
Selenium	0.0018	J	0.0400	0.0421		mg/L		101	90 - 115	1	20
Thallium	0.0019		0.0400	0.0427		mg/L		102	94 - 115	0	20

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-1

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

Lab Sample ID: 280-170243-2 MSD

Matrix: Water

Analysis Batch: 597566

Client Sample ID: MW-9

Prep Type: Total Recoverable

Prep Batch: 596683

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	420	F2	0.800	433	4	mg/L		1870	80 - 120	2	20
Sodium	7300		0.800	7610	4	mg/L		33829	80 - 120	3	20
Magnesium	1000		0.800	1090	4	mg/L		5743	80 - 120	4	20

Lab Sample ID: MB 280-597896/1-A

Matrix: Water

Analysis Batch: 598120

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 597896

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.0010	0.000080	mg/L		12/29/22 08:16	12/29/22 16:48	1
Potassium	ND		0.12	0.052	mg/L		12/29/22 08:16	12/29/22 16:48	1

Lab Sample ID: LCS 280-597896/2-A

Matrix: Water

Analysis Batch: 598120

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 597896

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Beryllium	0.0400	0.0375		mg/L		94	80 - 125
Potassium	0.800	0.654		mg/L		82	80 - 120

Lab Sample ID: MB 280-596890/1-C

Matrix: Water

Analysis Batch: 597566

Client Sample ID: Method Blank

Prep Type: Dissolved

Prep Batch: 597090

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00040	mg/L		12/20/22 08:20	12/21/22 17:24	1
Arsenic	ND		0.0050	0.00033	mg/L		12/20/22 08:20	12/21/22 17:24	1
Barium	ND		0.0010	0.00029	mg/L		12/20/22 08:20	12/21/22 17:24	1
Beryllium	ND		0.0010	0.000080	mg/L		12/20/22 08:20	12/21/22 17:24	1
Cadmium	ND		0.0010	0.00027	mg/L		12/20/22 08:20	12/21/22 17:24	1
Chromium	ND		0.0020	0.00050	mg/L		12/20/22 08:20	12/21/22 17:24	1
Cobalt	ND		0.0010	0.000092	mg/L		12/20/22 08:20	12/21/22 17:24	1
Lead	ND		0.0010	0.00018	mg/L		12/20/22 08:20	12/21/22 17:24	1
Molybdenum	ND		0.0020	0.00014	mg/L		12/20/22 08:20	12/21/22 17:24	1
Selenium	ND		0.0050	0.00037	mg/L		12/20/22 08:20	12/21/22 17:24	1
Calcium	ND		0.20	0.038	mg/L		12/20/22 08:20	12/21/22 17:24	1
Thallium	ND		0.0010	0.000089	mg/L		12/20/22 08:20	12/21/22 17:24	1
Sodium	ND		0.15	0.065	mg/L		12/20/22 08:20	12/21/22 17:24	1
Magnesium	ND		0.050	0.021	mg/L		12/20/22 08:20	12/21/22 17:24	1

Lab Sample ID: MB 280-596890/1-C

Matrix: Water

Analysis Batch: 598107

Client Sample ID: Method Blank

Prep Type: Dissolved

Prep Batch: 597090

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium	ND		0.12	0.052	mg/L		12/20/22 08:20	12/29/22 12:39	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-1

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

Lab Sample ID: LCS 280-596890/2-C
Matrix: Water
Analysis Batch: 597566

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 597090

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0400	0.0408		mg/L		102	85 - 115
Arsenic	0.0400	0.0389		mg/L		97	85 - 117
Barium	0.0400	0.0415		mg/L		104	85 - 118
Beryllium	0.0400	0.0390		mg/L		97	80 - 125
Cadmium	0.0400	0.0416		mg/L		104	85 - 115
Chromium	0.0400	0.0416		mg/L		104	84 - 121
Cobalt	0.0400	0.0409		mg/L		102	85 - 120
Lead	0.0400	0.0410		mg/L		103	85 - 118
Molybdenum	0.0400	0.0402		mg/L		101	85 - 119
Selenium	0.0400	0.0404		mg/L		101	77 - 122
Calcium	0.800	0.873		mg/L		109	80 - 120
Thallium	0.0400	0.0400		mg/L		100	85 - 118
Sodium	0.800	0.737		mg/L		92	80 - 120
Magnesium	0.800	0.773		mg/L		97	80 - 120

Lab Sample ID: LCS 280-596890/2-C
Matrix: Water
Analysis Batch: 598107

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 597090

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Potassium	0.800	0.732		mg/L		91	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-596561/1-A
Matrix: Water
Analysis Batch: 596791

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 596561

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		12/13/22 18:50	12/14/22 20:30	1

Lab Sample ID: LCS 280-596561/2-A
Matrix: Water
Analysis Batch: 596791

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 596561

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00517		mg/L		103	84 - 120

Lab Sample ID: 280-170243-1 MS
Matrix: Water
Analysis Batch: 596791

Client Sample ID: MW-8
Prep Type: Total/NA
Prep Batch: 596561

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.000061	J	0.00500	0.00421		mg/L		84	75 - 125

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-1

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

Lab Sample ID: 280-170243-1 MSD

Matrix: Water

Analysis Batch: 596791

Client Sample ID: MW-8

Prep Type: Total/NA

Prep Batch: 596561

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	0.000061	J	0.00500	0.00422		mg/L		84	75 - 125	0	20

Lab Sample ID: MB 280-597455/1-E

Matrix: Water

Analysis Batch: 597997

Client Sample ID: Method Blank

Prep Type: Dissolved

Prep Batch: 597872

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000061	mg/L		12/28/22 13:05	12/28/22 20:37	1

Lab Sample ID: LCS 280-597455/2-E

Matrix: Water

Analysis Batch: 597997

Client Sample ID: Lab Control Sample

Prep Type: Dissolved

Prep Batch: 597872

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00491		mg/L		98	84 - 120

Method: 9040B - pH

Lab Sample ID: LCS 280-597408/57

Matrix: Water

Analysis Batch: 597408

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH adj. to 25 deg C	7.00	7.0		SU		100	99 - 101

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-597496/95

Matrix: Water

Analysis Batch: 597496

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	1.0	mg/L			12/22/22 03:53	1
Fluoride	ND		0.50	0.17	mg/L			12/22/22 03:53	1
Sulfate	ND		5.0	1.0	mg/L			12/22/22 03:53	1

Lab Sample ID: LCS 280-597496/93

Matrix: Water

Analysis Batch: 597496

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	52.8		mg/L		106	90 - 110
Fluoride	2.50	2.47		mg/L		99	90 - 110
Sulfate	50.0	52.1		mg/L		104	90 - 110

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-1

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

Lab Sample ID: LCSD 280-597496/94

Matrix: Water

Analysis Batch: 597496

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	52.6		mg/L		105	90 - 110	0	10
Fluoride	2.50	2.46		mg/L		98	90 - 110	1	10
Sulfate	50.0	51.8		mg/L		104	90 - 110	0	10

Lab Sample ID: MRL 280-597496/10

Matrix: Water

Analysis Batch: 597496

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	2.50	2.41	J	mg/L		96	50 - 150
Fluoride	0.250	ND		mg/L		61	50 - 150
Sulfate	2.50	2.35	J	mg/L		94	50 - 150

Lab Sample ID: MB 280-597638/39

Matrix: Water

Analysis Batch: 597638

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		5.0	1.0	mg/L			12/23/22 01:42	1

Lab Sample ID: LCS 280-597638/37

Matrix: Water

Analysis Batch: 597638

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	50.0	48.8		mg/L		98	90 - 110

Lab Sample ID: LCSD 280-597638/38

Matrix: Water

Analysis Batch: 597638

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	50.0	49.0		mg/L		98	90 - 110	0	10

Lab Sample ID: MRL 280-597638/3

Matrix: Water

Analysis Batch: 597638

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	2.50	2.66	J	mg/L		106	50 - 150

Lab Sample ID: MB 280-597760/6

Matrix: Water

Analysis Batch: 597760

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.50	0.17	mg/L			12/27/22 13:26	1

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-1

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

Lab Sample ID: LCS 280-597760/4

Matrix: Water

Analysis Batch: 597760

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	2.50	2.67		mg/L		107	90 - 110

Lab Sample ID: LCSD 280-597760/5

Matrix: Water

Analysis Batch: 597760

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Fluoride	2.50	2.67		mg/L		107	90 - 110	0	10

Lab Sample ID: MRL 280-597760/3

Matrix: Water

Analysis Batch: 597760

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	0.250	0.349	J	mg/L		140	50 - 150

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 280-596623/32

Matrix: Water

Analysis Batch: 596623

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	4.46	J	10	3.1	mg/L			12/13/22 15:47	1
Bicarbonate Alkalinity as CaCO3	4.46	J	10	3.1	mg/L			12/13/22 15:47	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			12/13/22 15:47	1

Lab Sample ID: MB 280-596623/6

Matrix: Water

Analysis Batch: 596623

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	3.43	J	10	3.1	mg/L			12/13/22 12:35	1
Bicarbonate Alkalinity as CaCO3	3.21	J	10	3.1	mg/L			12/13/22 12:35	1
Carbonate Alkalinity as CaCO3	ND		10	3.1	mg/L			12/13/22 12:35	1

Lab Sample ID: LCS 280-596623/31

Matrix: Water

Analysis Batch: 596623

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	200	203		mg/L		101	89 - 109

Lab Sample ID: LCS 280-596623/4

Matrix: Water

Analysis Batch: 596623

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	200	203		mg/L		102	89 - 109

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-1

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: LCSD 280-596623/5

Matrix: Water

Analysis Batch: 596623

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Alkalinity	200	201		mg/L		101	89 - 109	3	10

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

Lab Sample ID: MB 280-596685/1

Matrix: Water

Analysis Batch: 596685

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 (TDS)	ND		10	4.7	mg/L			12/14/22 11:54	1

Lab Sample ID: LCS 280-596685/2

Matrix: Water

Analysis Batch: 596685

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 (TDS)	501	476		mg/L		95	88 - 114		

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 280-596515/2

Matrix: Water

Analysis Batch: 596515

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			12/13/22 12:01	1

Lab Sample ID: LCS 280-596515/1

Matrix: Water

Analysis Batch: 596515

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Suspended Solids	500	455		mg/L		91	79 - 114		

Lab Sample ID: MB 280-597008/3

Matrix: Water

Analysis Batch: 597008

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			12/16/22 14:10	1

Lab Sample ID: LCS 280-597008/1

Matrix: Water

Analysis Batch: 597008

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Suspended Solids	501	478		mg/L		95	79 - 114		

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QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-1

Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

Lab Sample ID: LCSD 280-597008/2
Matrix: Water
Analysis Batch: 597008

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	501	475		mg/L		95	79 - 114	1	20

QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-1

Metals

Prep Batch: 596561

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-170243-1	MW-8	Total/NA	Water	7470A	
280-170243-2	MW-9	Total/NA	Water	7470A	
MB 280-596561/1-A	Method Blank	Total/NA	Water	7470A	
LCS 280-596561/2-A	Lab Control Sample	Total/NA	Water	7470A	
280-170243-1 MS	MW-8	Total/NA	Water	7470A	
280-170243-1 MSD	MW-8	Total/NA	Water	7470A	

Prep Batch: 596683

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-170243-1	MW-8	Total Recoverable	Water	3005A	
280-170243-2	MW-9	Total Recoverable	Water	3005A	
MB 280-596683/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-596683/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-170243-2 MS	MW-9	Total Recoverable	Water	3005A	
280-170243-2 MSD	MW-9	Total Recoverable	Water	3005A	

Prep Batch: 596693

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-170243-1	MW-8	Total Recoverable	Water	3005A	
280-170243-2	MW-9	Total Recoverable	Water	3005A	
MB 280-596693/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-596693/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 596791

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-170243-1	MW-8	Total/NA	Water	7470A	596561
280-170243-2	MW-9	Total/NA	Water	7470A	596561
MB 280-596561/1-A	Method Blank	Total/NA	Water	7470A	596561
LCS 280-596561/2-A	Lab Control Sample	Total/NA	Water	7470A	596561
280-170243-1 MS	MW-8	Total/NA	Water	7470A	596561
280-170243-1 MSD	MW-8	Total/NA	Water	7470A	596561

Filtration Batch: 596890

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-170243-1	MW-8	Dissolved	Water	FILTRATION	
MB 280-596890/1-B	Method Blank	Dissolved	Water	FILTRATION	
MB 280-596890/1-C	Method Blank	Dissolved	Water	FILTRATION	
LCS 280-596890/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 280-596890/2-C	Lab Control Sample	Dissolved	Water	FILTRATION	

Analysis Batch: 597034

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-170243-1	MW-8	Total Recoverable	Water	6010C	596693
280-170243-2	MW-9	Total Recoverable	Water	6010C	596693
MB 280-596693/1-A	Method Blank	Total Recoverable	Water	6010C	596693
LCS 280-596693/2-A	Lab Control Sample	Total Recoverable	Water	6010C	596693

Prep Batch: 597089

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-170243-1	MW-8	Dissolved	Water	3005A	596890
MB 280-596890/1-B	Method Blank	Dissolved	Water	3005A	596890

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-1

Metals (Continued)

Prep Batch: 597089 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 280-596890/2-B	Lab Control Sample	Dissolved	Water	3005A	596890

Prep Batch: 597090

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-170243-1	MW-8	Dissolved	Water	3005A	596890
MB 280-596890/1-C	Method Blank	Dissolved	Water	3005A	596890
LCS 280-596890/2-C	Lab Control Sample	Dissolved	Water	3005A	596890

Analysis Batch: 597258

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-170243-1	MW-8	Total Recoverable	Water	6020B	596683
280-170243-2	MW-9	Total Recoverable	Water	6020B	596683
MB 280-596683/1-A	Method Blank	Total Recoverable	Water	6020B	596683
LCS 280-596683/2-A	Lab Control Sample	Total Recoverable	Water	6020B	596683
280-170243-2 MS	MW-9	Total Recoverable	Water	6020B	596683
280-170243-2 MSD	MW-9	Total Recoverable	Water	6020B	596683

Filtration Batch: 597455

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-170243-1	MW-8	Dissolved	Water	FILTRATION	
MB 280-597455/1-E	Method Blank	Dissolved	Water	FILTRATION	
LCS 280-597455/2-E	Lab Control Sample	Dissolved	Water	FILTRATION	

Analysis Batch: 597466

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-596890/1-B	Method Blank	Dissolved	Water	6010C	597089
LCS 280-596890/2-B	Lab Control Sample	Dissolved	Water	6010C	597089

Analysis Batch: 597566

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-170243-1	MW-8	Dissolved	Water	6020B	597090
280-170243-1	MW-8	Total Recoverable	Water	6020B	596683
280-170243-2	MW-9	Total Recoverable	Water	6020B	596683
MB 280-596683/1-A	Method Blank	Total Recoverable	Water	6020B	596683
MB 280-596890/1-C	Method Blank	Dissolved	Water	6020B	597090
LCS 280-596683/2-A	Lab Control Sample	Total Recoverable	Water	6020B	596683
LCS 280-596890/2-C	Lab Control Sample	Dissolved	Water	6020B	597090
280-170243-2 MS	MW-9	Total Recoverable	Water	6020B	596683
280-170243-2 MSD	MW-9	Total Recoverable	Water	6020B	596683

Analysis Batch: 597844

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-170243-1	MW-8	Dissolved	Water	6010C	597089
MB 280-596890/1-B	Method Blank	Dissolved	Water	6010C	597089
LCS 280-596890/2-B	Lab Control Sample	Dissolved	Water	6010C	597089

Prep Batch: 597872

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-170243-1	MW-8	Dissolved	Water	7470A	597455
MB 280-597455/1-E	Method Blank	Dissolved	Water	7470A	597455
LCS 280-597455/2-E	Lab Control Sample	Dissolved	Water	7470A	597455

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-1

Metals

Prep Batch: 597896

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-170243-1	MW-8	Total Recoverable	Water	3005A	
280-170243-2	MW-9	Total Recoverable	Water	3005A	
MB 280-597896/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-597896/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 597997

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-170243-1	MW-8	Dissolved	Water	7470A	597872
MB 280-597455/1-E	Method Blank	Dissolved	Water	7470A	597872
LCS 280-597455/2-E	Lab Control Sample	Dissolved	Water	7470A	597872

Analysis Batch: 598107

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-170243-1	MW-8	Dissolved	Water	6020B	597090
MB 280-596890/1-C	Method Blank	Dissolved	Water	6020B	597090
LCS 280-596890/2-C	Lab Control Sample	Dissolved	Water	6020B	597090

Analysis Batch: 598120

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-170243-1	MW-8	Dissolved	Water	6020B	597090
280-170243-1	MW-8	Total Recoverable	Water	6020B	597896
280-170243-1	MW-8	Total Recoverable	Water	6020B	597896
280-170243-2	MW-9	Total Recoverable	Water	6020B	597896
MB 280-597896/1-A	Method Blank	Total Recoverable	Water	6020B	597896
LCS 280-597896/2-A	Lab Control Sample	Total Recoverable	Water	6020B	597896

Analysis Batch: 598404

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-170243-1	MW-8	Dissolved	Water	6010C	597089
MB 280-596890/1-B	Method Blank	Dissolved	Water	6010C	597089
LCS 280-596890/2-B	Lab Control Sample	Dissolved	Water	6010C	597089

General Chemistry

Analysis Batch: 596515

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-170243-1	MW-8	Total/NA	Water	SM 2540D	
MB 280-596515/2	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-596515/1	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 596623

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-170243-1	MW-8	Total/NA	Water	SM 2320B	
280-170243-2	MW-9	Total/NA	Water	SM 2320B	
MB 280-596623/32	Method Blank	Total/NA	Water	SM 2320B	
MB 280-596623/6	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-596623/31	Lab Control Sample	Total/NA	Water	SM 2320B	
LCS 280-596623/4	Lab Control Sample	Total/NA	Water	SM 2320B	
LCSD 280-596623/5	Lab Control Sample Dup	Total/NA	Water	SM 2320B	

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-1

General Chemistry

Analysis Batch: 596685

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-170243-1	MW-8	Total/NA	Water	SM 2540C	
280-170243-2	MW-9	Total/NA	Water	SM 2540C	
MB 280-596685/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-596685/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 597008

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-170243-2	MW-9	Total/NA	Water	SM 2540D	
MB 280-597008/3	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-597008/1	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-597008/2	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 597408

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-170243-1	MW-8	Total/NA	Water	9040B	
280-170243-2	MW-9	Total/NA	Water	9040B	
LCS 280-597408/57	Lab Control Sample	Total/NA	Water	9040B	

Analysis Batch: 597496

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-170243-1	MW-8	Total/NA	Water	9056A	
280-170243-2	MW-9	Total/NA	Water	9056A	
MB 280-597496/95	Method Blank	Total/NA	Water	9056A	
LCS 280-597496/93	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-597496/94	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-597496/10	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 597638

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-170243-1	MW-8	Total/NA	Water	9056A	
280-170243-2	MW-9	Total/NA	Water	9056A	
MB 280-597638/39	Method Blank	Total/NA	Water	9056A	
LCS 280-597638/37	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-597638/38	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-597638/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 597760

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-170243-2	MW-9	Total/NA	Water	9056A	
MB 280-597760/6	Method Blank	Total/NA	Water	9056A	
LCS 280-597760/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-597760/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-597760/3	Lab Control Sample	Total/NA	Water	9056A	

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-1

Client Sample ID: MW-8

Date Collected: 12/08/22 16:00

Date Received: 12/12/22 08:30

Lab Sample ID: 280-170243-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			250 mL	250 mL	596890	12/15/22 16:56	DNM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	597089	12/20/22 08:08	LJS	EET DEN
Dissolved	Analysis	6010C		1			597844	12/27/22 14:29	LMT	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	596890	12/15/22 16:56	DNM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	597089	12/20/22 08:08	LJS	EET DEN
Dissolved	Analysis	6010C		2			598404	01/03/23 13:37	KRP	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	596693	12/15/22 16:37	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			597034	12/16/22 18:24	KRP	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	596890	12/15/22 16:56	DNM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	597090	12/20/22 08:20	LJS	EET DEN
Dissolved	Analysis	6020B		50			597566	12/21/22 17:54	LMT	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	596890	12/15/22 16:56	DNM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	597090	12/20/22 08:20	LJS	EET DEN
Dissolved	Analysis	6020B		50			598107	12/29/22 16:22	LMT	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	596890	12/15/22 16:56	DNM	EET DEN
Dissolved	Prep	3005A			50 mL	50 mL	597090	12/20/22 08:20	LJS	EET DEN
Dissolved	Analysis	6020B		5			598120	12/29/22 17:41	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	596683	12/16/22 07:34	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			597566	12/21/22 15:42	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	597896	12/29/22 08:16	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			598120	12/29/22 16:56	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	597896	12/29/22 08:16	LJS	EET DEN
Total Recoverable	Analysis	6020B		5			598120	12/29/22 18:03	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	596683	12/16/22 07:34	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			597258	12/19/22 18:21	LMT	EET DEN
Dissolved	Filtration	FILTRATION			250 mL	250 mL	597455	12/21/22 10:34	DNM	EET DEN
Dissolved	Prep	7470A			30 mL	50 mL	597872	12/28/22 13:05	KMS	EET DEN
Dissolved	Analysis	7470A		1			597997	12/28/22 20:42	KMS	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	596561	12/13/22 18:50	KMS	EET DEN
Total/NA	Analysis	7470A		1			596791	12/14/22 21:11	KMS	EET DEN
Total/NA	Analysis	9040B		1			597408	12/20/22 17:50	KEG	EET DEN
Total/NA	Analysis	9056A		1000	5 mL	5 mL	597638	12/23/22 01:57	MEC	EET DEN
Total/NA	Analysis	9056A		50	10 mL	10 mL	597496	12/22/22 05:29	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			596623	12/13/22 17:06	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	596685	12/14/22 11:54	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	596515	12/13/22 12:01	ASP	EET DEN

Client Sample ID: MW-9

Date Collected: 12/09/22 14:00

Date Received: 12/12/22 08:30

Lab Sample ID: 280-170243-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	596693	12/15/22 16:37	LJS	EET DEN
Total Recoverable	Analysis	6010C		1			597034	12/16/22 18:44	KRP	EET DEN

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Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-1

Client Sample ID: MW-9

Lab Sample ID: 280-170243-2

Date Collected: 12/09/22 14:00

Matrix: Water

Date Received: 12/12/22 08:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	596683	12/16/22 07:34	LJS	EET DEN
Total Recoverable	Analysis	6020B		50			597566	12/21/22 15:46	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	597896	12/29/22 08:16	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			598120	12/29/22 17:00	LMT	EET DEN
Total Recoverable	Prep	3005A			50 mL	50 mL	596683	12/16/22 07:34	LJS	EET DEN
Total Recoverable	Analysis	6020B		1			597258	12/19/22 18:23	LMT	EET DEN
Total/NA	Prep	7470A			30 mL	50 mL	596561	12/13/22 18:50	KMS	EET DEN
Total/NA	Analysis	7470A		1			596791	12/14/22 21:24	KMS	EET DEN
Total/NA	Analysis	9040B		1			597408	12/20/22 17:54	KEG	EET DEN
Total/NA	Analysis	9056A		500	5 mL	5 mL	597638	12/23/22 02:42	MEC	EET DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	597760	12/27/22 17:22	MEC	EET DEN
Total/NA	Analysis	9056A		50	10 mL	10 mL	597496	12/22/22 06:01	MEC	EET DEN
Total/NA	Analysis	SM 2320B		1			596623	12/13/22 17:22	KEG	EET DEN
Total/NA	Analysis	SM 2540C		1	1 mL	100 mL	596685	12/14/22 11:54	ASP	EET DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	597008	12/16/22 14:10	ASP	EET DEN

Laboratory References:

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

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-1

Laboratory: Eurofins Denver

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

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-23

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	Calcium
6020B	3005A	Water	Magnesium
6020B	3005A	Water	Potassium
6020B	3005A	Water	Sodium
9040B		Water	Temperature

Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-170243-1

Login Number: 170243

List Number: 1

Creator: Held, Wesley

List Source: Eurofins Denver

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.	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.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

PREPARED FOR

Attn: Molly Reeves
HDR Inc
1670 Broadway
Suite 3400
Denver, Colorado 80202
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JOB DESCRIPTION

Xcel Energy GW CCR Monitoring - Comanche

JOB NUMBER

280-170243-2

Eurofins Denver

Job Notes

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the Eurofins TestAmerica Denver Project Manager.

The Lab Certification ID# is 4025.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

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 TestAmerica Project Manager.

Authorization



Authorized for release by
Nicole Ryan, Project Manager I
Nicole.Ryan@ET.eurofinsus.com
(303)736-0100

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Definitions/Glossary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-2

Qualifiers

Rad

Qualifier	Qualifier Description
G	The Sample MDC is greater than the requested RL.
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

Case Narrative

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-2

Job ID: 280-170243-2

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: HDR Inc

Project: Xcel Energy GW CCR Monitoring - Comanche

Report Number: 280-170243-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

Receipt

The samples were received on 12/12/2022 8:30 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 was 0.1° C.

RADIUM-226 (GFPC)

Samples MW-8 (280-170243-1) and MW-9 (280-170243-2) were analyzed for Radium-226 (GFPC) in accordance with SW 846 9315. The samples were prepared on 12/16/2022 and analyzed on 01/09/2023.

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

RADIUM-228

Samples MW-8 (280-170243-1) and MW-9 (280-170243-2) were analyzed for Radium-228 in accordance with 9320. The samples were prepared on 12/16/2022 and analyzed on 01/06/2023.

The following sample did not meet the requested limit (RL) due to the reduced sample volume attributed to the presence of matrix interference: MW-8 (280-170243-1). During preparation the analyst visually noted matrix effects. The data have been reported with this narrative.

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

RADIUM-226/RADIUM-228 (GFPC)

Samples MW-8 (280-170243-1) and MW-9 (280-170243-2) were analyzed for Radium-226/Radium-228 (GFPC) in accordance with 9315/9320. The samples were analyzed on 01/11/2023.

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

Detection Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-2

Client Sample ID: MW-8	Lab Sample ID: 280-170243-1
-------------------------------	------------------------------------

No Detections.

Client Sample ID: MW-9	Lab Sample ID: 280-170243-2
-------------------------------	------------------------------------

No Detections.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-2

Method	Method Description	Protocol	Laboratory
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
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL

Protocol References:

None = None

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

Sample Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-170243-1	MW-8	Water	12/08/22 16:00	12/12/22 08:30
280-170243-2	MW-9	Water	12/09/22 14:00	12/12/22 08:30

1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-2

Method: SW846 9315 - Radium-226 (GFPC)

Client Sample ID: MW-8
Date Collected: 12/08/22 16:00
Date Received: 12/12/22 08:30

Lab Sample ID: 280-170243-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.297	U	0.430	0.430	1.00	0.730	pCi/L	12/16/22 11:27	01/09/23 10:16	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.4		40 - 110					12/16/22 11:27	01/09/23 10:16	1

Client Sample ID: MW-9
Date Collected: 12/09/22 14:00
Date Received: 12/12/22 08:30

Lab Sample ID: 280-170243-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.59		0.330	0.360	1.00	0.249	pCi/L	12/16/22 11:27	01/09/23 10:16	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.5		40 - 110					12/16/22 11:27	01/09/23 10:16	1

Method: SW846 9320 - Radium-228 (GFPC)

Client Sample ID: MW-8
Date Collected: 12/08/22 16:00
Date Received: 12/12/22 08:30

Lab Sample ID: 280-170243-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.71	G	1.61	1.62	1.00	2.32	pCi/L	12/16/22 12:48	01/06/23 14:37	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.4		40 - 110					12/16/22 12:48	01/06/23 14:37	1
Y Carrier	77.4		40 - 110					12/16/22 12:48	01/06/23 14:37	1

Client Sample ID: MW-9
Date Collected: 12/09/22 14:00
Date Received: 12/12/22 08:30

Lab Sample ID: 280-170243-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	4.96		0.918	1.02	1.00	0.851	pCi/L	12/16/22 12:48	01/06/23 14:37	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.5		40 - 110					12/16/22 12:48	01/06/23 14:37	1
Y Carrier	80.7		40 - 110					12/16/22 12:48	01/06/23 14:37	1

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Client Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-2

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

Client Sample ID: MW-8
Date Collected: 12/08/22 16:00
Date Received: 12/12/22 08:30

Lab Sample ID: 280-170243-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2 σ +/-)	Total Uncert. (2 σ +/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	3.01		1.67	1.68	5.00	2.32	pCi/L		01/11/23 23:37	1

Client Sample ID: MW-9
Date Collected: 12/09/22 14:00
Date Received: 12/12/22 08:30

Lab Sample ID: 280-170243-2
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2 σ +/-)	Total Uncert. (2 σ +/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	6.54		0.976	1.08	5.00	0.851	pCi/L		01/11/23 23:37	1

QC Sample Results

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-2

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-593850/1-A

Matrix: Water

Analysis Batch: 596225

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 593850

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.07236	U	0.0807	0.0810	1.00	0.197	pCi/L	12/16/22 11:27	01/09/23 10:13	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.8		40 - 110					12/16/22 11:27	01/09/23 10:13	1

Lab Sample ID: LCS 160-593850/2-A

Matrix: Water

Analysis Batch: 596225

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 593850

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226		11.3	9.971		1.13	1.00	0.220	pCi/L	88	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits							
Ba Carrier	98.3		40 - 110							

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-593856/1-A

Matrix: Water

Analysis Batch: 595884

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 593856

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.2388	U	0.358	0.359	1.00	0.606	pCi/L	12/16/22 12:48	01/06/23 14:35	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.8		40 - 110					12/16/22 12:48	01/06/23 14:35	1
Y Carrier	77.8		40 - 110					12/16/22 12:48	01/06/23 14:35	1

Lab Sample ID: LCS 160-593856/2-A

Matrix: Water

Analysis Batch: 595884

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 593856

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-228		8.30	9.302		1.29	1.00	0.526	pCi/L	112	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits							
Ba Carrier	98.3		40 - 110							
Y Carrier	77.8		40 - 110							

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QC Association Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-2

Rad

Prep Batch: 593850

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-170243-1	MW-8	Total/NA	Water	PrecSep-21	
280-170243-2	MW-9	Total/NA	Water	PrecSep-21	
MB 160-593850/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-593850/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 593856

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-170243-1	MW-8	Total/NA	Water	PrecSep_0	
280-170243-2	MW-9	Total/NA	Water	PrecSep_0	
MB 160-593856/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-593856/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-2

Client Sample ID: MW-8

Date Collected: 12/08/22 16:00

Date Received: 12/12/22 08:30

Lab Sample ID: 280-170243-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			259.07 mL	1.0 g	593850	12/16/22 11:27	DJP	EET SL
Total/NA	Analysis	9315		1			596229	01/09/23 10:16	FLC	EET SL
Total/NA	Prep	PrecSep_0			259.07 mL	1.0 g	593856	12/16/22 12:48	DJP	EET SL
Total/NA	Analysis	9320		1			595884	01/06/23 14:37	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			596567	01/11/23 23:37	EMH	EET SL

Client Sample ID: MW-9

Date Collected: 12/09/22 14:00

Date Received: 12/12/22 08:30

Lab Sample ID: 280-170243-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			752.33 mL	1.0 g	593850	12/16/22 11:27	DJP	EET SL
Total/NA	Analysis	9315		1			596229	01/09/23 10:16	FLC	EET SL
Total/NA	Prep	PrecSep_0			752.33 mL	1.0 g	593856	12/16/22 12:48	DJP	EET SL
Total/NA	Analysis	9320		1			595884	01/06/23 14:37	FLC	EET SL
Total/NA	Analysis	Ra226_Ra228		1			596567	01/11/23 23:37	EMH	EET SL

Laboratory References:

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

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-2

Laboratory: Eurofins St. Louis

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

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-23
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-23
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-23
Iowa	State	373	12-01-24
Kansas	NELAP	E-10236	10-31-23
Kentucky (DW)	State	KY90125	12-31-22 *
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-23
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-23
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	04-01-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-23
South Carolina	State	85002001	06-30-23
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-24
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-23

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

Eurofins Denver

Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

Environment Testing America

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-170243-2

Login Number: 170243

List Number: 1

Creator: Held, Wesley

List Source: Eurofins Denver

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.	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.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-170243-2

Login Number: 170243

List Number: 2

Creator: Worthington, Sierra M

List Source: Eurofins St. Louis

List Creation: 12/14/22 01:49 PM

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
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	Samples arrived with the incorrect pH
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: HDR Inc
Project/Site: Xcel Energy GW CCR Monitoring - Comanche

Job ID: 280-170243-2

Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	
280-170243-1	MW-8	89.4	
280-170243-2	MW-9	90.5	
LCS 160-593850/2-A	Lab Control Sample	98.3	
MB 160-593850/1-A	Method Blank	90.8	
Tracer/Carrier Legend			
Ba = Ba Carrier			

Method: 9320 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)
280-170243-1	MW-8	89.4	77.4
280-170243-2	MW-9	90.5	80.7
LCS 160-593856/2-A	Lab Control Sample	98.3	77.8
MB 160-593856/1-A	Method Blank	90.8	77.8
Tracer/Carrier Legend			
Ba = Ba Carrier			
Y = Y Carrier			

DATA VALIDATION AND USABILITY REPORT

Metals by USEPA SW-846 Method 6010C/6020A
Mercury by USEPA SW-846 Method 7470A
Anions by USEPA SW-846 Method 9056A
Total Dissolved Solids (TDS) by Standard Method SM2540C
Total Suspended Solids (TSS) by Standard Method SM2540D
Radium-226 (Ra-226) by USEPA SW-846 Method 9315
Radium-228 (Ra-228) by USEPA SW-846 Method 9320
pH by USEPA SW-846 Method 9040B

Project: Xcel Energy Coal Combustion Residuals (CCR) Project – Comanche - January 2022
Project/Task Number: 10279381-001
Sample Data Package: 280-157766-1
Lab Report Dates: 2/17/2022; Revision 2: 2/20/2022
Data Validation Report Date: 3/7/2022
Laboratory: TestAmerica Denver, Arvada, Colorado (anions, TDS, TSS, pH);
TestAmerica Canton, North Canton, Ohio (metals);
TestAmerica Saint Louis, Earth City, Missouri (radiochem)
Sample Matrix: Groundwater
Sampling Dates: January 10-14, 2022
Validation Guidelines: Project Plan (*Statistical Method Certification for Compliance with the Coal Combustion Residuals [CCR] Rule, for Xcel Energy [HDR, December 7, 2015]*), United States Environmental Protection Agency (USEPA) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd edition (SW-846); USEPA *National Functional Guidelines for Inorganic Data Review*, USEPA-540-R-10- 011, January 2010; USEPA *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use*, USEPA 540-R-08-005, January 13, 2009; and professional judgment
Validation Level: Stage 2BVM (100%)
Data Reviewer: Aryka Thomson, HDR

Sample ID	Matrix	Lab ID	Date Collected	Metals Mercury	Anions	TDS TSS	RA-226 RA-228	Dissolved Metals
W-1	GW	280-157766-1	1/14/22	X	X	X	X	X
W-2A	GW	280-157766-2	1/12/22	X	X	X	X	
W-2C	GW	280-157766-3	1/12/22	X	X	X	X	
W-3	GW	280-157766-4	1/13/22	X	X	X	X	
W-3B	GW	280-157766-5	1/13/22	X	X	X	X	
W-5	GW	280-157766-7	1/10/22	X	X	X	X	
W-5B	GW	280-157766-8	1/14/22	X	X	X	X	
W-6	GW	280-157766-9	1/11/22	X	X	X	X	
W-6B	GW	280-157766-10	1/11/22	X	X	X	X	X
W-7	GW	280-157766-11	1/12/22	X	X	X	X	X
W-9	GW	280-157766-12	1/11/22	X	X	X	X	
W-11	GW	280-157766-14	1/13/22	X	X	X	X	X
W-12	GW	280-157766-15	1/13/22	X	X	X	X	
MW-7	GW	280-157766-16	1/14/22	X	X	X	X	
W-3D	QC	280-157766-6	1/13/22	X	X	X	X	
W-7EB	QC	280-157766-13	1/12/22	X	X	X	X	

SUMMARY

All laboratory data were acceptable with qualification.

I. SAMPLE RECEIPT / CHAIN OF CUSTODY

Samples were shipped or hand-delivered to the TestAmerica Denver facility, who then forwarded the appropriate sample containers to the other facilities. The temperature of samples upon receipt was not recorded; however, the sample receipt checklist confirms that temperature was acceptable. The chains of custody (COCs) from the field and for transfer to the different lab facilities were filled out and signed.

II. HOLDING TIMES

Holding time criteria were generally met except as noted below.

Metals: Samples were analyzed within 180 days of collection.

Mercury: All samples were analyzed past the 28-day holding time due to analyst oversight. Samples below have been qualified as estimated (J) if mercury was detected and (UJ) if mercury was non-detect in the sample.

W-1	W-2A	W-2C	W-3	W-3B	W-3D	W-5
W-5B	W-6	W-6B	W-7	W-7EB	W-9	W-11
W-12	MW-7					

Anions: Most samples were analyzed past the 28-day holding time. Chloride, fluoride, and sulfate have been qualified as estimated (J) according to the table below.

Chloride	W-5
Fluoride	W-2C*, W-3B*, W-3D*, W-5, W-5B*, W-6B*, W-7*, W-9*, W-11*, W-12*, MW-7*
Sulfate	W-2A, W-5

**Quality control failed for fluoride on the original analysis; reanalysis was performed outside the holding time.*

TDS: Samples W-3D, W-5, and MW-7 were analyzed past the 7-day holding time and have been qualified as estimated (J).

TSS: Samples W-5, W-6B, and W-9 were analyzed for TSS past the 7-day holding time and have been qualified as estimated (J). W-6B and W-9 were analyzed outside the holding time due to quality control fail for the original analysis.

Radium-226: Samples had ingrowth times of at least 21 days.

Radium-228: Samples had ingrowth times of at least 36 hours.

pH: Samples were analyzed more than 24 hours after collection. The method states the samples are to be analyzed "as soon as possible." All sample results have been qualified as estimated (J).

III. INSTRUMENT CALIBRATION

INITIAL CALIBRATIONS

Metals: Initial calibration criteria were met. One standard and a blank comprised the calibration. No qualification was required.

Mercury: Initial calibration criteria were met. The fit of the curve was ≥ 0.995 and the low standard was below the RL. No qualification was required.

Anions: Initial calibration criteria were met. The fit of the curve was ≥ 0.995 and the low standard was below the RL. No qualification was required.

TDS: Not applicable. Analysis was gravimetric.

TSS: Not applicable. Analysis was gravimetric.

Radium-226: Not applicable.

Radium-228: Not applicable.

pH: The instrument was properly standardized using five buffer solutions. The correlation coefficient of the curve was 1.000. No qualification was required.

SECOND SOURCE STANDARDS

Metals: Second source standard criteria were met. All analytes had %D values less than 10%. No qualification was required.

Mercury: Second source standard criteria were met. All analytes had %D values less than 10%. No qualification was required.

Anions: Second source standard criteria were met. All analytes had %D values less than 10%. No qualification was required.

TDS: Not applicable. Analysis was gravimetric.

TSS: Not applicable. Analysis was gravimetric.

Radium-226: Not applicable.

Radium-228: Not applicable.

pH: Second source standard criteria were met. pH results were within limits. No qualification was required.

CONTINUING CALIBRATIONS

Metals: Continuing calibration criteria were met. All analytes had %D values less than 10% except for antimony associated with batches 310-342359, 310-342597, and 310-342711, calcium associated with batch 310-342597, and beryllium associated with batch 310-342470. Antimony was only detected in association with batch 310-342359. Antimony in W-1 has been qualified as estimated (J) for dissolved metals and (UJ) for undetected total metals. Calcium was detected in associated samples W-1 and W-11 and have been qualified as estimated (J). Beryllium was not detected; no qualification was required.

Mercury: Continuing calibration criteria were met. All analytes had %D values less than 10%. No qualification was required.

Anions: Continuing calibration criteria were met. All analytes had %D values less than 10%. No qualification was required.

TDS: Not applicable. Analysis was gravimetric.

TSS: Not applicable. Analysis was gravimetric.

Radium-226: Not applicable.

Radium-228: Not applicable.

pH: Continuing calibration criteria were met. pH results were within limits. No qualification was required.

IV. BLANKS

Target analytes were not detected in the blanks except as noted below.

METHOD BLANKS (MB) AND EQUIPMENT BLANK (EB)

Metals: Metals were not detected in the MBs or the EB. No qualification was required

Mercury: Mercury was not detected in the MBs or the EB. No qualification was required.

Anions: Anions were not detected in the MBs or the EB. No qualification was required.

TDS: TDS was not detected in the MBs or the EB. No qualification was required.

TSS: TSS was not detected in the MBs or the EB. No qualification was required.

Radium-226: Ra-226 was not detected in the MBs or the EB. No qualification was required.

Radium-228: Ra-228 was not detected in the MBs or the EB. No qualification was required.

pH: Not applicable.

INITIAL AND CONTINUING CALIBRATION BLANKS (ICB and CCB)

Metals: Metals were not detected in the ICBs or CCBs except as noted below. No qualification was required.

Analyte	ICB or CCB	Associated Samples	Result (mg/L)	Qualification
Antimony	310-342597/160	W-1, W-11	0.00177	W-1 has been qualified as estimated (J). Antimony was not detected in W-11, so no qualification was required.
	310-342597/171	W-1, W-11	0.00178	
Cadmium	310-342597/12	W-1, W-11	0.0000550	W-1 has been qualified as estimated (J). W-11 results were >10x the CCB result and required no qualification.
	310-342597/160	W-1, W-11	0.0000700	
	310-342597/171	W-1, W-11	0.0000610	

Mercury: Mercury was not detected in the ICBs or CCBs. No qualification was required.

Anions: Anions were not detected in the ICBs or CCBs. No qualification was required.

TDS: Not applicable.

TSS: Not applicable.

Radium-226: Not applicable.

Radium-228: Not applicable.

pH: Not applicable.

V. LABORATORY CONTROL SAMPLES (LCS) and LABORATORY CONTROL SAMPLES DUPLICATE (LCSD)

Metals: LCS recoveries were within the project control limits of 75-125%. No qualification was required.

Mercury: LCS recoveries were within the project control limits of 75-125%. No qualification was required.

Anions: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

TDS: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

TSS: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

Radium-226: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

Radium-228: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

pH: LCS results were within the control limits of 99-101%. No qualification was required.

VI. MATRIX SPIKE / MATRIX SPIKE DUPLICATE (MS/MSD)

No samples were designated on the COC for MS/MSD analysis.

Metals: The lab spiked sample W-1 from this project for metals. The spike duplicate recovery for arsenic and chromium were outside control limits and have been qualified as estimated (J) (or UJ if not detected) in the parent sample. RPDs for these analytes were within the 20% control limit. The spike duplicate recovery for calcium and lithium were outside the control limits; however, the concentrations present in the parent sample were 4 times greater than the matrix spike concentration, so the accuracy and precision of the MS/MSD analysis could not be reliably evaluated. The associated LCS/LCSD analysis data showed that the laboratory processes were operating within control, so no corrective action was necessary. Parent sample results were qualified as estimated (J). Calcium and lithium spike RPDs were within control limits.

Mercury: The lab spiked sample W-1 and W-7EB from this project. Recoveries for W-1 were outside control limits and have been qualified as estimated (J). MS/MSD recoveries and RPDs for W-7EB were within the control limits and no qualification was required.

Anions: The lab spiked samples W-3 and W-3D from this project for anions. Results were within control limits and no qualification was required.

Radium-226: MS/MSD analysis was not performed for Rad-226 due to limited sample volume.

Radium-228: MS/MSD analysis was not performed for Rad-228 due to limited sample volume.

VII. DUPLICATES

FIELD DUPLICATES

Sample W-3D was collected as a field duplicate of W-3.

Metals: FD results were within control limits. No qualification was required.

Anions: FD results were within control limits except fluoride at an RPD of 35% with W-3 at 0.45 mg/L and W-3D at 0.95 mg/L. The parent sample W-3 has been estimated with potential for low bias (J-) and the field duplicate W-3D was qualified as estimated with potential for high bias (J+). LCS/LCSD analysis data indicated that the analytical process was operating within control; therefore, no further qualification was required.

TDS: FD results were within control limits. No qualification was required.

TSS: FD results were outside of control limits at 44% with W-3 at 5.2 mg/L and W-3D at 2 mg/L. The parent sample W-3 was qualified as estimated with potential for high bias (J+) and the field duplicate W-3D was qualified as estimated with potential for low bias (J-). LCS/LCSD analysis data indicated that the analytical process was operating within control; therefore, no further qualification was required.

Radium-226: FD results were within control limits. No qualification was required.

Radium-228: FD results were within control limits. No qualification was required.

pH: FD results were within control limits. No qualification was required.

LABORATORY DUPLICATES

Metals: Lab duplicate analysis was performed on sample W-7 from this project for boron and W-6 for other analytes. Resulting RPDs were within control limits except for selenium, which was qualified as estimated (J) in the parent sample.

Anions: Lab duplicate analysis was performed on samples W-3 and W-3D from this project. Resulting RPDs were within control limits and no qualification was required. All laboratory-generated duplicate samples were also within control limits.

TDS: Lab duplicate analysis was performed on sample W-3 from this project. Resulting RPDs were within control limits and no qualification was required. All laboratory-generated duplicate samples were also within control limits.

TSS: Lab duplicate analysis was not performed for TSS on samples from this project. One out of the

four laboratory-generated duplicate samples for TSS had RPDs outside control limits. Samples associated with batch 563512 (W-2A, W-2C, W-3, W-3B, W-3D, W-7, W-7EB, W-11, W-12) were qualified as estimated (J).

pH: Lab duplicate analysis was performed on sample W-2A from this project. Results were within control limits and no qualification was required. All laboratory-generated duplicate samples were also within control limits.

VIII. INTERNAL STANDARDS (ISTD) OR TRACERS

All ISTD and tracer criteria were met except as noted below.

Metals: ISTD areas were greater than 30% of the initial calibration ISTD areas. No qualification was required.

Mercury: Not applicable.

Anions: Not applicable.

TDS: Not applicable.

TSS: Not applicable.

Radium-226: Tracer recoveries in all samples were within limits.

Radium-228: Yttrium carrier recoveries in samples W-3B and W-3D were above the 110% control limit. Evidence of matrix interference was noted in prep. The acceptable LCS/LCSD analysis demonstrates acceptable sample preparation and instrument performance. W-3B rad-228 and combined radium results and W-3D combined radium results have been qualified as estimated with possible high bias (J+). W-3D rad-228 has been qualified as estimated but not detected (UJ).

pH: Not applicable.

IX. POST DIGESTION SPIKE AND DILUTION TEST

Post-digestion spike (PDS) analyses and serial dilution tests were performed for Method 6020A metals. PDS results were within the control limits of 75-125% except as noted below. The dilution tests were not applicable unless sample results were greater than 50 times the MDL.

Metals: The dilution test was performed on the same sample as the MS/MSD. Results were within control limits except for selenium, which had %D and 18% and has been qualified as estimated (J).

X. INTERFERENCE CHECK SAMPLES (ICS)

ICS results were applicable to the Method 6010C and 6020A metals analyses. Results were within required limits of 80-120% except as noted below.

Metals: Recoveries were within required limits. No qualifications were required.

XI. REPORTING LIMITS (RL) AND METHOD DETECTION LIMITS (MDL)

This phase of the project is the establishment of baseline contaminant levels. RLs are compared, **for internal use only**, against the Colorado drinking water maximum contaminant levels (MCLs), MCL goals (MCLGs), secondary MCLs, and/or action levels (ALs). RLs should be below these levels.

Metals: The RLs are compared to the MCLs, MCLGs, ALs and secondary MCLs in the table below.

Analyte	RL (mg/L)	MDL (mg/L)	MCL or AL (mg/L)	MCLG (mg/L)
Antimony	0.002	0.00057	0.006 (MCL)	0.006
Arsenic	0.005	0.00075	0.010 (MCL)	Zero
Barium	0.005	0.0022	2 (MCL)	2
Beryllium	0.001	0.00062	0.004 (MCL)	0.004
Boron	0.1	0.057	Not Listed	Not Listed
Cadmium	0.001	0.0002	0.005 (MCL)	0.005
Calcium	1	0.58	Not Listed	Not Listed
Chromium	0.0025	0.0025	0.1 (MCL)	0.1
Cobalt	0.001	0.00019	Not Listed	Not Listed
Lead	0.001	0.00045	0.015 (AL)	Zero
Lithium	0.008	0.0017	Not Listed	Not Listed
Molybdenum	0.01	0.0011	Not Listed	Not Listed
Selenium	0.005	0.00089	0.05 (MCL)	0.05
Thallium	0.001	0.0002	0.002 (MCL)	0.0005

Mercury: The RL of 0.2 µg/L is below the MCL and MCLG of 0.02 mg/L (20 µg/L). RL is above the MDL of 0.13 µg/L.

Anions: The RLs of 3 mg/L, 0.5 mg/L and 5 mg/L for chloride, fluoride and sulfate respectively are below the secondary MCLs of 250 mg/L, 2.0 mg/L, and 250 mg/L, respectively. The RLs are above the MDLs of 1.02 mg/L, 0.17 mg/L, and 1.05 mg/L, respectively.

TDS: The RL is 10 mg/L; The Colorado drinking water standard is 400 mg/L or 1.25 times the background level, whichever is least restrictive. The RL is above the MDL of 4.7 mg/L.

TSS: The RL is 4 mg/L; there are no Colorado drinking water standards for TSS. The RL is above the MDL of 1.1 mg/L.

Radium 226: The RL of 1.0 picocurie per liter (pCi/L) is below the MCL of 5.0 pCi/L for combined radium 226 and radium 228.

Radium 228: The RL of 1.0 picocurie per liter (pCi/L) is below the MCL of 5.0 pCi/L for combined radium 226 and radium 228.

pH: The Colorado drinking water standard is pH value of 6.5 to 8.5.

XII. SAMPLE RESULTS / TRANSCRIPTION VERIFICATION

Transcription between the data package and the EDDs was verified. Sample results reported between the MDL and RL were qualified as estimated (J).

The laboratory incorrectly transcribed MW-7 as W-7 in the lab reports and EDDs in the first revision. The lab reports were revised by the laboratory and reissued on 4/20/2022. The error was manually corrected in the EDD.

Metals: No issues.

Mercury: No issues.

Anions: No issues.

TDS: No issues.

TSS: No issues.

Radium-226: A reduced sample volume was prepared for all project samples due to matrix interferences, but all RLs were 1.0 pCi/L.

Radium-228: A reduced sample volume was prepared for all project samples due to matrix interferences, but all RLs were 1.0 pCi/L.

pH: No issues.

XIII. PARCCS PARAMETERS AND DATA USABILITY

Data were usable as discussed below.

The data quality indicators (DQIs), expressed in terms of precision, accuracy, representativeness, comparability, completeness, and sensitivity (PARCCS parameters), were assessed. This included the evaluation of sample integrity, holding times, trip blanks, rinsate blanks, method blanks, internal standards, surrogate recoveries, MS/MSD recoveries, LCS/Ds, and field duplicate precision. The results of the DQI assessment are provided below.

PRECISION

Field duplicates are collected to assess sampling precision. Lab duplicates, LCS/Ds, and MS/Ds are analyzed to assess analysis precision. Precision is best expressed in terms of relative percent difference (RPD).

Lab precision goals were met in most cases. Lab duplicates, LCS/LCSD, and MS/MSD RPDs were within control limits except the lab duplicate for TSS.

Field precision goals were met in that RPDs between the parent/field duplicate pair were within control limits except fluoride and TSS results that required qualification.

ACCURACY

Accuracy or bias is measured through the analyses of LCS/Ds and MS/MSDs. Sample specific accuracy is measured through surrogate recovery. Accuracy is expressed as percent recovery (%R).

Field accuracy goals were not met for arsenic, chromium, or mercury because MS/MSD recoveries outside control limits required qualification of the parent sample. MS/MSD recoveries for calcium and

lithium could not be accurately verified.

Lab accuracy goals were met in that LCS/LCSD recoveries were within control limits.

REPRESENTATIVENESS

Representativeness refers to the degree sample data accurately and precisely describes the population of samples at a sampling point or under certain environmental conditions. Samples that are not properly preserved or are analyzed beyond holding times may not be considered representative. Review of sampling procedures, laboratory preparation, analysis holding times, trip blank and rinsate blank analysis help in providing this assessment.

Representativeness goals were generally met. Samples were collected at predetermined locations according to the project plan.

Representativeness goals were not met in these instances:

- All pH and temperature results required qualification as estimated (J) due to analysis past the holding time;
- Mercury in all samples required qualification as estimated (J) or (UJ) due to analysis past the holding time;
- Anions in 14 samples required qualification as estimated (J) due to analysis past the holding time;
- TDS in three samples required qualification as estimated (J) due to analysis past the holding time;
- TSS in three samples required qualification as estimated (J) due to analysis past the holding time;
- Antimony in one sample required qualification as estimated (J) for dissolved metals and (UJ) for total metals due to continuing calibration outside the 10% %D requirement;
- Calcium in two samples required qualification as estimated (J) due to continuing calibration outside the 10% %D requirement;
- Antimony and cadmium in one sample required qualification as estimated (J) due to detection in a continuing calibration blank;
- Arsenic and chromium in one sample required qualification as estimated (J) or (UJ) due to MS/MSD recoveries outside control limits;
- The MS/MSD for calcium and lithium could not be verified;
- Mercury in one sample required qualification as estimated (J) due to MS/MSD recoveries outside control limits;
- Fluoride in one sample required qualification as estimated with potential for low bias (J-) in the parent and estimated with potential for high bias (J+) in the duplicate in the parent/field duplicate pair;
- TSS in one sample required qualification as estimated with potential for high bias (J+) in the

parent and estimated with potential for low bias (J-) in the duplicate in the parent/field duplicate pair;

- Selenium in one sample required qualification as estimated (J) due to lab duplicate RPD outside control limits;
- TSS in nine samples required qualification as estimated (J) due to laboratory-generated duplicate RPDs outside control limits;
- Rad-228 and combined radium in two samples required qualification as estimated (J) due to carrier recoveries outside control limits;
- Selenium in one sample required qualification as estimated (J) due to dilution test %D outside control limits.

COMPARABILITY

The selection of standardized methods and consistent laboratory practices facilitates the comparison of data between sampling events.

Comparability goals were met. Samples were analyzed by standardized methods (SW-846 and Standards Methods). Future sampling events will be analyzed by the same methods at the same labs to achieve comparability.

COMPLETENESS

Completeness is determined for both field and analytical objectives. Field completeness is calculated from the number of samples proposed versus the actual number of samples collected. Analytical completeness is expressed in terms of usable data.

Field completeness goals were met. 15 of the 14 planned wells were sampled; W-4 was dry, resulting in a field completeness of 93%.

Lab completeness goals were met. No data were rejected. Of the planned 16 samples for analysis, all 16 were analyzed for all analytes.

SENSITIVITY

Analytical sensitivity is the concentration at which the measurement system can quantitate target analytes in the environmental matrices of concern. Analytical sensitivity is expressed in terms of the RL, which is provided by the respective laboratories as their reasonable and defensible quantitation limit for environmental samples above the MDL, which is established by each laboratory using pure water or clean matrix.

Sensitivity goals were met. The MDLs were $\leq$ one-half the RLs except for antimony, cadmium, molybdenum, mercury, and Ra-228. This phase of the project is the establishment of baseline contaminant levels, and project RLs were compared to the Colorado drinking water maximum contaminant levels (MCLs), MCL goals (MCLGs), secondary MCLs, and/or action levels (ALs). RLs were at or below these levels.

Metals: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Mercury: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Anions: No data were rejected. Data required minimal qualification. All data are usable as qualified.

TDS: No data were rejected. Data required minimal qualification. All data are usable as qualified.

TSS: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Radium-226: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Radium-228: No data were rejected. Data required minimal qualification. All data are usable as qualified.

pH: No data were rejected. All data are usable as qualified.

DATA VALIDATION AND USABILITY REPORT

Metals by USEPA SW-846 Method 6010C/6020A
 Mercury by USEPA SW-846 Method 7470A
 Anions by USEPA SW-846 Method 9056A
 Total Dissolved Solids (TDS) by Standard Method SM2540C
 Total Suspended Solids (TSS) by Standard Method SM2540D
 Radium-226 (Ra-226) by USEPA SW-846 Method 9315
 Radium-228 (Ra-228) by USEPA SW-846 Method 9320
 pH by USEPA SW-846 Method 9040B

Project: Xcel Energy Coal Combustion Residuals (CCR) Project – Comanche - February 2022

Project/Task Number: 10279381-001

Sample Data Package: 280-159246-1, 280-159246-2 (radiochemistry)
 Lab Report Dates: 4/5/2022, 4/4/2022 (radiochemistry)
 Data Validation Report Date: 4/21/2022

Laboratory: TestAmerica Denver, Arvada, Colorado (anions, TDS, TSS, pH);
 TestAmerica Canton, North Canton, Ohio (metals);
 TestAmerica Saint Louis, Earth City, Missouri (radiochem)

Sample Matrix: Groundwater

Sampling Dates: February 22-March 2, 2022

Validation Guidelines: Project Plan (*Statistical Method Certification for Compliance with the Coal Combustion Residuals [CCR] Rule, for Xcel Energy [HDR, December 7, 2015]*), United States Environmental Protection Agency (USEPA) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd edition (SW-846); USEPA *National Functional Guidelines for Inorganic Data Review*, USEPA-540-R-10- 011, January 2010; USEPA *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use*, USEPA 540-R-08-005, January 13, 2009; and professional judgment

Validation Level: Stage 2BVM (100%)

Data Reviewer: Aryka Thomson, HDR

Sample ID	Matrix	Lab ID	Date Collected	Metals Mercury	Anions	TDS TSS	RA-226 RA-228	Dissolved Metals
W-1	GW	280-159246-16	2/25/22	X	X	X	X	
W-2A	GW	280-159246-11	2/22/22	X	X	X	X	
W-2C	GW	280-159246-10	2/23/22	X	X	X	X	
W-3	GW	280-159246-8	2/23/22	X	X	X	X	
W-3B	GW	280-159246-6	2/23/22	X	X	X	X	
W-4	GW	280-159246-2	3/2/22	X	X	X*		
W-5	GW	280-159246-14	2/24/22	X	X	X	X	
W-5B	GW	280-159246-15	2/25/22	X	X	X	X	
W-6	GW	280-159246-12	2/24/22	X	X	X	X	
W-6B	GW	280-159246-13	2/24/22	X	X	X	X	
W-7	GW	280-159246-5	3/1/22	X	X	X	X	
W-9	GW	280-159246-4	3/1/22	X	X	X	X	
W-11	GW	280-159246-17	2/25/22	X	X	X	X	X
W-12	GW	280-159246-3	3/1/22	X	X	X	X	
MW-7	GW	280-159246-2	3/2/22	X	X	X	X	
W-3D	QC	280-159246-9	2/23/22	X	X	X	X	
W-3BEB	QC	280-159246-7	2/23/22	X	X	X	X	

*Insufficient sample volume for TSS or radiochemistry

SUMMARY

All laboratory data were acceptable with qualification.

I. SAMPLE RECEIPT / CHAIN OF CUSTODY

Samples were shipped or hand-delivered to the TestAmerica Denver facility, who then forwarded the appropriate sample containers to the other facilities. The temperature of samples upon receipt were between 0.1°C and 3.7°C, within the acceptable range of 0-6°C. The chains of custody (COCs) from the field and for transfer to the different lab facilities were filled out and signed.

II. HOLDING TIMES

Holding time criteria were generally met except as noted below.

Metals: Samples were analyzed within 180 days of collection.

Mercury: All samples were analyzed within 28 days of collection except W-2A. Mercury was not detected in W-2A and has been qualified as estimated (UJ).

Anions: Samples were analyzed within 28 days of collection.

Alkalinity: Samples were analyzed within 28 days of collection.

TDS: The following samples were analyzed for TDS past the 7-day holding time and have been qualified as estimated (J) or (UJ) if non-detect.

W-2A	W-2C	W-3	W-3B	W-3BEB
W-3D	W-5	W-6	W-6B	

TSS: The following samples were analyzed for TSS past the 7-day holding time and have been qualified as estimated (J) or (UJ) if non-detect:

W-2A	W-2C	W-3	W-3B	W-3BEB
W-3D	W-5	W-6	W-6B	W-11

Radium-226: Samples had ingrowth times of at least 21 days.

Radium-228: Samples had ingrowth times of at least 36 hours.

pH: Samples were analyzed more than 24 hours after collection. The method states the samples are to be analyzed “as soon as possible.” All sample results have been qualified as estimated (J).

III. INSTRUMENT CALIBRATION

INITIAL CALIBRATIONS

Metals: Initial calibration criteria were met. One standard and a blank comprised the calibration. No qualification was required.

Mercury: Initial calibration criteria were met. The fit of the curve was ≥ 0.995 and the low standard was below the RL. No qualification was required.

Anions: Initial calibration criteria were met. The fit of the curve was ≥ 0.995 and the low standard was below the RL. No qualification was required.

Alkalinity:

TDS: Not applicable. Analysis was gravimetric.

TSS: Not applicable. Analysis was gravimetric.

Radium-226: Not applicable.

Radium-228: Not applicable.

pH: The instrument was properly standardized using five buffer solutions. The correlation coefficient of the curve was 1.000. No qualification was required.

SECOND SOURCE STANDARDS

Metals: Second source standard criteria were met. All analytes had %D values less than 10%. No qualification was required.

Mercury: Second source standard criteria were met. All analytes had %D values less than 10%. No qualification was required.

Anions: Second source standard criteria were met. All analytes had %D values less than 10%. No qualification was required.

Alkalinity: Not applicable.

TDS: Not applicable. Analysis was gravimetric.

TSS: Not applicable. Analysis was gravimetric.

Radium-226: Not applicable.

Radium-228: Not applicable.

pH: Second source standard criteria were met. pH results were within limits. No qualification was required.

CONTINUING CALIBRATIONS

Metals: Continuing calibration criteria were met. All analytes had %D values less than 10% except for samples listed below:

Analyte	CCV	Associated Samples	%D	Qualification
Antimony	310-348591/95	All	14	J-
Antimony	310-346726/171	W-11	11	J-
Cadmium	310-346726/159	W-11	13	J-
Lead	310-346726/159	W-11	11	J-
Lithium	310-348591/95	All	11	J-
Thallium	310-346726/159	W-11	11	J-

Mercury: Continuing calibration criteria were met. All analytes had %D values less than 10%. No qualification was required.

Anions: Continuing calibration criteria were met. All analytes had %D values less than 10%. No qualification was required.

Alkalinity: Continuing calibration criteria were met. All analytes had %D values less than 10%. No qualification was required.

TDS: Not applicable. Analysis was gravimetric.

TSS: Not applicable. Analysis was gravimetric.

Radium-226: Not applicable.

Radium-228: Not applicable.

pH: Continuing calibration criteria were met. pH results were within limits. No qualification was required.

IV. BLANKS

Target analytes were not detected in the blanks except as noted below.

METHOD BLANKS (MB) AND EQUIPMENT BLANK (EB)

Metals: Metals were not detected in the MBs or the EB. No qualification was required

Mercury: Mercury was not detected in the MBs or the EB. No qualification was required.

Anions: Anions were not detected in the MBs. Chloride was detected in W-3BEB at 1.1 mg/L. The parent sample result was much higher at 1100 mg/L. No qualification was required.

Alkalinity: Alkalinity, carbonate, and bicarbonate were not detected in the MBs or the EB. No qualification was required.

TDS: TDS was not detected in the MBs or the EB. No qualification was required.

TSS: TSS was not detected in the MBs or the EB. No qualification was required.

Radium-226: Ra-226 was not detected in the MBs or the EB. No qualification was required.

Radium-228: Ra-228 was not detected in the MBs or the EB. No qualification was required.

pH: Not applicable.

INITIAL AND CONTINUING CALIBRATION BLANKS (ICB and CCB)

Metals: Metals were not detected in the ICBs or CCBs except as noted below. No qualification was required.

Analyte	ICB or CCB	Associated Samples	Result (mg/L)	Qualification
Antimony	310-348591/11	All	0.000855	J+ (or UJ if not detected)

Analyte	ICB or CCB	Associated Samples	Result (mg/L)	Qualification
Barium	310-346726/158	W-11	0.00173	J+
	310-346726/170	W-11	0.00236	J+
Calcium	310-346726/158	W-11	0.322	J+
	310-346726/170	W-11	1.10	J+
Cobalt	310-346726/158	W-11	0.000212	J+
Lithium	310-346726/158	W-11	0.0209	J+
Selenium	310-348591/119	All	0.00107	J+ (or UJ if not detected)
	310-348591/128	All	0.00149	J+ (or UJ if not detected)

Mercury: Mercury was not detected in the ICBs or CCBs. No qualification was required.

Anions: Anions were not detected in the ICBs or CCBs. No qualification was required.

Alkalinity: Alkalinity, carbonate, and bicarbonate were not detected in the ICBs or CCBs. No qualification was required.

TDS: Not applicable.

TSS: Not applicable.

Radium-226: Not applicable.

Radium-228: Not applicable.

pH: Not applicable.

V. LABORATORY CONTROL SAMPLES (LCS) and LABORATORY CONTROL SAMPLES DUPLICATE (LCSD)

Metals: LCS recoveries were within the project control limits of 75-125%. No qualification was required.

Mercury: LCS recoveries were within the project control limits of 75-125%. No qualification was required.

Anions: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

Alkalinity: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

TDS: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

TSS: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines except for laboratory duplicate MW-7LR which had an RPD of 74%. Parent sample MW-7 has been qualified as estimated (J) for TSS.

Radium-226: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

Radium-228: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

pH: LCS results were within the control limits of 99-101%. No qualification was required.

VI. MATRIX SPIKE / MATRIX SPIKE DUPLICATE (MS/MSD)

No samples were designated on the COC for MS/MSD analysis.

Metals: The lab spiked samples MW-7 and W-11 from this project for metals. The spike recovery for calcium, lithium, and selenium were outside the control limits; however, the concentrations present in the parent sample were 4 times greater than the matrix spike concentration, so the accuracy and precision of the MS/MSD analysis could not be reliably evaluated. The associated LCS/LCSD analysis data showed that the laboratory processes were operating within control, so no corrective action was necessary. Parent sample results were qualified as estimated (J). Spike duplicate RPDs were within control limits.

Mercury: The lab spiked sample W-11 from this project. Recoveries and RPDs were within the control limits and no qualification was required.

Anions: The lab spiked sample W-3D from this project for anions. Results were within control limits and no qualification was required.

Alkalinity: MS/MSD analysis was not performed for alkalinity, carbonate, or bicarbonate.

Radium-226: MS/MSD analysis was not performed for Rad-226 due to limited sample volume.

Radium-228: MS/MSD analysis was not performed for Rad-228 due to limited sample volume.

VII. DUPLICATES

FIELD DUPLICATES

Sample W-3D was collected as a field duplicate of W-3.

Metals: FD results were outside control limits as indicated below:

Analyte	Parent (mg/L)	FD (mg/L)	RPD (%)	Qualification
Arsenic	0.001	ND	100	W-3 (J+), W-3D (UJ)
Cobalt	0.00028	ND	100	W-3 (J+), W-3D (UJ)
Lead	0.00024	ND	100	W-3 (J+), W-3D (UJ)
Molybdenum	0.022	0.013	26	W-3 (J+), W-3D (J-)

Anions: FD results were within control limits. No qualification was required.

Alkalinity: FD results were within control limits. No qualification was required.

TDS: FD results were outside control limits at an RPD of 86%. TDS was detected in the parent

sample at 1100 mg/L and in the FD at 15000 mg/L. TDS in W-3 had been qualified as estimated with potential for low bias (J-) and W-3D as estimated with potential for high bias (J+).

TSS: FD results were outside of control limits since TSS was detected in the parent sample W-3 at 3.6 mg/L and non-detect in the FD. TSS in W-3 has been qualified as estimated with potential for high bias (J+) and W-3B estimated but not detected (UJ).

Radium-226: FD results were within control limits. No qualification was required.

Radium-228: FD results were outside control limits at an RPD of 219%. The parent sample had Rad-228 at -0.163 pCi/L and FD at 0.437 pCi/L. Since both are below the RL, no qualification was required.

pH: FD results were within control limits. No qualification was required.

LABORATORY DUPLICATES

Metals: Lab duplicate analysis was performed on sample W-2A from this project for metals. Resulting RPDs were within control limits and no qualification was required.

Anions: Lab duplicate analysis was performed on sample W-3D from this project. Resulting RPDs were within control limits and no qualification was required. All laboratory-generated duplicate samples were also within control limits.

Alkalinity: Lab duplicate analysis was performed on sample MW-7 from this project for metals. Resulting RPDs were within control limits and no qualification was required.

TDS: Lab duplicate analysis was performed on sample MW-7 from this project. Resulting RPDs were within control limits and no qualification was required. All laboratory-generated duplicate samples were also within control limits.

TSS: Lab duplicate analysis was performed on sample MW-7 from this project. Resulting RPDs were outside control limits at 74%. Parent sample MW-7 has been qualified as estimated (J) for TSS. A laboratory-generated duplicate sample in batch 567918 was also outside control limits at 27%. Associated samples W-2C, W-3B, W-3D, and W-11 have been qualified as estimated (J).

pH: Lab duplicate analysis was performed on sample W-5 from this project. Results were within control limits and no qualification was required. All laboratory-generated duplicate samples were also within control limits.

VIII. INTERNAL STANDARDS (ISTD) OR TRACERS

All ISTD and tracer criteria were met except as noted below.

Metals: ISTD areas were greater than 30% of the initial calibration ISTD areas. No qualification was required.

Mercury: Not applicable.

Anions: Not applicable.

Alkalinity: Not applicable.

TDS: Not applicable.

TSS: Not applicable.

Radium-226: Tracer recoveries in all samples were within limits.

Radium-228: Tracer recoveries in all samples were within limits.

pH: Not applicable.

IX. POST DIGESTION SPIKE AND DILUTION TEST

Post-digestion spike (PDS) analyses and serial dilution tests were performed for Method 6020A metals. PDS results were within the control limits of 75-125% except as noted below. The dilution tests were not applicable unless sample results were greater than 50 times the MDL.

Metals: The dilution test was performed on the same sample as the MS/MSD. Results were within control limits and no qualification was required.

X. INTERFERENCE CHECK SAMPLES (ICS)

ICS results were applicable to the Method 6010C and 6020A metals analyses. Results were within required limits of 80-120% except as noted below.

Metals: Recoveries were within required limits. No qualifications were required.

XI. REPORTING LIMITS (RL) AND METHOD DETECTION LIMITS (MDL)

This phase of the project is the establishment of baseline contaminant levels. RLs are compared, **for internal use only**, against the Colorado drinking water maximum contaminant levels (MCLs), MCL goals (MCLGs), secondary MCLs, and/or action levels (ALs). RLs should be below these levels.

Metals: The RLs are compared to the MCLs, MCLGs, ALs and secondary MCLs in the table below.

Analyte	RL (mg/L)	MDL (mg/L)	MCL or AL (mg/L)	MCLG (mg/L)
Antimony	0.002	0.00057	0.006 (MCL)	0.006
Arsenic	0.005	0.00075	0.010 (MCL)	Zero
Barium	0.005	0.0022	2 (MCL)	2
Beryllium	0.001	0.00062	0.004 (MCL)	0.004
Boron	0.1	0.057	Not Listed	Not Listed
Cadmium	0.001	0.0002	0.005 (MCL)	0.005
Calcium	1	0.58	Not Listed	Not Listed
Chromium	0.0025	0.0025	0.1 (MCL)	0.1
Cobalt	0.001	0.00019	Not Listed	Not Listed
Lead	0.001	0.00045	0.015 (AL)	Zero

Lithium	0.008	0.0017	Not Listed	Not Listed
Molybdenum	0.01	0.0011	Not Listed	Not Listed
Selenium	0.005	0.00089	0.05 (MCL)	0.05
Thallium	0.001	0.0002	0.002 (MCL)	0.0005

Mercury: The RL of 0.2 µg/L is below the MCL and MCLG of 0.02 mg/L (20 µg/L). RL is above the MDL of 0.13 µg/L.

Anions: The RLs of 3 mg/L, 0.5 mg/L and 5 mg/L for chloride, fluoride and sulfate respectively are below the secondary MCLs of 250 mg/L, 2.0 mg/L, and 250 mg/L, respectively. The RLs are above the MDLs of 1.02 mg/L, 0.17 mg/L, and 1.05 mg/L, respectively.

Alkalinity: The RLs of 10 mg/L for alkalinity, carbonate, and bicarbonate are above the MDLs of 3.1 mg/L.

TDS: The RL is 10 mg/L; The Colorado drinking water standard is 400 mg/L or 1.25 times the background level, whichever is least restrictive. The RL is above the MDL of 4.7 mg/L.

TSS: The RL is 4 mg/L; there are no Colorado drinking water standards for TSS. The RL is above the MDL of 1.1 mg/L.

Radium 226: The RL of 1.0 picocurie per liter (pCi/L) is below the MCL of 5.0 pCi/L for combined radium 226 and radium 228.

Radium 228: The RL of 1.0 picocurie per liter (pCi/L) is below the MCL of 5.0 pCi/L for combined radium 226 and radium 228.

pH: The Colorado drinking water standard is pH value of 6.5 to 8.5.

XII. SAMPLE RESULTS / TRANSCRIPTION VERIFICATION

Transcription between the data package and the EDDs was verified. Sample results reported between the MDL and RL were qualified as estimated (J).

Samples W-7 and W-3B were received with insufficient preservation at pH > 2, which can affect method 6010C/6020A. Samples were preserved additionally to the appropriate pH in the laboratory.

Metals: W-11 required dilution prior to analysis. RLs have been adjusted accordingly.

Mercury: No issues.

Anions: No issues.

Alkalinity: No issues.

TDS: No issues.

TSS: No issues.

Radium-226: A reduced sample volume was prepared for all project samples due to matrix interferences, but all RLs were 1.0 pCi/L.

Radium-228: A reduced sample volume was prepared for all project samples due to matrix interferences, but all RLs were 1.0 pCi/L.

pH: No issues.

XIII. PARCCS PARAMETERS AND DATA USABILITY

Data were usable as discussed below.

The data quality indicators (DQIs), expressed in terms of precision, accuracy, representativeness, comparability, completeness, and sensitivity (PARCCS parameters), were assessed. This included the evaluation of sample integrity, holding times, trip blanks, rinsate blanks, method blanks, internal standards, surrogate recoveries, MS/MSD recoveries, LCS/Ds, and field duplicate precision. The results of the DQI assessment are provided below.

PRECISION

Field duplicates are collected to assess sampling precision. Lab duplicates, LCS/Ds, and MS/Ds are analyzed to assess analysis precision. Precision is best expressed in terms of relative percent difference (RPD).

Lab precision goals were met in most cases. Lab duplicates, LCS/LCSD, and MS/MSD RPDs were within control limits except the lab duplicate for TSS.

Field precision goals were met in that RPDs between the parent/field duplicate pair were within control limits except arsenic, cobalt, lead, molybdenum, TDS, and TSS results that required qualification.

ACCURACY

Accuracy or bias is measured through the analyses of LCS/Ds and MS/MSDs. Sample specific accuracy is measured through surrogate recovery. Accuracy is expressed as percent recovery (%R).

Field accuracy goals were met. MS/MSD recoveries for calcium, lithium, and selenium could not be accurately verified.

Lab accuracy goals were met in that LCS/LCSD recoveries were within control limits except for TSS.

REPRESENTATIVENESS

Representativeness refers to the degree sample data accurately and precisely describes the population of samples at a sampling point or under certain environmental conditions. Samples that are not properly preserved or are analyzed beyond holding times may not be considered representative. Review of sampling procedures, laboratory preparation, analysis holding times, trip blank and rinsate blank analysis help in providing this assessment.

Representativeness goals were generally met. Samples were collected at predetermined locations according to the project plan.

Representativeness goals were not met in these instances:

- All pH and temperature results required qualification as estimated (J) due to analysis past the holding time;

- Mercury in one sample required qualification as estimated (UJ) due to analysis past the holding time;
- TDS in nine samples required qualification as estimated (J) or (UJ) due to analysis past the holding time;
- TSS in ten samples required qualification as estimated (J) or (UJ) due to analysis past the holding time;
- Antimony and lithium in all samples required qualification as estimated with potential for low bias (J-) due to CCVs %D outside control limits;
- Cadmium, lead, and thallium in one sample required qualification as estimated with potential for low bias (J-) due to CCVs %D outside control limits;
- Antimony and selenium in all samples required qualification as estimated with potential for high bias (J+) or (UJ) due to detection in the CCB;
- Barium, calcium, cobalt, and lithium in one sample required qualification as estimated with potential for high bias (J+) or (UJ) due to detection in the CCB;
- TSS in five sample required qualification as estimated (J) due to laboratory duplicate and LCS/LCSD RPD outside control limits;
- The MS/MSD for calcium, lithium, and selenium could not be verified;
- Arsenic, cobalt, lead, and molybdenum required qualification as estimated with potential for high bias (J+) in the parent sample and (J-) or (UJ) in the field duplicate due to RPDs outside control limits;
- TDS required qualification as estimated with potential for low bias (J-) in the parent and with potential for high bias (J+) in the field duplicate due to RPDs outside control limits;
- TSS required qualification as estimated with potential for high bias (J+) in the parent and estimated but not detected (UJ) in the field duplicate due to RPDs outside control limits;

COMPARABILITY

The selection of standardized methods and consistent laboratory practices facilitates the comparison of data between sampling events.

Comparability goals were met. Samples were analyzed by standardized methods (SW-846 and Standards Methods). Future sampling events will be analyzed by the same methods at the same labs to achieve comparability.

COMPLETENESS

Completeness is determined for both field and analytical objectives. Field completeness is calculated from the number of samples proposed versus the actual number of samples collected. Analytical completeness is expressed in terms of usable data.

Field completeness goals were met. All of the 15 planned wells were sampled.

Lab completeness goals were met. No data were rejected. Of the planned 17 samples for analysis,

all 17 were analyzed for all analytes except there was insufficient sample volume to sample W-4 for TSS or radium.

SENSITIVITY

Analytical sensitivity is the concentration at which the measurement system can quantitate target analytes in the environmental matrices of concern. Analytical sensitivity is expressed in terms of the RL, which is provided by the respective laboratories as their reasonable and defensible quantitation limit for environmental samples above the MDL, which is established by each laboratory using pure water or clean matrix.

Sensitivity goals were met. The MDLs were $\leq$ one-half the RLs except for cadmium, molybdenum, mercury, Ra-226, and Ra-228. This phase of the project is the establishment of baseline contaminant levels, and project RLs were compared to the Colorado drinking water maximum contaminant levels (MCLs), MCL goals (MCLGs), secondary MCLs, and/or action levels (ALs). RLs were at or below these levels.

Metals: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Mercury: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Anions: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Alkalinity: No data were rejected. Data required minimal qualification. All data are usable as qualified.

TDS: No data were rejected. Data required minimal qualification. All data are usable as qualified.

TSS: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Radium-226: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Radium-228: No data were rejected. Data required minimal qualification. All data are usable as qualified.

pH: No data were rejected. All data are usable as qualified.

DATA VALIDATION AND USABILITY REPORT

Metals by USEPA SW-846 Method 6010C/6020B

Mercury by USEPA SW-846 Method 7470A

Anions by USEPA SW-846 Method 9056A

Total Dissolved Solids (TDS) by Standard Method SM2540C

Total Suspended Solids (TSS) by Standard Method SM2540D

Radium-226 (Ra-226) by USEPA SW-846 Method 9315

Radium-228 (Ra-228) by USEPA SW-846 Method 9320

pH by USEPA SW-846 Method 9040B

Alkalinity by Standard Method SM2320B

Project: Xcel Energy Coal Combustion Residuals (CCR) Project – Comanche – March-April 2022

Project/Task Number: 10279381-001

Sample Data Package: 280-160467-1, 280-160577-1, 280-160467-2 (radiochemistry), 280-160577-2 (radiochemistry), 280-160467-3 (re-run), 280-160577-3 (re-run), 280-160467-4 (diss metals)
Lab Report Dates: 5/2/2022, 5/2/2022, 5/6/2022 (radiochemistry), 5/5/2022 (radiochemistry), 6/3/2022 (re-run), 6/3/2022 (re-run), 6/20/2022 (diss metals)
Data Validation Report Date: 6/13/2022

Laboratory: TestAmerica Denver, Arvada, Colorado (anions, TDS, TSS, pH, alkalinity);
TestAmerica Cedar Falls, Cedar Falls, Iowa (metals, mercury)
TestAmerica Saint Louis, Earth City, Missouri (radiochem)

Sample Matrix: Groundwater

Sampling Dates: March 29-April 5, 2022

Validation Guidelines: Project Plan (*Statistical Method Certification for Compliance with the Coal Combustion Residuals [CCR] Rule, for Xcel Energy [HDR, December 7, 2015]*), United States Environmental Protection Agency (USEPA) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd edition (SW-846); USEPA *National Functional Guidelines for Inorganic Data Review*, USEPA-540-R-10-011, January 2010; USEPA *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use*, USEPA 540-R-08-005, January 13, 2009; and professional judgment

Validation Level: Stage 2BVM (100%)

Data Reviewer: Aryka Thomson, HDR

Sample ID	Matrix	Lab ID	Date Collected	Metals Mercury	Anions	TDS TSS	RA-226 RA-228	Dissolved Metals	Carb, Bicarb, Mg, K, Na
MW-1B	GW	280-160577-1	04/04/2022	App III	X	X			X
MW-2B	GW	280-160577-2	04/05/2022	App III	X	X			X
MW-3	GW	280-160467-15	03/29/2022	App III	X	X			*
MW-4B	GW	280-160577-3	04/04/2022	App III	X	X			X
MW-5	GW	280-160467-16	03/31/2022	App III	X	X			*
MW-6	GW	280-160577-4	04/04/2022	App III	X	X			X
MW-7	GW	280-160577-7	04/05/2022	X	X	X	X		X
W-1	GW	280-160577-5	04/05/2022	X	X	X	X		X
W-2A	GW	280-160467-1	03/31/2022	X	X	X	X		
W-2C	GW	280-160467-2	03/31/2022	X	X	X	X		
W-3	GW	280-160467-3	03/31/2022	X	X	X	X		

Sample ID	Matrix	Lab ID	Date Collected	Metals Mercury	Anions	TDS TSS	RA-226 RA-228	Dissolved Metals	Carb, Bicarb, Mg, K, Na
W-3B	GW	280-160467-4	03/31/2022	X	X	X	X		
W-4	GW	280-160577-6	04/05/2022		X	X	X		
W-5	GW	280-160467-5	03/30/2022	X	X	X	X		
W-5B	GW	280-160467-6	03/30/2022	X	X	X	X		
W-6	GW	280-160467-7	03/30/2022	X	X	X	X		
W-6B	GW	280-160467-8	03/30/2022	X	X	X	X		
W-7	GW	280-160467-10	03/31/2022	X	X	X	X	X	
W-9	GW	280-160467-11	03/31/2022	X	X	X	X		
W-11	GW	280-160467-17	04/01/2022	X	X	X	X		
W-12	GW	280-160467-12	04/01/2022	X	X	X	X		
W-14	GW	280-160467-13	04/01/2022	X	X	X	X		
W-16	GW	280-160467-14	04/01/2022	X	X	X	X		
MW-7D	QC	280-160577-8	04/05/2022	X	X	X	X		X
W-6D	QC	280-160467-9	03/30/2022	X	X	X	X		
W-3EB	QC	280-160467-18	03/31/2022	X	X	X	X		

*Not requested but analyzed anyway

All samples were first analyzed for metals by TestAmerica Cedar Falls. Method detection limits (MDLs) for some analytes were found to be less than the groundwater protection standards (GPS) for the given analyte and prevented accurate evaluation of compliance with the CCR Rule. All samples were re-analyzed by the TestAmerica Denver laboratory to achieve lower MDLs for the affected analytes antimony and arsenic, as well as beryllium, cadmium, and cobalt for sample W-14. This report reflects validation of the original data packages (280-160467-1 and 280-160577-1) with antimony and arsenic (and beryllium, cadmium, and cobalt for W-14) results replaced by those presented in the TestAmerica Denver data packages (280-160467-3 and 280-160577-3).

Dissolved metal analysis for W-7 was left off the original COC. Analysis was requested after data validation was initiated.

SUMMARY

All laboratory data were acceptable with qualification.

I. SAMPLE RECEIPT / CHAIN OF CUSTODY

Samples were shipped or hand-delivered to the TestAmerica Denver facility, who then forwarded the appropriate sample containers to the other facilities. The temperature of samples upon receipt were between 0.7°C and 3.0°C, within the acceptable range of 0-6°C. The chains of custody (COCs) from the field and for transfer to the different lab facilities were filled out and signed.

Despite being left off the COC, W-3EB was analyzed by the laboratory.

The laboratory received these samples with a pH>2, so the laboratory used 1mL of nitric to preserve them. W-2A (280-160467-1), W-2C (280-160467-2), W-3 (280-160467-3), W-3B (280-160467-4), W-5 (280-160467-5), W-5B (280-160467-6), W-6 (280-160467-7), W-6B (280-160467-8), W-6D (280-160467-9), W-7 (280-160467-10), W-9 (280-160467-11), W-12 (280-160467-12), W-14 (280-160467-13), W-16 (280-160467-14), MW-3 (280-160467-15), MW-5 (280-160467-16), W-11 (280-160467-17) and W-3EB (280-160467-18).

Only 125 mL was submitted for sample W-4. All analytes were marked for analysis on the COC; however, there was insufficient volume for preserved analytes. Metals were not analyzed for this sample.

II. HOLDING TIMES

Holding time criteria were generally met except as noted below.

Metals: Samples were analyzed within 180 days of collection.

Mercury: All samples were analyzed within 28 days of collection except dissolved mercury on W-7 because the analysis was requested after the hold time had expired. Dissolved mercury has been qualified as estimated but not detected (UJ).

Anions: Samples were analyzed within 28 days of collection.

Alkalinity: The following samples were analyzed for alkalinity, bicarbonate, and carbonate past the 28-day holding time and have been qualified as estimated (J) or (UJ) if non-detect.

MW-3	MW-5	W-5	W-5B	W-6
W-6B	W-6D			

TDS: The following samples were analyzed for TDS past the 7-day holding time and have been qualified as estimated (J).

MW-1B	MW-2B	MW-3	MW-4B	MW-5
MW-6	MW-7	MW-7D	W-1	W-2A
W-2C	W-3	W-3B	W-3EB	W-4
W-5	W-5B	W-6	W-6B	W-6D
W-7	W-9	W-11		

TSS: Samples were analyzed within the 7-day holding time except MW-3, which has been qualified as estimated (J).

Radium-226: Samples had ingrowth times of at least 21 days.

Radium-228: Samples had ingrowth times of at least 36 hours.

pH: Samples were analyzed more than 24 hours after collection. The method states the samples are to be analyzed “as soon as possible.” All sample results have been qualified as estimated (J).

III. INSTRUMENT CALIBRATION

INITIAL CALIBRATIONS

Metals: Initial calibration criteria were met. One standard and a blank comprised the calibration. No qualification was required.

Mercury: Initial calibration criteria were met. The fit of the curve was ≥ 0.995 and the low standard was below the RL. No qualification was required.

Anions: Initial calibration criteria were met. No qualification was required.

Alkalinity: Initial calibration criteria were met. No qualification was required.

TDS: Not applicable. Analysis was gravimetric.

TSS: Not applicable. Analysis was gravimetric.

Radium-226: Not applicable.

Radium-228: Not applicable.

pH: The instrument was properly standardized using five buffer solutions. The correlation coefficient of the curve was 1.000. No qualification was required.

SECOND SOURCE STANDARDS

Metals: Second source standard criteria were met. All analytes had %D values less than 10%. No qualification was required.

Mercury: Second source standard criteria were met. All analytes had %D values less than 10%. No qualification was required.

Anions: Second source standard criteria were met. All analytes had %D values less than 10%. No qualification was required.

Alkalinity: Not applicable.

TDS: Not applicable. Analysis was gravimetric.

TSS: Not applicable. Analysis was gravimetric.

Radium-226: Not applicable.

Radium-228: Not applicable.

pH: Second source standard criteria were met. pH results were within limits. No qualification was required.

CONTINUING CALIBRATIONS

Metals: Continuing calibration criteria were met. All analytes had %D values less than 10%. No qualification was required.

The continuing calibration verification (CCV) associated with batch 310-350753 recovered above the upper control limit for Beryllium. The samples associated with this CCV were non-detects for the affected analytes; therefore, corrective action is deemed unnecessary.

Mercury: Continuing calibration criteria were met. All analytes had %D values less than 10%. No qualification was required.

Anions: Continuing calibration criteria were met. All analytes had %D values less than 10%. No qualification was required.

Alkalinity: Continuing calibration criteria were met. All analytes had %D values less than 10%. No qualification was required.

TDS: Not applicable. Analysis was gravimetric.

TSS: Not applicable. Analysis was gravimetric.

Radium-226: Not applicable.

Radium-228: Not applicable.

pH: Continuing calibration criteria were met. pH results were within limits. No qualification was required.

IV. BLANKS

Target analytes were not detected in the blanks except as noted below.

METHOD BLANKS (MB) AND EQUIPMENT BLANK (EB)

Metals: Thallium was detected in MB 310-3493701-A at 0.000456 mg/L. Associated samples (MW-3, MW-5, W-2A, W-2C, W-3, W-3B, W-3EB, W-5, W-5B, W-6, W-6B, W-6D, W-7, W-9, W-11, W-12, W-14, W-16) were qualified as estimated (UJ) as thallium was non-detect in all samples. Metals were not detected in the EB and required no qualification.

Dissolved molybdenum was detected in MB 280-5780631-E at 0.000405 mg/L. Dissolved molybdenum in W-7 was qualified as estimated with potential for high bias (J+).

Mercury: Mercury was not detected in the MBs or the EB. No qualification was required.

Anions: Anions were not detected in the MBs or the EB. No qualification was required.

Alkalinity: Alkalinity was not detected in the MBs or the EB. No qualification was required.

TDS: TDS was not detected in the MBs. TDS was detected in EB W-3EB at 10 mg/L. Sample results were much higher and no qualification was required.

TSS: TSS was not detected in the MBs or the EB. No qualification was required.

Radium-226: Ra-226 was not detected in the MBs or the EB. No qualification was required.

Radium-228: Ra-228 was not detected in MB 160-55931920-A at 0.7283 pCi/L. Associated samples W-1, MW-7, and MW-7D have been qualified as estimated with potential for high bias (J+) for Ra-228 and combined radium. Ra-228 was not detected in the EB. No qualification was required.

pH: Not applicable.

INITIAL AND CONTINUING CALIBRATION BLANKS (ICB and CCB)

Metals: Metals were detected in ICBs and CCBs as noted below.

Analyte	ICB or CCB	Associated Samples	Result (mg/L)	Qualification
Beryllium	CCB 280-576852/28	MW-3, MW-5, W-2C, W-3, W-5B, W-6, W-6B, W-7, W-9, W-11, W-12, W-14, W-16	0.000175	UJ (non-detect in all samples)
	CCB 280-576852/39		0.000171	
	CCB 280-576852/49		0.000143	
Dissolved Molybdenum	ICB 280-578391/13	W-7	0.000193	J+
	CCB 280-578391/51		0.000229	
	CCB 280-578391/66		0.000830	

Analyte	ICB or CCB	Associated Samples	Result (mg/L)	Qualification
	CCB 280-578391/78		0.000215	
	CCB 280-578391/83		0.000183	

Mercury: Mercury was not detected in the ICBs or CCBs. No qualification was required.

Anions: Anions were not detected in the ICBs or CCBs. No qualification was required.

Alkalinity: Alkalinity, carbonate, and bicarbonate were not detected in the ICBs or CCBs. No qualification was required.

TDS: Not applicable.

TSS: Not applicable.

Radium-226: Not applicable.

Radium-228: Not applicable.

pH: Not applicable.

V. LABORATORY CONTROL SAMPLES (LCS) and LABORATORY CONTROL SAMPLES DUPLICATE (LCSD)

Metals: LCS recoveries were within the project control limits of 75-125%. No qualification was required.

Mercury: LCS recoveries were within the project control limits of 75-125%. No qualification was required.

Anions: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

Alkalinity: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

TDS: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

TSS: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

Radium-226: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

Radium-228: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs

were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

pH: LCS results were within the control limits of 99-101%. No qualification was required.

VI. MATRIX SPIKE / MATRIX SPIKE DUPLICATE (MS/MSD)

No samples were designated on the COC for MS/MSD analysis.

Metals: The lab spiked sample W-2A from this project for metals in the first re-run and W-2C for the reanalyzed metals.

The MS/MSD for method 6020A exhibited multiple spike compound recoveries outside the QC limits (barium, beryllium, chromium, lead and molybdenum in W-2A and beryllium in W-2C). The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action was deemed unnecessary by the laboratory. These constituents were qualified as estimated (J) or (UJ) in the respective parent samples.

The accuracy and precision of the multiple compounds for Method 6020A MS/MSD performed on sample W-2A (calcium, lithium, sodium, potassium, and magnesium) and W-2C (cadmium and cobalt) could not be reliably evaluated, as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary by the laboratory. These constituents were qualified as estimated (J) or (UJ) in the respective parent samples.

All RPDs were within control limits.

The results of laboratory-generated MS/MSD analysis for dissolved metals were within control limits and no qualification was required.

Mercury: The lab spiked sample W-2C from this project. Recoveries and RPDs were within the control limits and no qualification was required.

Anions: The lab spiked sample W-9 from this project for anions and MW-6 for an additional sulfate matrix spike. Results were within control limits and no qualification was required except the accuracy and precision of the Sulfate MS/MSD performed on a sample W-9 could not be reliably evaluated, as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary by the laboratory. Sulfate in W-9 has been qualified as estimated (J).

Alkalinity: MS/MSD analysis was not performed for alkalinity, carbonate, or bicarbonate.

Radium-226: MS/MSD analysis was not performed for Rad-226.

Radium-228: MS/MSD analysis was not performed for Rad-228.

VII. DUPLICATES

FIELD DUPLICATES

Sample MW-7D was collected as a field duplicate of MW-7 and W-6D was collected as a field duplicate of W-6.

Metals: FD results were within control limits except arsenic was detected in W-6 at 0.0032 mg/L and non-detect in W-6D. Arsenic has been qualified as estimated with potential for high bias (J+) in W-6 and (UJ) in W-6D.

Anions: FD results were within control limits except sulfate was detected in MW-7 at 7100 mg/L and MW-7D at 2800 mg/L, resulting in an RPD of 43%. Sulfate has been qualified as estimated with potential for high bias (J+) in MW-7 and estimated with potential for low bias (J-) in MW-7D.

Alkalinity: FD results were within control limits. No qualification was required.

TDS: FD results were within control limits. No qualification was required.

TSS: FD results were within control limits except TSS was detected in MW-7 at 5.2 mg/L and MW-7D at 3.2 mg/L, resulting in an RPD of 24%. TSS has been qualified as estimated with potential for high bias (J+) in MW-7 and estimated with potential for low bias (J-) in MW-7D.

Radium-226: FD results were within control limits. No qualification was required.

Radium-228: FD results were outside control limits at an RPD of 37%, resulting in a combined radium RPD of 33%. Rad-228 and combined radium has been qualified as estimated with potential for high bias (J+) in MW-7 and estimated with potential for low bias (J-) in MW-7D.

pH: FD results were within control limits. No qualification was required.

LABORATORY DUPLICATES

Metals: Lab duplicate analysis was performed on samples MW-6 and W-9 from this project. Resulting RPDs were within control limits and no qualification was required. All laboratory-generated duplicate samples were also within control limits.

Anions: Lab duplicate analysis was performed on sample W-9 from this project and sulfate on MW-6. Resulting RPDs were within control limits and no qualification was required. All laboratory-generated duplicate samples were also within control limits.

Alkalinity: Lab duplicate analysis was performed on sample MW-3 from this project for alkalinity. Resulting RPDs were within control limits and no qualification was required.

TDS: Lab duplicate analysis was performed on samples MW-6, W-11, W-14, and W-16 from this project. Resulting RPDs were within control limits and no qualification was required. All laboratory-generated duplicate samples were also within control limits.

TSS: Lab duplicate analysis was performed on samples MW-7D and W-2A from this project. Resulting RPDs were within control limits and no qualification was required. All laboratory-generated duplicate samples were also within control limits.

pH: Lab duplicate analysis was not performed on samples from this project. All laboratory-generated duplicate samples were within control limits and no qualification was required.

VIII. INTERNAL STANDARDS (ISTD) OR TRACERS

All ISTD and tracer criteria were met except as noted below.

Metals: Due to sample matrix effect on the internal standard (ISTD), a dilution was required for the following samples: W-2A (280-160467-1), W-2C (280-160467-2), W-3 (280-160467-3), W-3B (280-

160467-4), W-5 (280-160467-5), W-5B (280-160467-6), W-6 (280-160467-7), W-6B (280-160467-8), W-6D (280-160467-9), W-7 (280-160467-10), W-9 (280-160467-11), W-12 (280-160467-12), W-14 (280-160467-13), W-16 (280-160467-14), MW-3 (280-160467-15), MW-5 (280-160467-16), W-11 (280-160467-17), W-3EB (280-160467-18), MW-1B (280-160577-1), MW-2B (280-160577-2), MW-4B (280-160577-3), MW-6 (280-160577-4), W-1 (280-160577-5), MW-7 (280-160577-7) and MW-7D (280-160577-8).

Radium-226: Tracer recoveries in all samples were within limits.

Radium-228: Tracer recoveries in all samples were within limits.

IX. POST DIGESTION SPIKE AND DILUTION TEST

Post-digestion spike (PDS) analyses and serial dilution tests were performed for Method 6020A metals. PDS results were within the control limits of 75-125% except as noted below. The dilution tests were not applicable unless sample results were greater than 50 times the MDL.

Metals: PDS results were outside control limits for beryllium, calcium, and lithium. The dilution test results were within control limits and no qualification was required.

X. INTERFERENCE CHECK SAMPLES (ICS)

ICS results were applicable to the Method 6010C and 6020A metals analyses. Results were within required limits of 80-120% except as noted below.

Metals: Recoveries were within required limits for total metals. No qualifications were required.

For dissolved metals (report 280-160467-4), “the interference check standard solution (ICSA) associated with batch 280-578391 had results for one or more elements at a level greater than 1/2 the RL. The initial ICSA result (2.9 ppb) was >1/2 the RL of 3 ppb. The vendor acknowledges that these elements are trace impurities in the ICSA standard. These results are not indicative of a matrix interference.” Barium results have been qualified as estimated (J).

XI. REPORTING LIMITS (RL) AND METHOD DETECTION LIMITS (MDL)

This phase of the project is the establishment of baseline contaminant levels. RLs are compared, **for internal use only**, against the Colorado drinking water maximum contaminant levels (MCLs), MCL goals (MCLGs), secondary MCLs, action levels (ALs), and/or groundwater protection standards (GPS). RLs should be below these levels.

Metals: The RLs are compared to the MCLs, MCLGs, ALs and secondary MCLs in the table below.

Analyte	RL (mg/L)	MDL (mg/L)	MCL or AL (mg/L)	MCLG (mg/L)	GPS (mg/L)
Antimony	0.002	0.0004	0.006 (MCL)	0.006	0.006
Arsenic	0.005	0.00033	0.010 (MCL)	Zero	0.01
Barium	0.005	0.00088	2 (MCL)	2	2
Beryllium	0.001	0.00008	0.004 (MCL)	0.004	None

Boron	0.1	0.056	Not Listed	Not Listed	None
Cadmium	0.001	0.00027	0.005 (MCL)	0.005	0.00588
Calcium	1	0.19	Not Listed	Not Listed	None
Chromium	0.002	0.0011	0.1 (MCL)	0.1	0.1
Cobalt	0.001	0.000092	Not Listed	Not Listed	0.0102
Lead	0.001	0.00024	0.015 (AL)	Zero	0.015
Lithium	0.02	0.0025	Not Listed	Not Listed	5.51
Molybdenum	0.002	0.0012	Not Listed	Not Listed	0.1
Selenium	0.005	0.00096	0.05 (MCL)	0.05	3.67
Thallium	0.001	0.00026	0.002 (MCL)	0.0005	0.00645

Mercury: The RL of 0.2 µg/L is below the MCL and MCLG of 0.02 mg/L (20 µg/L). RL is above the MDL of 0.061 µg/L.

Anions: The RLs of 3 mg/L, 0.5 mg/L and 5 mg/L for chloride, fluoride and sulfate respectively are below the secondary MCLs of 250 mg/L, 2.0 mg/L, and 250 mg/L, respectively. The RLs are above the MDLs of 1 mg/L, 0.17 mg/L, and 1 mg/L, respectively.

Alkalinity: The RLs of 10 mg/L for alkalinity, carbonate, and bicarbonate are above the MDLs of 3.1 mg/L.

TDS: The RL is 10 mg/L; The Colorado drinking water standard is 400 mg/L or 1.25 times the background level, whichever is least restrictive. The RL is above the MDL of 4.7 mg/L.

TSS: The RL is 4 mg/L; there are no Colorado drinking water standards for TSS. The RL is above the MDL of 1.1 mg/L.

Radium 226: The RL of 1.0 picocurie per liter (pCi/L) is below the MCL of 5.0 pCi/L for combined radium 226 and radium 228.

Radium 228: The RL of 1.0 picocurie per liter (pCi/L) is below the MCL of 5.0 pCi/L for combined radium 226 and radium 228. Radium 228 batch 559318The detection goal was not met for the following sample(s). Samples were prepped at a reduced volume due to the presence of matrix interferences: MW-5 (280-160467-16) and W-11 (280-160467-17). Analytical results are reported with the detection limit achieved.

pH: The Colorado drinking water standard is pH value of 6.5 to 8.5.

XII. SAMPLE RESULTS / TRANSCRIPTION VERIFICATION

Transcription between the data package and the EDDs was verified. Sample results reported between the MDL and RL were qualified as estimated (J).

Metals: Additional volume was collected from W-7 for dissolved metals analysis but was not marked for analysis on the COC.

Mercury: No issues.

Anions: No issues.

Alkalinity: No issues.

TDS: No issues.

TSS: No issues.

Radium-226: The following samples were prepared at a reduced aliquot due to Matrix: W-1 (280-160577-5), MW-7 (280-160577-7), MW-7D (280-160577-8), W-6B (280-160467-8), W-7 (280-160467-10), W-12 (280-160467-12), W-14 (280-160467-13), MW-5 (280-160467-16) and W-11 (280-160467-17), but all RLs were 1.0 pCi/L.

Radium-228: The following samples were prepared at a reduced aliquot due to Matrix: W-1 (280-160577-5), MW-7 (280-160577-7), MW-7D (280-160577-8), W-6B (280-160467-8), W-7 (280-160467-10), W-12 (280-160467-12), W-14 (280-160467-13), MW-5 (280-160467-16) and W-11 (280-160467-17), but all RLs were 1.0 pCi/L.

pH: No issues.

XIII. PARCCS PARAMETERS AND DATA USABILITY

Data were usable as discussed below.

The data quality indicators (DQIs), expressed in terms of precision, accuracy, representativeness, comparability, completeness, and sensitivity (PARCCS parameters), were assessed. This included the evaluation of sample integrity, holding times, trip blanks, rinsate blanks, method blanks, internal standards, surrogate recoveries, MS/MSD recoveries, LCS/Ds, and field duplicate precision. The results of the DQI assessment are provided below.

PRECISION

Field duplicates are collected to assess sampling precision. Lab duplicates, LCS/Ds, and MS/Ds are analyzed to assess analysis precision. Precision is best expressed in terms of relative percent difference (RPD).

Lab precision goals were met in most cases. Lab duplicates, LCS/LCSD, and MS/MSD RPDs were within control limits.

Field precision goals were met in that RPDs between the parent/field duplicate pairs were within control limits except arsenic, sulfate, TSS, and Rad-228 and combined radium results that required qualification.

ACCURACY

Accuracy or bias is measured through the analyses of LCS/Ds and MS/MSDs. Sample specific accuracy is measured through surrogate recovery. Accuracy is expressed as percent recovery (%R).

Field accuracy goals were met except MS/MSD recoveries for barium, beryllium, chromium, lead, and molybdenum. MS/MSD recoveries for cadmium, calcium, cobalt, lithium, sodium, potassium, magnesium, and sulfate could not be accurately verified.

Lab accuracy goals were met in that LCS/LCSD recoveries were within control limits.

REPRESENTATIVENESS

Representativeness refers to the degree sample data accurately and precisely describes the population of samples at a sampling point or under certain environmental conditions. Samples that are not properly preserved or are analyzed beyond holding times may not be considered representative. Review of sampling procedures, laboratory preparation, analysis holding times, trip blank and rinsate blank analysis help in providing this assessment.

Representativeness goals were generally met. Samples were collected at predetermined locations according to the project plan.

Representativeness goals were not met in these instances:

- All pH and temperature results required qualification as estimated (J) due to analysis past the holding time;
- Alkalinity in seven samples required qualification as estimated (J) or (UJ) due to analysis past the holding time;
- TDS in 23 samples required qualification as estimated (J) or (UJ) due to analysis past the holding time;
- TSS in one sample required qualification as estimated (J) or (UJ) due to analysis past the holding time;
- Dissolved mercury in one sample required qualification as estimated (UJ) due to analysis past the holding time;
- Thallium in 18 samples required qualification as estimated (UJ) due to detection in the MB but non-detect in all samples;
- Rad-228 and combined radium in three samples have been qualified as estimated with potential for high bias (J+) due to detection in the MB;
- Dissolved molybdenum in one sample required qualification as estimated with potential for high bias (J+) due to detection in the MB and ICB/CCBs;
- Beryllium in 13 samples required qualification as estimated (UJ) due to detection in the CCB but non-detect in all samples;
- Barium, beryllium, chromium, lead, and molybdenum required qualification as estimated (J) (or UJ if non-detect) in the parent sample due to MS/MSD recoveries outside control limits
- Beryllium in one sample required qualification as estimated (J) (or UJ if non-detect) due to MS/MSD recoveries outside control limits;
- Sulfate in one sample required qualification as estimated (J) due to MS/MSD recoveries outside control limits;
- The MS/MSD for cadmium, calcium, cobalt, lithium, magnesium, potassium, sodium, and sulfate could not be verified;

- Arsenic in one parent/field duplicate pair required qualification as estimated with potential for high bias (J+) in the parent and (UJ) in the duplicate;
- Sulfate, TSS, Rad-228, and combined radium in one parent/field duplicate pair required qualification as estimated with potential for high bias (J+) in the parent and estimated with potential for low bias (J-) in the duplicate;
- Barium in one sample required qualification as estimated (J) because the ISCA had results for one or more elements at a level greater than 1/2 the RL.

COMPARABILITY

The selection of standardized methods and consistent laboratory practices facilitates the comparison of data between sampling events.

Comparability goals were met. Samples were analyzed by standardized methods (SW-846 and Standards Methods). Future sampling events will be analyzed by the same methods at the same labs to achieve comparability.

COMPLETENESS

Completeness is determined for both field and analytical objectives. Field completeness is calculated from the number of samples proposed versus the actual number of samples collected. Analytical completeness is expressed in terms of usable data.

Field completeness goals were nearly met. 23 of the 24 planned wells were sampled. W-13 had insufficient volume for collection and analysis. This results in a field completeness of 96%.

Lab completeness goals were met. No data were rejected. Of the planned 27 samples for analysis, all 27 were analyzed for all analytes except there was insufficient sample volume to analyzed for preserved constituents (metals). This results in a lab completeness of 96%.

SENSITIVITY

Analytical sensitivity is the concentration at which the measurement system can quantitate target analytes in the environmental matrices of concern. Analytical sensitivity is expressed in terms of the RL, which is provided by the respective laboratories as their reasonable and defensible quantitation limit for environmental samples above the MDL, which is established by each laboratory using pure water or clean matrix.

Sensitivity goals were met. The MDLs were $\leq$ one-half the RLs except for cadmium, molybdenum, sodium, mercury, Ra-226 and Ra-228. This phase of the project is the establishment of baseline contaminant levels, and project RLs were compared to the Colorado drinking water maximum contaminant levels (MCLs), MCL goals (MCLGs), secondary MCLs, and/or action levels (ALs). RLs were at or below these levels.

Metals: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Mercury: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Anions: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Alkalinity: No data were rejected. Data required minimal qualification. All data are usable as qualified.

TDS: No data were rejected. Data required minimal qualification. All data are usable as qualified.

TSS: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Radium-226: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Radium-228: No data were rejected. Data required minimal qualification. All data are usable as qualified.

pH: No data were rejected. All data are usable as qualified.

DATA VALIDATION AND USABILITY REPORT

Metals by USEPA SW-846 Method 6010C/6020A
Mercury by USEPA SW-846 Method 7470A
Anions by USEPA SW-846 Method 9056A
Total Dissolved Solids (TDS) by Standard Method SM2540C
Total Suspended Solids (TSS) by Standard Method SM2540D
Radium-226 (Ra-226) by USEPA SW-846 Method 9315
Radium-228 (Ra-228) by USEPA SW-846 Method 9320
pH by USEPA SW-846 Method 9040B
Alkalinity by Standard Method SM2320B

Project: Xcel Energy Coal Combustion Residuals (CCR) Project –
Comanche - May 2022

Project/Task Number: 10279381-001

Sample Data Package: 280-162040-1, 280-162272-1, 280-162040-2 (radiochemistry), 280-162272-2 (radiochemistry)
Lab Report Dates: 5/31/2022, 5/31/2022, 6/20/2022
(radiochemistry), 6/15/2022 (radiochemistry)
Data Validation Report Date: 6/22/2022

Laboratory: TestAmerica Denver, Arvada, Colorado (metals, anions, TDS, TSS, pH, alkalinity);
TestAmerica Saint Louis, Earth City, Missouri (radiochem)

Sample Matrix: Groundwater

Sampling Dates: May 2-11, 2022

Validation Guidelines: Project Plan (*Statistical Method Certification for Compliance with the Coal Combustion Residuals [CCR] Rule, for Xcel Energy [HDR, December 7, 2015]*), United States Environmental Protection Agency (USEPA) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd edition (SW-846); USEPA *National Functional Guidelines for Inorganic Data Review*, USEPA-540-R-10-011, January 2010; USEPA *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use*, USEPA 540-R-08-005, January 13, 2009; and professional judgment

Validation Level: Stage 2BVM (100%)

Data Reviewer: Aryka Thomson, HDR

Sample ID	Matrix	Lab ID	Date Collected	Metals Mercury	Anions	TDS TSS	RA-226 RA-228	Dissolved Metals
MW-1B	GW	280-162040-1	05/03/22	App III	X	X		
MW-2B	GW	280-162040-2	05/03/22	App III	X	X		
MW-3	GW	280-162040-5	05/02/22	App III	X	X		
MW-4B	GW	280-162040-6	05/04/22	App III	X	X		
MW-5	GW	280-162040-7	05/05/22	App III	X	X		X
MW-6	GW	280-162040-8	05/04/22	App III	X	X		
MW-7	GW	280-162040-9	05/03/22	App III	X	X		
W-1	GW	280-162272-2	05/11/22	X	X	X	X	
W-2A	GW	280-162040-10	05/04/22	X	X	X	X	X
W-2C	GW	280-162040-11	05/05/22	X	X	X	X	
W-3B	GW	280-162040-12	05/05/22	X	X	X	X	
W-5	GW	280-162272-3	05/11/22	X	X	X	X	X
W-5B	GW	280-162040-14	05/06/22	X	X	X	X	
W-6	GW	280-162272-4	05/11/22	X	X	X	X	
W-6B	GW	280-162040-20	05/06/22	X	X	X	X	

Sample ID	Matrix	Lab ID	Date Collected	Metals Mercury	Anions	TDS TSS	RA-226 RA-228	Dissolved Metals
W-7	GW	280-162040-15	05/04/22	X	X	X	X	X
W-9	GW	280-162272-1	05/06/22	X	X	X	X	
W-11	GW	280-162040-16	05/04/22	X	X	X	X	X
W-12	GW	280-162040-17	05/05/22	X	X	X	X	
W-13	GW	280-162272-5	05/11/22	X	X			
W-14	GW	280-162040-18	05/06/22	X	X	X	X	X
W-16	GW	280-162040-19	05/05/22	X	X	X	X	X
MW-2B-FD	QC	280-162040-3	05/03/22	App III	X	X		
MW-2B-EB	QC	280-162040-4	05/03/22	App III	X	X		
W-3B-FD	QC	280-162040-13	05/05/22	X	X	X	X	
W-6B-EB	QC	280-162040-21	05/06/22	X	X	X	X	

W-13 had Insufficient sample volume for TDS, TSS, or radium.

SUMMARY

All laboratory data were acceptable with qualification.

I. SAMPLE RECEIPT / CHAIN OF CUSTODY

Samples were shipped or hand-delivered to the TestAmerica Denver facility, who then forwarded the appropriate sample containers to the other facilities. The temperature of samples upon receipt were between 0.6°C and 2.9°C, within the acceptable range of 0-6°C. The chains of custody (COCs) from the field and for transfer to the different lab facilities were filled out and signed.

The 1 Liter Plastic Nitric Acid preserved sample container is only 1/2 filled for sample W-6 (280-162272-4).

The sample container received only has about 250-300 mL of sample volume for sample W-13 (280-162272-5). Only metals, pH, and IC have been analyzed.

II. HOLDING TIMES

Holding time criteria were generally met except as noted below.

Metals: Samples were analyzed within 180 days of collection.

Mercury: All samples were analyzed within 28 days of collection.

Anions: Samples were analyzed within 28 days of collection.

Alkalinity: Samples were analyzed within 28 days of collection.

TDS: The following samples were analyzed for TDS past the 7-day holding time and have been qualified as estimated (J) or (UJ) if non-detect.

MW-1B	MW-2B	MW-2B-EB	MW-2B-FD	MW-3
MW-7	W-9			

TSS: The following samples were analyzed for TSS past the 7-day holding time and have been qualified as estimated (J) or (UJ) if non-detect:

MW-1B	MW-2B	MW-2B-EB	MW-2B-FD	MW-3
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MW-7	W-9			
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Radium-226: Samples had ingrowth times of at least 21 days.

Radium-228: Samples had ingrowth times of at least 36 hours.

pH: Samples were analyzed more than 24 hours after collection. The method states the samples are to be analyzed “as soon as possible.” All sample results have been qualified as estimated (J).

III. INSTRUMENT CALIBRATION

INITIAL CALIBRATIONS

Metals: Initial calibration criteria were met. One standard and a blank comprised the calibration. No qualification was required.

Mercury: Initial calibration criteria were met. The fit of the curve was ≥ 0.995 and the low standard was below the RL. No qualification was required.

Anions: Initial calibration criteria were met except the initial calibration verification (ICV) Fluoride result for batch 280-575330 was above the upper control limit. Sample results were non-detects, therefore, corrective action is deemed unnecessary. No qualification was required.

Alkalinity: Initial calibration criteria were met. No qualification was required.

TDS: Not applicable. Analysis was gravimetric.

TSS: Not applicable. Analysis was gravimetric.

pH: The instrument was properly standardized using five buffer solutions. The correlation coefficient of the curve was 1.000. No qualification was required.

SECOND SOURCE STANDARDS

Metals: Second source standard criteria were met. All analytes had %D values less than 10%. No qualification was required.

Mercury: Second source standard criteria were met. All analytes had %D values less than 10%. No qualification was required.

Anions: Second source standard criteria were met. All analytes had %D values less than 10%. No qualification was required.

Alkalinity: Not applicable.

TDS: Not applicable. Analysis was gravimetric.

TSS: Not applicable. Analysis was gravimetric.

pH: Second source standard criteria were met. pH results were within limits. No qualification was required.

CONTINUING CALIBRATIONS

Metals: Continuing calibration criteria were met. All analytes had %D values less than 10% for the continuing calibration verifications (CCV).

The low level continuing calibration verification (CCVL) associated with batch 280-576087 recovered above the upper control limit for dissolved lithium. The samples associated with this CCV contained the affected analyte at a level less than the reporting limit (RL). No corrective action was required, but associated samples have been qualified as estimated with potential for high bias (J+).

W-2A (Dissolved)	W-5B (Total)	W-7 (Dissolved)	W-7 (Total)	W-11 (Total)
W-12 (Total)	W-14 (Total)	W-16 (Total)	W-6B (Total)	W-6B-EB (Total)

The low-level continuing calibration verification (CCVL) associated with the following batches recovered above the upper control limit for the analyte indicated below.

Batch	Analyte
280-576087	Dissolved Lithium
280-574777	Total Lithium
280-576291	Calcium

The samples associated with this CCVL were >10x the level of the CCVL for the affected analytes; therefore, corrective action was deemed unnecessary and no qualification was required.

Mercury: Continuing calibration criteria were met. All analytes had %D values less than 10%. No qualification was required.

Anions: Continuing calibration criteria were met. All analytes had %D values less than 10%. No qualification was required.

Alkalinity: Continuing calibration criteria were met. All analytes had %D values less than 10%. No qualification was required.

TDS: Not applicable. Analysis was gravimetric.

TSS: Not applicable. Analysis was gravimetric.

pH: Continuing calibration criteria were met. pH results were within limits. No qualification was required.

IV. BLANKS

Target analytes were not detected in the blanks except as noted below.

METHOD BLANKS (MB) AND EQUIPMENT BLANK (EB)

Metals: Metals were detected in the MBs and EBs as described below:

Analyte	MB or EB	Associated Samples	Result (mg/L)	Qualification
Barium	MB 280-5759901-A	W-13 (total)	0.000911	J+
Beryllium	EB: W-6B-EB	W-6B (total)		
Boron	MB 280-5748581-E	MW-5 (dissolved)	0.0019	J+
	MB 280-5751551-C	W-2A, W-7, W-11, W-14, W-16 (all	0.00197	

Analyte	MB or EB	Associated Samples	Result (mg/L)	Qualification
		dissolved)		
	MB 280-5756141-A	W-1, W-5, W-6, W-9 (all total)	0.00266	
	EB: W-6B-EB	W-6B (total)	0.0026	
Calcium	MB 280-5742841-A	MW-1B, MW-2B, MW-2B-FD, MW-2B-EB, MW-3, MW-4B, MW-5, MW-6, MW-7 (all total)	0.0249	J+
	MB 280-5748581-D	MW-5 (dissolved)	0.0348	
	MB 280-5759271-A	W-2A, W-2C, W-3B, W-3B-FD, W-5B, W-7, W-11, W-12, W-14, W-16, W-6B, W-6B-EB (all total)	0.0134	
	MB 280-5755121-A	W-1, W-5, W-6, W-9 (all total)	0.0282	
	EB: MW-2B-EB	MW-2B (total)	16	
	EB: W-6B-EB	W-6B (total)	0.82	
Molybdenum	MB 280-5759901-A	W-13 (total)	0.000351	J+

Mercury: Mercury was not detected in the MBs or the EB. No qualification was required.

Anions: Sulfate was detected in MB 280-57533054 at 1.54 mg/L. Sample results were significantly higher. No qualification was required. Anions were not detected in the EBs.

Alkalinity: Bicarbonate was detected in the MB 280-5744585 at 3.22 mg/L. Sample results were significantly higher. No qualification was required. Alkalinity, carbonate, and bicarbonate were not detected in the EBs.

TDS: TDS was not detected in the MBs or the EB. No qualification was required.

TSS: TSS was not detected in the MBs or the EB. No qualification was required.

Radium-226: Rad-226 was not detected in the MBs. Rad-226 was detected in EB W-6B-EB at 0.309 pCi/L. The parent sample W-6B has been qualified as estimated with potential for high bias (J+).

Radium-228: Rad-228 was not detected in the MBs or the EB. No qualification was required.

pH: Not applicable.

INITIAL AND CONTINUING CALIBRATION BLANKS (ICB and CCB)

Metals: Metals were detected in several ICBs and CCBs as noted below.

Analyte	ICB or CCB	Associated Samples	Result (mg/L)	Qualification
Beryllium	ICB 280-576134/13	W-2A, W-2C, W-3B,	0.000169	J+ (or UJ if non-detect)
	CCB 280-576134/96	W-3B-FD, W-5B, W-	0.000085	
	CCB 280-576134/106	7, W-11, W-12, W-	0.000162	

Analyte	ICB or CCB	Associated Samples	Result (mg/L)	Qualification
	CCB 280-576134/116	14, W-16, W-6B, W-6B-EB (all total)	0.000186	
	ICB 280-576396/9	W-2A, W-7, W-11,	0.000108	
	CCB 280-576396/54	W-14, W-16 (all	0.000153	
	CCB 280-576396/90	dissolved)	0.000179	
	CCB 280-575786/58	W-1, W-5, W-6, W-9 (all total)	0.000090	
	CCB 280-576291/41	W-13 (total)	0.000134	
	CCB 280-576291/52		0.000120	
	ICB 280-576396/9	W-5 (dissolved)	0.000108	
	CCB 280-576396/54	W-13 (total)	0.000153	
	CCB 280-576396/90		0.000179	
Boron	CCB 280-574999/17	W-3B, W-3B-FD (all total)	0.00423	J+ (or UJ if non-detect)
	CCB 280-574999/29		0.00247	
	CCB 280-575492/17	W-11, W-14, W-16 (all dissolved)	0.00304	
	ICB 280-575163/12	W-5B, W-7, W-11,	0.00191	
	CCB 280-575163/78	W-12, W-14, W-16,	0.00267	
	CCB 280-575163/91	W-6B, W-6B-EB (all total)	0.00388	
	CCB 280-575163/101		0.00820	
	ICB 280-575268/12	W-5, W-2A, W-7 (all dissolved)	0.00191	
	CCB 280-575268/34		0.00206	
	CCB 280-575268/48		0.00203	
	CCB 280-575958/16	W-1, W-5, W-6, W-9 (all total)	0.00514	
	CCB 280-575958/31		0.00257	
	CCB 280-575870/19	W-5 (dissolved)	0.00255	
Calcium	CCB 280-576449/69	W-2A, W-2C, W-3B, W-3B-FD, W-5B, W-7, W-11, W-12, W-14, W-16, W-6B, W-6B-EB (all total)	0.0192	J+ (or UJ if non-detect)
	CCB 280-576449/69		0.00949	
	CCB 280-574988/58	MW-1B, MW-2B, MW-2B-FD, MW-2B-EB, MW-3, MW-4B, MW-5, MW-6, MW-7	0.0171	
	CCB 280-575369/36	W-2A, W-7, W-11,	0.0140	
	CCB 280-575369/49	W-14, W-16 (all dissolved)	0.0196	
	CCB 280-575888/52	W-1, W-5, W-6, W-9 (all total)	0.0139	
	CCB 280-576291/41	W-13 (total)	0.0112	
	CCB 280-576291/52		0.0600	
	CCB 280-576396/54	W-2A, W-7, W-11,	0.0293	
	CCB 280-576396/65	W-14, W-16 (all dissolved)	0.0300	
Cobalt	CCB 280-576134/84	W-2A, W-2C, W-3B, W-3B-FD, W-5B, W-7, W-11, W-12, W-	0.000114	J+ (or UJ if non-detect)

Analyte	ICB or CCB	Associated Samples	Result (mg/L)	Qualification
		14, W-16, W-6B, W-6B-EB (all total)		
Molybdenum	CCB 280-576134/84	W-2A, W-2C, W-3B, W-3B-FD, W-5B, W-7, W-11, W-12, W-14, W-16, W-6B, W-6B-EB (all total)	0.000178	J+ (or UJ if non-detect)
	CCB 280-576134/96		0.000221	
	CCB 280-576134/106		0.000284	
	CCB 280-576134/116		0.000184	
	ICB 280-575786/9	W-1, W-5, W-6, W-9 (all total)	0.000291	
	CCB 280-575786/58		0.000256	
	CCB 280-575786/79		0.000143	
	CCB 280-575786/92		0.000178	
	CCB 280-576291/41	W-13 (total)	0.000660	
	CCB 280-576291/52		0.000288	

Mercury: Mercury was not detected in the ICBs or CCBs. No qualification was required.

Anions: Anions were detected in the ICBs or CCBs as noted below.

Analyte	ICB or CCB	Associated Samples	Result (mg/L)	Qualification
Sulfate	CCB 575330-2	MW-1B, MW-2B, MW-3, W-2A, W-2C, W-3B-FD, W-7, W-11, W-12, W-14, W-16, W-6B	1.10	J+
	CCB 575330-18		1.24	
	CCB 575330-39		1.10	
	CCB 575330-73		1.15	

Alkalinity: Bicarbonate was detected in CCBs as noted below:

Analyte	ICB or CCB	Associated Samples	Result (mg/L)	Qualification
Bicarbonate	CCB 574378-122	MW-1B, MW-2B, MW-2B-FD, MW-2B-EB, MW-3, MW-4B, MW-5, MW-6, MW-7, W-2A, W-2C, W-3B, W-3B-FD, W-5B, W-7, W-11, W-12, W-14, W-16, W-6B	3.25	J+ or UJ if non-detect
Carbonate	CCB 575169-43	W-9	184	UJ
	CCB 575335-17	W-1, W-5, W-6	5.37	
	CCB 575335-29		5.26	
Alkalinity	CCB 575335-17	W-1, W-5, W-6	6.05	UJ
	CCB 575335-29		9.39	

TDS: Not applicable.

TSS: Not applicable.

Radium-226: Not applicable.

Radium-228: Not applicable.

pH: Not applicable.

V. LABORATORY CONTROL SAMPLES (LCS) and LABORATORY CONTROL SAMPLES DUPLICATE (LCSD)

Metals: LCS recoveries were within the project control limits of 75-125%. No qualification was required.

Mercury: LCS recoveries were within the project control limits of 75-125%. No qualification was required.

Anions: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

Alkalinity: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

TDS: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

TSS: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

Radium-226: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

Radium-228: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

pH: LCS results were within the control limits of 99-101%. No qualification was required.

VI. MATRIX SPIKE / MATRIX SPIKE DUPLICATE (MS/MSD)

No samples were designated on the COC for MS/MSD analysis.

Metals: The lab spiked sample W-9 from this project for metals. Recoveries and RPDs were within control limits and no qualification was required. The spike recovery for barium (dissolved only), boron (total only), calcium, and lithium (total only), were outside the control limits on laboratory-generated samples; however, the concentrations present in the parent sample were 4 times greater than the matrix spike concentration, so the accuracy and precision of the MS/MSD analysis could not be reliably evaluated. The associated LCS/LCSD analysis data showed that the laboratory processes were operating within control, so no corrective action was necessary. No qualification was required.

Mercury: The lab spiked sample W-2A from this project. Recoveries and RPDs were within the

control limits and no qualification was required.

Anions: The lab spiked sample W-6B-EB from this project for anions. Results were within control limits and no qualification was required. Spike analysis was performed on additional laboratory-generated samples. Samples associated with batches 575183 and 576105 had recoveries outside control limits. Chloride, fluoride, and sulfate were qualified as estimated (J) or (UJ) if non-detect in MW-1B, MW-2B, MW-2B-FD, MW-5, MW-6, MW-7, W-3B, and W-16. Sulfate was qualified as estimated (J) in W-5.

Alkalinity: MS/MSD analysis was not performed for alkalinity, carbonate, or bicarbonate.

Radium-226: MS/MSD analysis was not performed for Rad-226 due to limited sample volume.

Radium-228: MS/MSD analysis was not performed for Rad-228 due to limited sample volume.

VII. DUPLICATES

FIELD DUPLICATES

Sample MW-2B-FD was collected as a field duplicate of MW-2B and W-3B-FD was collected as a field duplicate of W-3B.

Metals: FD results were outside control limits as indicated below:

Analyte	Parent (mg/L)	FD (mg/L)	RPD (%)	Qualification
Antimony	0.00041	ND	100	W-3B (J+), W-3B-FD (UJ)
Beryllium	ND	0.0002	100	W-3B (UJ), W-3B-FD (J+)

Anions: FD results were outside control limits as indicated below:

Analyte	Parent (mg/L)	FD (mg/L)	RPD (%)	Qualification
Fluoride	ND	5 mg/L	100	MW-2B (UJ), MW-2B-FD (J+)
Fluoride	69	ND	100	W-3B (J+), W-3B-FD (UJ)
Sulfate	49000	79000	23	W-3B (J-), W-3B-FD (J+)

Alkalinity: FD results were within control limits. No qualification was required.

TDS: FD results were within control limits. No qualification was required.

TSS: FD results were outside of control limits in both FDs for TSS. MW-2B-FD had an RPD of 23% and W-3B-FD had an RPD of 21%. In both cases, the parent concentration is higher and has been qualified as estimated with potential for high bias (J+) and the field duplicates have been qualified as estimated with potential for low bias (J-).

Radium-226: FD results were within control limits. No qualification was required.

Radium-228: FD results were within control limits. No qualification was required.

pH: FD results were within control limits. No qualification was required.

LABORATORY DUPLICATES

Metals: Lab duplicate analysis was not performed for metals.

Anions: Lab duplicate analysis was performed on sample W-6B-EB from this project. Resulting RPDs were within control limits and no qualification was required. All laboratory-generated duplicate samples were also within control limits.

Alkalinity: Lab duplicate analysis was performed on sample MW-2B-EB from this project for alkalinity. Resulting RPDs were within control limits and no qualification was required. All laboratory-generated duplicate samples were also within control limits.

TDS: Lab duplicate analysis was performed on sample W-6 from this project. Resulting RPDs were within control limits and no qualification was required.

TSS: Lab duplicate analysis was performed on samples MW-1B and W-6B-EB from this project. Resulting RPDs were within control limits and no qualification was required. All laboratory-generated duplicate samples were also within control limits.

pH: Lab duplicate analysis was performed on samples MW-2B-EB and W-6B from this project. MW-2B-EB RPD results were outside control limits at 26%. MW-2B-EB has been qualified as estimated (J).

VIII. INTERNAL STANDARDS (ISTD) OR TRACERS

All ISTD and tracer criteria were met except as noted below.

Metals: ISTD areas were greater than 30% of the initial calibration ISTD areas. No qualification was required.

Radium-226: Tracer recoveries in all samples were within limits.

Radium-228: Tracer recoveries in all samples were within limits.

IX. POST DIGESTION SPIKE AND DILUTION TEST

Post-digestion spike (PDS) analyses and serial dilution tests were performed for Method 6020A metals. PDS results were within the control limits of 75-125% except as noted below. The dilution tests were not applicable unless sample results were greater than 50 times the MDL.

Metals: The dilution test was performed on the same sample as the MS/MSD. Results were within control limits and no qualification was required.

X. INTERFERENCE CHECK SAMPLES (ICS)

ICS results were applicable to the Method 6010C and 6020A metals analyses. Results were within required limits of 80-120% except as noted below.

Metals: Recoveries were within required limits. No qualifications were required.

XI. REPORTING LIMITS (RL) AND METHOD DETECTION LIMITS (MDL)

This phase of the project is the establishment of baseline contaminant levels. RLs are compared, **for internal use only**, against the Colorado drinking water maximum contaminant levels (MCLs), MCL goals (MCLGs), secondary MCLs, action levels (ALs), and/or groundwater protection standards (GPS). RLs should be below these levels.

Metals: The RLs are compared to the MCLs, MCLGs, ALs and secondary MCLs in the table below.

Analyte	RL (mg/L)	MDL (mg/L)	MCL or AL (mg/L)	MCLG (mg/L)	GPS (mg/L)
Antimony	0.002	0.0004	0.006 (MCL)	0.006	0.006
Arsenic	0.005	0.00033	0.010 (MCL)	Zero	0.01
Barium	0.005	0.00029	2 (MCL)	2	2
Beryllium	0.001	0.00008	0.004 (MCL)	0.004	None
Boron	0.1	0.0015	Not Listed	Not Listed	None
Cadmium	0.001	0.00027	0.005 (MCL)	0.005	0.00588
Calcium	1	0.45	Not Listed	Not Listed	None
Chromium	0.002	0.0005	0.1 (MCL)	0.1	0.1
Cobalt	0.001	0.000092	Not Listed	Not Listed	0.0102
Lead	0.001	0.00018	0.015 (AL)	Zero	0.015
Lithium	0.02	0.0091	Not Listed	Not Listed	5.51
Molybdenum	0.002	0.00014	Not Listed	Not Listed	0.1
Selenium	0.005	0.00037	0.05 (MCL)	0.05	3.67
Thallium	0.001	0.000089	0.002 (MCL)	0.0005	0.00645

Mercury: The RL of 0.2 µg/L is below the MCL and MCLG of 0.02 mg/L (20 µg/L). RL is above the MDL of 0.061 µg/L.

Anions: The RLs of 3 mg/L, 0.5 mg/L and 5 mg/L for chloride, fluoride and sulfate respectively are below the secondary MCLs of 250 mg/L, 2.0 mg/L, and 250 mg/L, respectively. The RLs are above the MDLs of 1 mg/L, 0.17 mg/L, and 1 mg/L, respectively.

Alkalinity: The RLs of 10 mg/L for alkalinity, carbonate, and bicarbonate are above the MDLs of 3.1 mg/L.

TDS: The RL is 10 mg/L; The Colorado drinking water standard is 400 mg/L or 1.25 times the background level, whichever is least restrictive. The RL is above the MDL of 4.7 mg/L.

TSS: The RL is 4 mg/L; there are no Colorado drinking water standards for TSS. The RL is above the MDL of 1.1 mg/L.

Radium 226: The RL of 1.0 picocurie per liter (pCi/L) is below the MCL of 5.0 pCi/L for combined radium 226 and radium 228.

Radium 228: The RL of 1.0 picocurie per liter (pCi/L) is below the MCL of 5.0 pCi/L for combined radium 226 and radium 228.

pH: The Colorado drinking water standard is pH value of 6.5 to 8.5.

XII. SAMPLE RESULTS / TRANSCRIPTION VERIFICATION

Transcription between the data package and the EDDs was verified. Sample results reported between the MDL and RL were qualified as estimated (J).

Metals: Sample MW-5 (280-162040-7) required dilution prior to analysis for dissolved metals. Several samples required dilution prior to analysis for total metals. The reporting limits have been adjusted accordingly.

Mercury: No issues.

Anions: No issues.

Alkalinity: No issues.

TDS: No issues.

TSS: No issues.

Radium-226: A reduced sample volume was prepared for all project samples due to matrix interferences, but all RLs were 1.0 pCi/L.

Radium-228: A reduced sample volume was prepared for all project samples due to matrix interferences, but all RLs were 1.0 pCi/L. Rad-228 in the following samples required qualification as estimated (J) because the minimum detection concentration (MDC) was greater than the RL:

W-2A	W-2C	W-3B-FD	W-7	W-9
W-11	W-12	W-14		

pH: No issues.

XIII. PARCCS PARAMETERS AND DATA USABILITY

Data were usable as discussed below.

The data quality indicators (DQIs), expressed in terms of precision, accuracy, representativeness, comparability, completeness, and sensitivity (PARCCS parameters), were assessed. This included the evaluation of sample integrity, holding times, trip blanks, rinsate blanks, method blanks, internal standards, surrogate recoveries, MS/MSD recoveries, LCS/Ds, and field duplicate precision. The results of the DQI assessment are provided below.

PRECISION

Field duplicates are collected to assess sampling precision. Lab duplicates, LCS/Ds, and MS/Ds are analyzed to assess analysis precision. Precision is best expressed in terms of relative percent difference (RPD).

Lab precision goals were met in most cases. Lab duplicates, LCS/LCSD, and MS/MSD RPDs were within control limits except the lab duplicate for pH.

Field precision goals were met in that RPDs between the parent/field duplicate pair were within control limits except antimony, beryllium, fluoride, sulfate, and TSS results that required qualification.

ACCURACY

Accuracy or bias is measured through the analyses of LCS/Ds and MS/MSDs. Sample specific accuracy is measured through surrogate recovery. Accuracy is expressed as percent recovery (%R).

Field accuracy goals were met except MS/MSD recoveries for anions. MS/MSD recoveries for barium, boron, calcium, and lithium, could not be accurately verified.

Lab accuracy goals were met in that LCS/LCSD recoveries were within control limits.

REPRESENTATIVENESS

Representativeness refers to the degree sample data accurately and precisely describes the population of samples at a sampling point or under certain environmental conditions. Samples that are not properly preserved or are analyzed beyond holding times may not be considered representative. Review of sampling procedures, laboratory preparation, analysis holding times, trip blank and rinsate blank analysis help in providing this assessment.

Representativeness goals were generally met. Samples were collected at predetermined locations according to the project plan.

Representativeness goals were not met in these instances:

- All pH and temperature results required qualification as estimated (J) due to analysis past the holding time;
- TDS in seven samples required qualification as estimated (J) or (UJ) due to analysis past the holding time;
- TSS in seven samples required qualification as estimated (J) or (UJ) due to analysis past the holding time;
- Dissolved lithium in two samples and total lithium in eight samples required qualification as estimated with potential for high bias (J+) due to CCVLs above the upper control limit;
- Barium in one sample, boron in ten samples, calcium in all samples, and molybdenum in one sample required qualification as estimated with potential for high bias (J+) or (UJ) due to detection in the MB;
- Beryllium in one sample, boron in one sample, calcium in two samples, and Rad-226 in one sample required qualification as estimated with potential for high bias (J+) due to detection in the EB;
- Beryllium in 15 samples, boron in 15 samples, calcium in all samples, cobalt in 12 samples, molybdenum in 17 samples, sulfate in 12 samples, bicarbonate in 20 samples, carbonate in four samples, and alkalinity in three samples required qualification as estimated with potential for high bias (J+) (or UJ if non-detect) due to detection in the ICB or CCB;
- Chloride, fluoride, and sulfate in eight samples required qualification as estimated (J) (or UJ if non-detect) due to MS/MSD recoveries outside control limits;
- Sulfate in one sample required qualification as estimated (J) due to MS/MSD recoveries outside control limits;

- The MS/MSD for barium, boron, calcium, and lithium could not be verified;
- Antimony, fluoride, and TSS required qualification as estimated with potential for high bias (J+) in the parent sample and (J-) or (UJ) in the field duplicate due to RPDs outside control limits in one parent/duplicate pair;
- Beryllium, fluoride, and sulfate required qualification as estimated with potential for low bias (J-) or (UJ) in the parent and with potential for high bias (J+) in the field duplicate due to RPDs outside control limits in one parent/duplicate pair;
- pH in one sample required qualification as estimated (J) due to laboratory duplicate RPD outside control limits.
- Rad-228 in eight samples required qualification as estimate (J) due to the minimum detection concentration greater than the RL.

COMPARABILITY

The selection of standardized methods and consistent laboratory practices facilitates the comparison of data between sampling events.

Comparability goals were met. Samples were analyzed by standardized methods (SW-846 and Standards Methods). Future sampling events will be analyzed by the same methods at the same labs to achieve comparability.

COMPLETENESS

Completeness is determined for both field and analytical objectives. Field completeness is calculated from the number of samples proposed versus the actual number of samples collected. Analytical completeness is expressed in terms of usable data.

Field completeness goals were nearly met. 22 of the 24 planned wells were sampled. W-4 and W-8A each had less than 100mL water volume, insufficient for analysis. This results in a field completeness of 92%.

Lab completeness goals were nearly met. No data were rejected. Of the planned 26 samples for analysis, all 26 were analyzed for all analytes except there was insufficient sample volume to sample W-13 for alkalinity, TDS, TSS, or radium. This results in a lab completeness of 96%.

SENSITIVITY

Analytical sensitivity is the concentration at which the measurement system can quantitate target analytes in the environmental matrices of concern. Analytical sensitivity is expressed in terms of the RL, which is provided by the respective laboratories as their reasonable and defensible quantitation limit for environmental samples above the MDL, which is established by each laboratory using pure water or clean matrix.

Sensitivity goals were met. The MDLs were $\leq$ one-half the RLs except for Ra-226 and Ra-228. This phase of the project is the establishment of baseline contaminant levels, and project RLs were compared to the Colorado drinking water maximum contaminant levels (MCLs), MCL goals (MCLGs), secondary MCLs, and/or action levels (ALs). RLs were at or below these levels.

Metals: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Mercury: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Anions: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Alkalinity: No data were rejected. Data required minimal qualification. All data are usable as qualified.

TDS: No data were rejected. Data required minimal qualification. All data are usable as qualified.

TSS: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Radium-226: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Radium-228: No data were rejected. Data required minimal qualification. All data are usable as qualified.

pH: No data were rejected. All data are usable as qualified.

DATA VALIDATION AND USABILITY REPORT

Metals by USEPA SW-846 Method 6010C/6020A
Mercury by USEPA SW-846 Method 7470A
Anions by USEPA SW-846 Method 9056A
Total Dissolved Solids (TDS) by Standard Method SM2540C
Total Suspended Solids (TSS) by Standard Method SM2540D
Radium-226 (Ra-226) by USEPA SW-846 Method 9315
Radium-228 (Ra-228) by USEPA SW-846 Method 9320
pH by USEPA SW-846 Method 9040B
Alkalinity by Standard Method SM2320B

Project: Xcel Energy Coal Combustion Residuals (CCR) Project –
Comanche - June 2022

Project/Task Number: 10279381-001

Sample Data Package: 280-163349-1, 280-163349-2 (radiochemistry)
Lab Report Dates: 6/24/2022, 7/18/2022
Data Validation Report Date: 7/27/2022

Laboratory: TestAmerica Denver, Arvada, Colorado (metals, anions, TDS, TSS,
pH, alkalinity);
TestAmerica Saint Louis, Earth City, Missouri (radiochem)

Sample Matrix: Groundwater

Sampling Dates: June 6-10, 2022

Validation Guidelines: Project Plan (*Statistical Method Certification for Compliance with the Coal Combustion Residuals [CCR] Rule, for Xcel Energy [HDR, December 7, 2015]*), United States Environmental Protection Agency (USEPA) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd edition (SW-846); USEPA *National Functional Guidelines for Inorganic Data Review*, USEPA-540-R-10-011, January 2010; USEPA *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use*, USEPA 540-R-08-005, January 13, 2009; and professional judgment

Validation Level: Stage 2BVM (100%)

Data Reviewer: Aryka Thomson, HDR

Sample ID	Matrix	Lab ID	Date Collected	Metals Mercury	Anions	TDS TSS	RA-226 RA-228	Dissolved Metals
MW-7	GW	280-163349-10	06/10/2022	X	X	X	X	
W-2A	GW	280-163349-5	06/07/2022	X	X	X	X	X
W-2C	GW	280-163349-6	06/07/2022	X	X	X	X	X
W-3B	GW	280-163349-8	06/08/2022	X	X	X	X	
W-5B	GW	280-163349-3	06/07/2022	X	X	X	X	
W-6B	GW	280-163349-9	06/08/2022	X	X	X	X	
W-14	GW	280-163349-1	06/06/2022	X	X	X	X	
W-16	GW	280-163349-7	06/08/2022	X	X	X	X	
W-5B-FD	QC	280-163349-4	06/07/2022	X	X	X	X	
W-14-EB	QC	280-163349-2	06/07/2022	X	X	X	X	

SUMMARY

All laboratory data were acceptable with qualification.

I. SAMPLE RECEIPT / CHAIN OF CUSTODY

Samples were shipped or hand-delivered to the TestAmerica Denver facility, who then forwarded the appropriate sample containers to the other facilities. The temperature of samples upon receipt were between 4.0°C and 5.2°C, within the acceptable range of 0-6°C. The chains of custody (COCs) from the field and for transfer to the different lab facilities were filled out and signed.

II. HOLDING TIMES

Holding time criteria were generally met except as noted below.

Metals: Samples were analyzed within 180 days of collection.

Mercury: All samples were analyzed within 28 days of collection.

Anions: Samples were analyzed within 28 days of collection.

TDS: Samples were analyzed within 7 days of collection except W-14, which has been qualified as estimated with potential for low bias (J-).

TSS: Samples were analyzed within 7 days of collection except W-14, which has been qualified as estimated but non-detect (UJ).

Radium-226: Samples had ingrowth times of at least 21 days.

Radium-228: Samples had ingrowth times of at least 36 hours.

pH: Samples were analyzed more than 24 hours after collection. The method states the samples are to be analyzed “as soon as possible.” All sample results have been qualified as estimated (J).

III. INSTRUMENT CALIBRATION

INITIAL CALIBRATIONS

Metals: Initial calibration criteria were met. One standard and a blank comprised the calibration. No qualification was required.

Mercury: Initial calibration criteria were met. The fit of the curve was ≥ 0.995 and the low standard was below the RL. No qualification was required.

Anions: Initial calibration criteria were met except. No qualification was required.

TDS: Not applicable. Analysis was gravimetric.

TSS: Not applicable. Analysis was gravimetric.

pH: The instrument was properly standardized using five buffer solutions. The correlation coefficient of the curve was 1.000. No qualification was required.

SECOND SOURCE STANDARDS

Metals: Second source standard criteria were met. All analytes had %D values less than 10%. No qualification was required.

Mercury: Second source standard criteria were met. All analytes had %D values less than 10%. No qualification was required.

Anions: Second source standard criteria were met. All analytes had %D values less than 10%. No qualification was required.

TDS: Not applicable. Analysis was gravimetric.

TSS: Not applicable. Analysis was gravimetric.

pH: Second source standard criteria were met. pH results were within limits. No qualification was required.

CONTINUING CALIBRATIONS

Metals: Continuing calibration criteria were met. All analytes had %D values less than 10% for the continuing calibration verifications (CCV).

The low level continuing calibration verification (CCVL) associated with 280-578573 and 280-578742 failed above the upper control limit for lithium (total). The associated samples contained the affected analyte at a level greater than 10x that in the CCVL or did not contain the affected analyte at a level greater than the reporting limit (RL); therefore the data has been reported. Affected samples below required qualification as estimated with potential for high bias (J+) or (UJ) if non-detect.

W-2A	W-2C	W-3B	W-5B	W-5B-FD
W-6B	W-14	W-14-EB	W-16	MW-7

The low level continuing calibration verification (CCVL) associated with batch 280-578747 recovered (138%&141%) above the upper control limit (130%) for barium. The samples associated with this CCVL were either <LOD or >10x the level of the CCVL for the affected analytes; therefore, the data have been reported. Affected samples below required qualification as estimated with potential for high bias (J+) or (UJ) if non-detect.

W-2A	W-2C	W-3B	W-5B	W-5B-FD
W-6B	W-14	W-14-EB	W-16	MW-7

Mercury: Continuing calibration criteria were met. All analytes had %D values less than 10%. No qualification was required.

Anions: Continuing calibration criteria were met. All analytes had %D values less than 10%. No qualification was required.

TDS: Not applicable. Analysis was gravimetric.

TSS: Not applicable. Analysis was gravimetric.

pH: Continuing calibration criteria were met. pH results were within limits. No qualification was required.

IV. BLANKS

Target analytes were not detected in the blanks except as noted below.

METHOD BLANKS (MB) AND EQUIPMENT BLANK (EB)

Metals: Metals were detected in the MBs and EBs as described below:

Analyte	MB or EB	Associated Samples	Result (mg/L)	Qualification
Antimony	EB W-14-EB	W-14	0.0004	J+
Barium	MB 280-5781361-C	W-2A (dissolved), W-2C (dissolved)	0.000559	J+
	EB W-14-EB	W-14	0.0003	J+
Boron	MB 280-5783671-A	MW-7 (total)	0.00658	J+
	EB W-14-EB	W-14	0.0015	J+
Calcium	MB 280-5782511-A	W-2A, W-2C, W-3B, W-5B, W-5B-FD, W-6B, W-14, W-14-EB, W-16, MW-7 (all total)	0.166	J+
	MB 280-5781361-C	W-2A (dissolved), W-2C (dissolved)	0.0452	J+
	EB W-14-EB	W-14	0.4	J+
Selenium	EB W-14-EB	W-14	0.00063	J+

Mercury: Mercury was not detected in the MBs or the EB. No qualification was required.

Anions: Anions were not detected in the MBs or EB. No qualification was required.

TDS: TDS was not detected in the MBs. TDS was detected in EB W-14-EB at 9 mg/L. Sample results were much higher. No qualification was required.

TSS: TSS was not detected in the MBs or the EB. No qualification was required.

Radium-226: Rad-226 was not detected in the MBs or the EB. No qualification was required.

Radium-228: Rad-228 was detected in the MB 160-5704441-A at 0.5364 pCi/L. No samples had detections above the RL, so no qualification was required. Rad-228 was not detected in the EB. No qualification was required.

pH: Not applicable.

INITIAL AND CONTINUING CALIBRATION BLANKS (ICB and CCB)

Metals: Metals were detected in several ICBs and CCBs as noted below.

Analyte	ICB or CCB	Associated Samples	Result (mg/L)	Qualification
Barium	CCB 280-578747/18	W-2A, W-2C, W-3B, W-5B, W-5B-FD, W-6B, W-14, W-14-EB,	0.000294	J+ (or UJ if non-detect)
	CCB 280-578747/30		0.000382	

Analyte	ICB or CCB	Associated Samples	Result (mg/L)	Qualification
		W-16, MW-7 (all total)		
Beryllium	CCB 280-578596/33	W-2A, W-2C, W-3B, W-5B, W-5B-FD, W-6B, W-14, W-14-EB, W-16, MW-7 (all total)	0.0000950	J+ (or UJ if non-detect)
	CCB 280-578658/93	None	0.0000960	
	CCB 280-578891/15	W-2A (D), W-2C (D), W-5B (T), W-14 (T), W-14-EB (T)	0.000337	
Boron	CCB 280-578527/83	W-2A (D), W-2C (D)	0.00153	J+ (or UJ if non-detect)
	CCB 280-578527/97		0.00173	
	CCB 280-578573/30	W-2A, W-2C, W-3B, W-5B, W-5B-FD, W-6B, W-14, W-14-EB, W-16 (all total)	0.00155	
	CCB 280-578599/17	W-3B, W-5B, W-5B-FD, W-6B (all total)	0.00432	
	CCB 280-578742/17	MW-7 (T)	0.00457	
	CCB 280-578742/31		0.00272	
	CCB 280-578742/45		0.00153	
Calcium	CCB 280-578595/58	W-2A, W-2C, W-3B, W-5B, W-5B-FD, W-6B, W-14, W-16, MW-7 (all total)	0.0959	J+ (or UJ if non-detect)
	CCB 280-578595/68		0.0977	
	CCB 280-578745/56	W-2A (D), W-2C (D)	0.0744	
	CCB 280-578747/40	W-2A, W-2C, W-3B, W-5B, W-5B-FD, W-6B, W-14, W-14-EB, W-16, MW-7 (all total)	0.0758	
	CCB 280-578747/47		0.0715	
Lithium	CCB 280-578573/55	W-2A, W-2C, W-3B, W-5B, W-5B-FD, W-6B, W-14, W-14-EB, W-16 (all total)	0.0113	J+ (or UJ if non-detect)
Molybdenum	ICB 280-578478/11	W-2A, W-2C, W-3B, W-5B, W-5B-FD, W-6B, W-14, W-14-EB, W-16, MW-7 (all total)	0.000203	J+ (or UJ if non-detect)
	CCB 280-578478/74		0.000173	
	CCB 280-578478/86		0.000297	
	CCB 280-578478/95		0.000262	
	CCB 280-578478/105		0.000236	
	ICB 280-578745/17	W-2A (D), W-2C (D)	0.000285	
	CCB 280-578745/37		0.000147	
	CCB 280-578745/48		0.000260	
	CCB 280-578745/56		0.000514	

Mercury: Mercury was not detected in the ICBs or CCBs. No qualification was required.

Anions: Anions were not detected in the ICBs or CCBs. No qualification was required.

TDS: Not applicable.

TSS: Not applicable.

Radium-226: Not applicable.

Radium-228: Not applicable.

pH: Not applicable.

V. LABORATORY CONTROL SAMPLES (LCS) and LABORATORY CONTROL SAMPLES DUPLICATE (LCSD)

Metals: LCS recoveries were within the project control limits of 75-125%. No qualification was required.

Mercury: LCS recoveries were within the project control limits of 75-125%. No qualification was required.

Anions: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

TDS: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

TSS: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

Radium-226: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

Radium-228: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

pH: LCS results were within the control limits of 99-101%. No qualification was required.

VI. MATRIX SPIKE / MATRIX SPIKE DUPLICATE (MS/MSD)

No samples were designated on the COC for MS/MSD analysis.

Metals: The lab spiked sample W-2C from this project for metals. Recoveries for all dissolved metals were outside control limits. The concentrations present in the parent sample were 4 times greater than the matrix spike concentration for selenium and calcium, so the accuracy and precision of the MS/MSD analysis could not be reliably evaluated. The associated LCS/LCSD analysis data showed that the laboratory processes were operating within control, so no corrective action was necessary. W-2C dissolved metals have been qualified as estimated (J) or (UJ) if non-detect.

Mercury: The lab did not spike samples from this project for mercury. Recoveries and RPDs of laboratory-generated MS/MSD samples were within the control limits and no qualification was required.

Anions: The lab spiked sample W-14-EB from this project for anions. Recoveries and RPDs were within control limits and no qualification was required.

Radium-226: MS/MSD analysis was not performed for Rad-226 due to limited sample volume.

Radium-228: MS/MSD analysis was not performed for Rad-228 due to limited sample volume.

VII. DUPLICATES

FIELD DUPLICATES

Sample W-5B-FD was collected as a field duplicate of W-5B.

Metals: FD results were outside control limits as indicated below:

Analyte	Parent (mg/L)	FD (mg/L)	RPD (%)	Qualification
Antimony	0.00049	ND	100	W-5B (J+), W-5B-FD (UJ)
Arsenic	0.00036	ND	100	W-5B (J+), W-5B-FD (UJ)
Cobalt	0.0028	ND	100	W-5B (J+), W-5B-FD (UJ)
Selenium	0.00057	ND	100	W-5B (J+), W-5B-FD (UJ)

Anions: FD results were within control limits. No qualification was required.

TDS: FD results were within control limits. No qualification was required.

TSS: FD results were within control limits. No qualification was required.

Radium-226: FD results were within control limits. No qualification was required.

Radium-228: FD results were within control limits. No qualification was required.

pH: FD results were within control limits. No qualification was required.

LABORATORY DUPLICATES

Metals: Lab duplicate analysis was not performed for metals.

Anions: Lab duplicate analysis was performed on sample W-14-EB from this project. Resulting RPDs were within control limits and no qualification was required.

TDS: Lab duplicate analysis was performed on sample W-14 from this project. Resulting RPDs were within control limits and no qualification was required.

TSS: Lab duplicate analysis was performed on sample W-14 from this project. Resulting RPDs were within control limits and no qualification was required.

pH: Lab duplicate analysis was performed on sample W-14-EB from this project. Resulting RPDs were within control limits and no qualification was required.

VIII. INTERNAL STANDARDS (ISTD) OR TRACERS

All ISTD and tracer criteria were met except as noted below.

Metals: ISTD areas were greater than 30% of the initial calibration ISTD areas. No qualification was required.

Radium-226: Tracer recoveries in all samples were within limits.

Radium-228: Tracer recoveries in all samples were within limits.

IX. POST DIGESTION SPIKE AND DILUTION TEST

Post-digestion spike (PDS) analyses and serial dilution tests were performed for Method 6020A metals. PDS results were within the control limits of 75-125% except as noted below. The dilution tests were not applicable unless sample results were greater than 50 times the MDL.

Metals: The dilution test was performed on the same sample as the MS/MSD. Results were within control limits and no qualification was required.

X. INTERFERENCE CHECK SAMPLES (ICS)

ICS results were applicable to the Method 6010C and 6020A metals analyses. Results were within required limits of 80-120% except as noted below.

Metals: Recoveries were within required limits except as noted below. No qualifications were required.

The interference check standard solution (ICSA) associated with batches 280-578747 280-578891 and had results for barium at a level greater than 2x the RL. The ICSA results (3.09 ppb and 3.2 ppb) were >2x the RL (1 ppb) for barium. The vendor acknowledges that these elements are trace impurities in the ICSA standard. These results are not indicative of a matrix interference. Recovery was within 80-120%. No qualification was required.

XI. REPORTING LIMITS (RL) AND METHOD DETECTION LIMITS (MDL)

This phase of the project is the establishment of baseline contaminant levels. RLs are compared, **for internal use only**, against the Colorado drinking water maximum contaminant levels (MCLs), MCL goals (MCLGs), secondary MCLs, action levels (ALs), and/or groundwater protection standards (GPS). RLs should be below these levels.

Metals: The RLs are compared to the MCLs, MCLGs, ALs and secondary MCLs in the table below.

Analyte	RL (mg/L)	MDL (mg/L)	MCL or AL (mg/L)	MCLG (mg/L)	GPS (mg/L)
Antimony	0.002	0.0004	0.006 (MCL)	0.006	0.006
Arsenic	0.005	0.00033	0.010 (MCL)	Zero	0.01
Barium	0.005	0.00029	2 (MCL)	2	2
Beryllium	0.001	0.00008	0.004 (MCL)	0.004	None
Boron	0.1	0.0015	Not Listed	Not Listed	None
Cadmium	0.001	0.00027	0.005 (MCL)	0.005	0.00588

Analyte	RL (mg/L)	MDL (mg/L)	MCL or AL (mg/L)	MCLG (mg/L)	GPS (mg/L)
Calcium	1	0.45	Not Listed	Not Listed	None
Chromium	0.002	0.0005	0.1 (MCL)	0.1	0.1
Cobalt	0.001	0.000092	Not Listed	Not Listed	0.0102
Lead	0.001	0.00018	0.015 (AL)	Zero	0.015
Lithium	0.02	0.0091	Not Listed	Not Listed	5.51
Molybdenum	0.002	0.00014	Not Listed	Not Listed	0.1
Selenium	0.005	0.00037	0.05 (MCL)	0.05	3.67
Thallium	0.001	0.000089	0.002 (MCL)	0.0005	0.00645

Mercury: The RL of 0.2 µg/L is below the MCL and MCLG of 0.02 mg/L (20 µg/L). RL is above the MDL of 0.061 µg/L.

Anions: The RLs of 3 mg/L, 0.5 mg/L and 5 mg/L for chloride, fluoride and sulfate respectively are below the secondary MCLs of 250 mg/L, 2.0 mg/L, and 250 mg/L, respectively. The RLs are above the MDLs of 1 mg/L, 0.17 mg/L, and 1 mg/L, respectively.

TDS: The RL is 10 mg/L; The Colorado drinking water standard is 400 mg/L or 1.25 times the background level, whichever is least restrictive. The RL is above the MDL of 4.7 mg/L.

TSS: The RL is 4 mg/L; there are no Colorado drinking water standards for TSS. The RL is above the MDL of 1.1 mg/L.

Radium 226: The RL of 1.0 picocurie per liter (pCi/L) is below the MCL of 5.0 pCi/L for combined radium 226 and radium 228.

Radium 228: The RL of 1.0 picocurie per liter (pCi/L) is below the MCL of 5.0 pCi/L for combined radium 226 and radium 228.

pH: The Colorado drinking water standard is pH value of 6.5 to 8.5.

XII. SAMPLE RESULTS / TRANSCRIPTION VERIFICATION

Transcription between the data package and the EDDs was verified. Sample results reported between the MDL and RL were qualified as estimated (J).

Metals: Several samples required dilution prior to analysis for total metals. The reporting limits have been adjusted accordingly.

Mercury: No issues.

Anions: No issues.

TDS: No issues.

TSS: No issues.

Radium-226: A reduced sample volume was prepared for all project samples except W-14-EB due to matrix interferences, but all RLs were 1.0 pCi/L.

Radium-228: A reduced sample volume was prepared for all project samples due to matrix interferences, but all RLs were 1.0 pCi/L. Rad-228 sample W-2C required qualification as estimated (J) because the minimum detection concentration (MDC) was greater than the RL.

pH: The parent sample in QC Batch 280-578603 did not equilibrate to within 0.05 pH units after three measurements, however, its duplicate sample did, thus the sample was not reanalyzed.

XIII. PARCCS PARAMETERS AND DATA USABILITY

Data were usable as discussed below.

The data quality indicators (DQIs), expressed in terms of precision, accuracy, representativeness, comparability, completeness, and sensitivity (PARCCS parameters), were assessed. This included the evaluation of sample integrity, holding times, trip blanks, rinsate blanks, method blanks, internal standards, surrogate recoveries, MS/MSD recoveries, LCS/Ds, and field duplicate precision. The results of the DQI assessment are provided below.

PRECISION

Field duplicates are collected to assess sampling precision. Lab duplicates, LCS/Ds, and MS/Ds are analyzed to assess analysis precision. Precision is best expressed in terms of relative percent difference (RPD).

Lab precision goals were met in that lab duplicates, LCS/LCSD, and MS/MSD RPDs were within control limits.

Field precision goals were met in that RPDs between the parent/field duplicate pair were within control limits except antimony, arsenic, cobalt, and selenium results that required qualification.

ACCURACY

Accuracy or bias is measured through the analyses of LCS/Ds and MS/MSDs. Sample specific accuracy is measured through surrogate recovery. Accuracy is expressed as percent recovery (%R).

Field accuracy goals were met except MS/MSD recoveries for dissolved metals.

Lab accuracy goals were met in that LCS/LCSD recoveries were within control limits.

REPRESENTATIVENESS

Representativeness refers to the degree sample data accurately and precisely describes the population of samples at a sampling point or under certain environmental conditions. Samples that are not properly preserved or are analyzed beyond holding times may not be considered representative. Review of sampling procedures, laboratory preparation, analysis holding times, trip blank and rinsate blank analysis help in providing this assessment.

Representativeness goals were generally met. Samples were collected at predetermined locations according to the project plan.

Representativeness goals were not met in these instances:

- All pH and temperature results required qualification as estimated (J) due to analysis past the holding time;
- TDS in one sample required qualification as estimated (J-) due to analysis past the holding time;
- TSS in one sample required qualification as estimated (UJ) due to analysis past the holding time;
- Total lithium and barium in all samples required qualification as estimated with potential for high bias (J+) or (UJ) due to CCVLs above the upper control limit;
- Barium in two samples, boron in one sample, and calcium in all samples required qualification as estimated with potential for high bias (J+) due to detection in the MB;
- Antimony, barium, boron, calcium, and selenium required qualification as estimated with potential for high bias (J+) in the parent sample due to detection in the EB;
- Barium, beryllium, boron, calcium, lithium, and molybdenum in all samples required qualification as estimated with potential for high bias (J+) (or UJ if non-detect) due to detection in the ICB or CCB;
- Dissolved metals in one sample required qualification as estimated (J) in the parent sample due to MS/MSD recoveries outside control limits;
- The MS/MSD for calcium and selenium could not be verified;
- Antimony, arsenic, cobalt, and selenium required qualification as estimated with potential for high bias (J+) in the parent sample and (UJ) in the field duplicate due to RPDs outside control limits in one parent/duplicate pair;
- Rad-228 in one sample required qualification because the minimum detection concentration (MDC) was greater than the RL.

COMPARABILITY

The selection of standardized methods and consistent laboratory practices facilitates the comparison of data between sampling events.

Comparability goals were met. Samples were analyzed by standardized methods (SW-846 and Standards Methods). Future sampling events will be analyzed by the same methods at the same labs to achieve comparability.

COMPLETENESS

Completeness is determined for both field and analytical objectives. Field completeness is calculated from the number of samples proposed versus the actual number of samples collected. Analytical completeness is expressed in terms of usable data.

Field completeness goals were nearly met. 8 of the 9 planned wells were sampled. W-15 was dry. This results in a field completeness of 89%.

Lab completeness goals were met. No data were rejected. Of the planned 10 samples for analysis, all 10 were analyzed for all analytes.

SENSITIVITY

Analytical sensitivity is the concentration at which the measurement system can quantitate target analytes in the environmental matrices of concern. Analytical sensitivity is expressed in terms of the RL, which is provided by the respective laboratories as their reasonable and defensible quantitation limit for environmental samples above the MDL, which is established by each laboratory using pure water or clean matrix.

Sensitivity goals were met. The MDLs were $\leq$ one-half the RLs except for Ra-228. This phase of the project is the establishment of baseline contaminant levels, and project RLs were compared to the Colorado drinking water maximum contaminant levels (MCLs), MCL goals (MCLGs), secondary MCLs, and/or action levels (ALs). RLs were at or below these levels.

Metals: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Mercury: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Anions: No data were rejected. Data required minimal qualification. All data are usable as qualified.

TDS: No data were rejected. Data required minimal qualification. All data are usable as qualified.

TSS: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Radium-226: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Radium-228: No data were rejected. Data required minimal qualification. All data are usable as qualified.

pH: No data were rejected. All data are usable as qualified.

DATA VALIDATION AND USABILITY REPORT

Metals by USEPA SW-846 Method 6010C/6020A

Mercury by USEPA SW-846 Method 7470A

Anions by USEPA SW-846 Method 9056A

Total Dissolved Solids (TDS) by Standard Method SM2540C

Total Suspended Solids (TSS) by Standard Method SM2540D

Radium-226 (Ra-226) by USEPA SW-846 Method 9315

Radium-228 (Ra-228) by USEPA SW-846 Method 9320

pH by USEPA SW-846 Method 9040B

Alkalinity by Standard Method SM2320B

Project: Xcel Energy Coal Combustion Residuals (CCR) Project –
Comanche - July 2022

Project/Task Number: 10279381-001

Sample Data Package: 280-164515-1, 280-164515-2
Lab Report Dates: 7/27/2022, 8/16/2022
Data Validation Report Date: 8/17/2022

Laboratory: TestAmerica Denver, Arvada, Colorado (metals, anions, TDS, TSS,
pH, alkalinity);
TestAmerica Saint Louis, Earth City, Missouri (radiochem)

Sample Matrix: Groundwater

Sampling Dates: July 13-15, 2022

Validation Guidelines: Project Plan (*Statistical Method Certification for Compliance with the Coal Combustion Residuals [CCR] Rule, for Xcel Energy [HDR, December 7, 2015]*), United States Environmental Protection Agency (USEPA) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd edition (SW-846); USEPA *National Functional Guidelines for Inorganic Data Review*, USEPA-540-R-10-011, January 2010; USEPA *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use*, USEPA 540-R-08-005, January 13, 2009; and professional judgment

Validation Level: Stage 2BVM (100%)

Data Reviewer: Aryka Thomson, HDR

Sample ID	Matrix	Lab ID	Date Collected	Metals Mercury	Anions	TDS TSS	RA-226 RA-228	Dissolved Metals	Alk, Mg, K, Na
MW-7	GW	280-164515-8	07/14/2022	X	X	X	X		X
W-2A	GW	280-164515-1	07/13/2022	X	X	X	X		X
W-2C	GW	280-164515-3	07/13/2022	X	X	X	X		X
W-3B	GW	280-164515-6	07/14/2022	X	X	X	X		X
W-5B	GW	280-164515-7	07/14/2022	X	X	X	X		X
W-10B	GW	280-164515-5	07/14/2022	X	X	X	X	X	X
W-14	GW	280-164515-10	07/15/2022	X	X	X	X		X
W-16	GW	280-164515-9	07/15/2022	X	X	X	X		X
W-2A-FD	QC	280-164515-2	07/13/2022	X	X	X	X		X
W-10B-EB	QC	280-164515-4	07/14/2022	X	X	X	X		X

SUMMARY

All laboratory data were acceptable with qualification.

I. SAMPLE RECEIPT / CHAIN OF CUSTODY

Samples were shipped or hand-delivered to the TestAmerica Denver facility, who then forwarded the appropriate sample containers to the other facilities. The temperature of samples upon receipt were between 0.2°C and 1.6°C, within the acceptable range of 0-6°C. The chains of custody (COCs) from the field and for transfer to the different lab facilities were filled out and signed.

II. HOLDING TIMES

Holding time criteria were generally met except as noted below.

Metals: Samples were analyzed within 180 days of collection.

Mercury: All samples were analyzed within 28 days of collection.

Anions: Samples were analyzed within 28 days of collection.

Alkalinity: Samples were analyzed within 14 days of collection.

TDS: Samples were analyzed within 7 days of collection except MW-7, which has been qualified as estimated with potential for low bias (J-).

TSS: Samples were analyzed within 7 days of collection.

Radium-226: Samples had ingrowth times of at least 21 days.

Radium-228: Samples had ingrowth times of at least 36 hours.

pH: Samples were analyzed more than 24 hours after collection. The method states the samples are to be analyzed “as soon as possible.” All sample results have been qualified as estimated (J).

III. INSTRUMENT CALIBRATION

INITIAL CALIBRATIONS

Metals: Initial calibration criteria were met. One standard and a blank comprised the calibration. No qualification was required.

Mercury: Initial calibration criteria were met. The fit of the curve was ≥ 0.995 and the low standard was below the RL. No qualification was required.

Anions: Initial calibration criteria were met except. No qualification was required.

Alkalinity: Initial calibration criteria were met except. No qualification was required.

TDS: Not applicable. Analysis was gravimetric.

TSS: Not applicable. Analysis was gravimetric.

pH: The instrument was properly standardized using five buffer solutions. The correlation coefficient

of the curve was 1.000. No qualification was required.

SECOND SOURCE STANDARDS

Metals: Second source standard criteria were met. All analytes had %D values less than 10%. No qualification was required.

Mercury: Second source standard criteria were met. All analytes had %D values less than 10%. No qualification was required.

Anions: Second source standard criteria were met. All analytes had %D values less than 10%. No qualification was required.

Alkalinity: Second source standard criteria were met. All analytes had %D values less than 10%. No qualification was required.

TDS: Not applicable. Analysis was gravimetric.

TSS: Not applicable. Analysis was gravimetric.

pH: Second source standard criteria were met. pH results were within limits. No qualification was required.

CONTINUING CALIBRATIONS

Metals: Continuing calibration criteria were met. All analytes had %D values less than 10% for the continuing calibration verifications (CCV).

The continuing calibration verification (CCV) associated with batch 280-581901 recovered (113%) above the upper control limit (110%) for beryllium. The samples associated with this CCV were less than the limit of detection for the affected analytes; therefore, the data have been reported. Affected samples below required qualification as estimated with potential for high bias (J+) (or UJ if non-detect).

W-2A	W-2A-FD	W-3B	W-5B	W-10B
W-10B-EB				

Mercury: Continuing calibration criteria were met. All analytes had %D values less than 10%. No qualification was required.

Anions: Continuing calibration criteria were met. All analytes had %D values less than 10%. No qualification was required.

Alkalinity: Continuing calibration criteria were met. All analytes had %D values less than 10%. No qualification was required.

TDS: Not applicable. Analysis was gravimetric.

TSS: Not applicable. Analysis was gravimetric.

pH: Continuing calibration criteria were met. pH results were within limits. No qualification was required.

IV. BLANKS

Target analytes were not detected in the blanks except as noted below.

METHOD BLANKS (MB) AND EQUIPMENT BLANK (EB)

Metals: Metals were detected in the MBs and EBs as described below:

Analyte	MB or EB	Associated Samples	Result (mg/L)	Qualification
Barium	W-10B-EB	W-10B	0.00098	J+
Beryllium	MB 280-5814791-A	W-2A, W-2A-FD, W-2C, W-3B, W-5B, W-10B, W-10B-EB	0.000225	J+
Boron (total)	MB 280-5813041-A	MW-7, W-14, W-16	0.00253	J+
Boron (dissolved)	MB 280-5814151-B	None	0.00206	None
Calcium	W-10B-EB	W-10B	0.75	None (sample results much higher)
Chromium	W-10B-EB	W-10B	0.0015	J+
Cobalt	W-10B-EB	W-10B	0.0001	J+
Magnesium	W-10B-EB	W-10B	0.1	None (sample results much higher)
Molybdenum	MB 280-5814791-A	W-2A, W-2A-FD, W-2C, W-3B, W-5B, W-10B, W-10B-EB	0.000427	J+
Potassium	W-10B-EB	W-10B	0.099	None (sample results much higher)
Selenium	W-10B-EB	W-10B	0.0026	None (sample results much higher)
Sodium	W-10B-EB	W-10B	0.077	None (sample results much higher)
Thallium	MB 280-5814791-A	W-2A, W-2A-FD, W-2C, W-3B, W-5B, W-10B, W-10B-EB	0.000114	J+

Mercury: Mercury was not detected in the MBs or the EB. No qualification was required.

Anions: Anions were not detected in the MBs or EB. No qualification was required.

Alkalinity: Alkalinity was detected in MB 280-5813265 at 3.41 mg/L and bicarbonate alkalinity at 3.38 mg/L as CaCO₃. All samples were qualified as estimated with potential for high bias (J+) or UJ in W-10B-EB since it was not detected. Alkalinity was not detected in the EB.

TDS: TDS was not detected in the MBs or the EB. No qualification was required.

TSS: TSS was not detected in the MBs or the EB. No qualification was required.

Radium-226: Rad-226 was not detected in the MBs or the EB. No qualification was required.

Radium-228: Rad-228 was not detected in the MBs. Rad-228 was detected in the EB at 0.502 pCi/L. Rad-228 and combined radium results in the parent sample W-10B have been qualified as estimated with potential for high bias (J+).

pH: Not applicable.

INITIAL AND CONTINUING CALIBRATION BLANKS (ICB and CCB)

Metals: Metals were detected in several ICBs and CCBs as noted below.

Analyte	ICB or CCB	Associated Samples	Result (mg/L)	Qualification
Beryllium	CCB 280-581791/101	MW-7, W-14, W-16	0.000112	J+ (or UJ if non-detect)
	CCB 280-581791/130		0.000149	
	CCB 280-581791/142		0.000136	
	CCB 280-581791/152		0.000104	
	CCB 280-581791/162		0.0000850	
	CCB 280-581849/21	None	0.000154	None
Boron	ICB 280-581624/11	W-2A, W-2A-FD, W-2C, W-10B (D), W-10B (T), W-10B-EB, W-3B, W-5B, W-14, W-16, MW-7	0.00197	J+ (or UJ if non-detect)
	CCB 280-581624/18		0.00721	
	CCB 280-581624/32		0.00207	
	CCB 280-581624/46		0.00210	
	CCB 280-581624/60		0.00328	
	CCB 280-581624/74		0.00168	
	CCB 280-581624/157		0.00207	
	CCB 280-581624/168		0.00194	
	ICB 280-581646/11	W-3B, W-10B (D), W-10B (T)	0.00197	J+ (or UJ if non-detect)
Calcium	CCB 280-581791/142	None	0.0775	None
	CCB 280-581791/152		0.0633	
	CCB 280-581791/162		0.161	
	CCB 280-581849/63		0.0582	
Cobalt	CCB 280-581791/130	None	0.0000980	None
	CCB 280-581849/21	None	0.0000960	None
Lead	CCB 280-581849/21	None	0.000211	None
Magnesium	CCB 280-581791/142	None	0.125	None
	CCB 280-581791/152		0.061	
	CCB 280-581849/63	W-10B-EB	0.882	J+ (or UJ if non-detect)
Molybdenum	ICB 280-581791/30	MW-7, W-10B (D), W-14, W-16	0.000251	J+ (or UJ if non-detect)
	CCB 280-581791/101		0.000227	
	CCB 280-581791/114		0.000201	
	CCB 280-581791/130		0.000365	
	CCB 280-581791/142		0.000319	
	CCB 280-581791/152		0.000197	
	CCB 280-581791/162		0.000233	
	ICB 280-581849/13	W-2A, W-2A-FD, W-2C, W-3B, W-5B, W-10B, W-10B-EB	0.000151	J+ (or UJ if non-detect)
	CCB 280-581849/21		0.000767	
	CCB 280-581849/32		0.000234	
	CCB 280-581849/43		0.000149	
	CCB 280-581849/52		0.000157	
	CCB 280-581849/63		0.000224	

Analyte	ICB or CCB	Associated Samples	Result (mg/L)	Qualification
Potassium	CCB 280-581791/163	None	0.0614	None
	CCB 280-581849/63	W-10B-EB	0.174	J+ (or UJ if non-detect)
	CCB 280-581901/63	W-10B-EB	0.0622	J+ (or UJ if non-detect)
Sodium	CCB 280-581791/114	MW-7, W-14, W-16	0.107	J+ (or UJ if non-detect)
	CCB 280-581791/142		0.321	
	CCB 280-581791/152		0.152	
	CCB 280-581849/63	W-10B-EB	3.160	J+ (or UJ if non-detect)

Mercury: Mercury was not detected in the ICBs or CCBs. No qualification was required.

Anions: Sulfate was detected in CCB 581222/18 at 1.12 mg/L. Associated samples W-2A, W-2A-FD, W-2C, W-3B, and W-10B had results much higher. No qualification was required.

Alkalinity: Bicarbonate alkalinity and total alkalinity were detected in CCB 581326/17 at 4.80 mg/L. Associated samples W-2A, W-2A-FD, W-2C, W-3B, W-5B, W-10B, W-10-EB, W-14, W-16, and MW-7 have results much higher. No qualification was required.

TDS: Not applicable.

TSS: Not applicable.

Radium-226: Not applicable.

Radium-228: Not applicable.

pH: Not applicable.

V. LABORATORY CONTROL SAMPLES (LCS) and LABORATORY CONTROL SAMPLES DUPLICATE (LCSD)

Metals: LCS recoveries were within the project control limits of 75-125%. No qualification was required.

Mercury: LCS recoveries were within the project control limits of 75-125%. No qualification was required.

Anions: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

Alkalinity: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

TDS: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

TSS: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were

within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

Radium-226: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

Radium-228: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

pH: LCS results were within the control limits of 99-101%. No qualification was required.

VI. MATRIX SPIKE / MATRIX SPIKE DUPLICATE (MS/MSD)

No samples were designated on the COC for MS/MSD analysis.

Metals: The lab spiked sample W-10B from this project for dissolved lithium and dissolved boron. Recoveries and RPDs for dissolved boron were within control limits. Recoveries for dissolved lithium were outside control limits at 59%. However, the concentrations present in the parent sample were 4 times greater than the matrix spike concentration, so the accuracy and precision of the MS/MSD analysis could not be reliably evaluated. The associated LCS/LCSD analysis data showed that the laboratory processes were operating within control, so no corrective action was necessary. W-10B dissolved lithium results have been qualified as estimated (J).

Laboratory-generated MS/MSD results for selenium and cobalt had recoveries outside control limits. Barium, calcium, magnesium, potassium, and sodium MS/MSD analyses could not be reliably evaluated as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action was deemed unnecessary, and no qualification was required.

Mercury: The lab did not spike samples from this project for mercury. Recoveries and RPDs of laboratory-generated MS/MSD samples were within the control limits and no qualification was required.

Anions: The lab did not spike samples from this project for anions. Recoveries of laboratory-generated MS/MSD samples were outside control limits for chloride and sulfate. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action was deemed unnecessary, and no qualification was required. Sulfate MS/MSD analyses could not be reliably evaluated as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration.

Radium-226: MS/MSD analysis was not performed for Rad-226 due to limited sample volume.

Radium-228: MS/MSD analysis was not performed for Rad-228 due to limited sample volume.

VII. DUPLICATES

FIELD DUPLICATES

Sample W-2A-FD was collected as a field duplicate of W-2A.

Metals: FD results were outside control limits as indicated below:

Analyte	Parent (mg/L)	FD (mg/L)	RPD (%)	Qualification
Lead	0.00096	0.0006	23	W-2A (J+), W-2A-FD (J-)
Molybdenum	0.037	0.01	57	W-2A (J+), W-2A-FD (J-)

Anions: FD results were within control limits. No qualification was required.

Alkalinity: FD results were within control limits. No qualification was required.

TDS: FD results were within control limits. No qualification was required.

TSS: FD results were within control limits. No qualification was required.

Radium-226: FD results were within control limits. No qualification was required.

Radium-228: FD results were within control limits. No qualification was required.

pH: FD results were within control limits. No qualification was required.

LABORATORY DUPLICATES

Metals: Lab duplicate analysis was not performed for metals.

Anions: Lab duplicate analysis was not performed on samples from this project. Laboratory-generated duplicate analyses' resulting RPDs were within control limits and no qualification was required.

Alkalinity: Lab duplicate analysis was not performed on samples from this project. Laboratory-generated duplicate analyses' resulting RPDs were within control limits and no qualification was required.

TDS: Lab duplicate analysis was not performed on samples from this project. Laboratory-generated duplicate analyses' resulting RPDs were within control limits except sample 160-46272-3. This sample was not associated with project samples so no qualification was required.

TSS: Lab duplicate analysis was not performed on samples from this project. Laboratory-generated duplicate analyses' resulting RPDs were within control limits and no qualification was required.

pH: Lab duplicate analysis was performed on sample W-2A-FD from this project. Resulting RPDs were within control limits and no qualification was required.

VIII. INTERNAL STANDARDS (ISTD) OR TRACERS

All ISTD and tracer criteria were met except as noted below.

Metals: ISTD areas were greater than 30% of the initial calibration ISTD areas. No qualification was required.

Radium-226: Tracer recoveries in all samples were within limits.

Radium-228: Tracer recoveries in all samples were within limits.

IX. POST DIGESTION SPIKE AND DILUTION TEST

Post-digestion spike (PDS) analyses and serial dilution tests were performed for Method 6020A metals. PDS results were within the control limits of 75-125% except as noted below. The dilution tests were not applicable unless sample results were greater than 50 times the MDL.

Metals: The dilution test was performed on the same sample as the MS/MSD. Results were within control limits and no qualification was required.

X. INTERFERENCE CHECK SAMPLES (ICS)

ICS results were applicable to the Method 6010C and 6020A metals analyses. Results were within required limits of 80-120% except as noted below.

Metals: Recoveries were within required limits except as noted below. No qualifications were required.

The interference check standard solution (ICSA) associated with batch 280-581791 had results for one or more elements at a level greater than the RL. The ICSA result (3.34 ppb) was >RL (3 ppb) for dissolved barium. The interference check standard solution (ICSA) associated with batch 280-581849 had results for one or more elements at a level greater than the RL. The ICSA result (3.097 ppb) was >RL (3 ppb) for total barium. The vendor acknowledges that these elements are trace impurities in the ICSA standard. These results are not indicative of a matrix interference.

XI. REPORTING LIMITS (RL) AND METHOD DETECTION LIMITS (MDL)

This phase of the project is the establishment of baseline contaminant levels. RLs are compared, **for internal use only**, against the Colorado drinking water maximum contaminant levels (MCLs), MCL goals (MCLGs), secondary MCLs, action levels (ALs), and/or groundwater protection standards (GPS). RLs should be below these levels.

Metals: The RLs are compared to the MCLs, MCLGs, ALs and secondary MCLs in the table below.

Analyte	RL (mg/L)	MDL (mg/L)	MCL or AL (mg/L)	MCLG (mg/L)	GPS (mg/L)
Antimony	0.002	0.0004	0.006 (MCL)	0.006	0.006
Arsenic	0.005	0.00033	0.010 (MCL)	Zero	0.01
Barium	0.005	0.00029	2 (MCL)	2	2
Beryllium	0.001	0.00008	0.004 (MCL)	0.004	None
Boron	0.1	0.0015	Not Listed	Not Listed	None
Cadmium	0.001	0.00027	0.005 (MCL)	0.005	0.00588
Calcium	1	0.45	Not Listed	Not Listed	None
Chromium	0.002	0.0005	0.1 (MCL)	0.1	0.1
Cobalt	0.001	0.000092	Not Listed	Not Listed	0.0102
Lead	0.001	0.00018	0.015 (AL)	Zero	0.015

Analyte	RL (mg/L)	MDL (mg/L)	MCL or AL (mg/L)	MCLG (mg/L)	GPS (mg/L)
Lithium	0.02	0.0091	Not Listed	Not Listed	5.51
Molybdenum	0.002	0.00014	Not Listed	Not Listed	0.1
Selenium	0.005	0.00037	0.05 (MCL)	0.05	3.67
Thallium	0.001	0.000089	0.002 (MCL)	0.0005	0.00645

Mercury: The RL of 0.2 µg/L is below the MCL and MCLG of 0.02 mg/L (20 µg/L). RL is above the MDL of 0.061 µg/L.

Anions: The RLs of 3 mg/L, 0.5 mg/L and 5 mg/L for chloride, fluoride and sulfate respectively are below the secondary MCLs of 250 mg/L, 2.0 mg/L, and 250 mg/L, respectively. The RLs are above the MDLs of 1 mg/L, 0.17 mg/L, and 1 mg/L, respectively.

Alkalinity: The RLs of 10 mg/L for alkalinity, bicarbonate, and carbonate are below the MDLs of 3.1 mg/L for each parameter.

TDS: The RL is 10 mg/L; The Colorado drinking water standard is 400 mg/L or 1.25 times the background level, whichever is least restrictive. The RL is above the MDL of 4.7 mg/L.

TSS: The RL is 4 mg/L; there are no Colorado drinking water standards for TSS. The RL is above the MDL of 1.1 mg/L.

Radium 226: The RL of 1.0 picocurie per liter (pCi/L) is below the MCL of 5.0 pCi/L for combined radium 226 and radium 228.

Radium 228: The RL of 1.0 picocurie per liter (pCi/L) is below the MCL of 5.0 pCi/L for combined radium 226 and radium 228.

pH: The Colorado drinking water standard is pH value of 6.5 to 8.5.

XII. SAMPLE RESULTS / TRANSCRIPTION VERIFICATION

Transcription between the data package and the EDDs was verified. Sample results reported between the MDL and RL were qualified as estimated (J).

Metals: Several samples required dilution prior to analysis for total metals. The reporting limits have been adjusted accordingly.

Mercury: No issues.

Anions: No issues.

Alkalinity: No issues.

TDS: No issues. Sample MW-7 was re-analyzed was performed outside of the analytical holding time to confirm that the value was outside of historical limits. The reanalysis of this sample obtained a value within historical limits. Only the re-analysis is reported.

TSS: No issues.

Radium-226: A reduced sample volume was prepared for all project samples except W-10B-EB due to matrix interferences, but all RLs were 1.0 pCi/L.

Radium-228: A reduced sample volume was prepared for all project samples except W-10B-EB due to matrix interferences, but all RLs were 1.0 pCi/L.

pH: No issues.

XIII. PARCCS PARAMETERS AND DATA USABILITY

Data were usable as discussed below.

The data quality indicators (DQIs), expressed in terms of precision, accuracy, representativeness, comparability, completeness, and sensitivity (PARCCS parameters), were assessed. This included the evaluation of sample integrity, holding times, trip blanks, rinsate blanks, method blanks, internal standards, surrogate recoveries, MS/MSD recoveries, LCS/Ds, and field duplicate precision. The results of the DQI assessment are provided below.

PRECISION

Field duplicates are collected to assess sampling precision. Lab duplicates, LCS/Ds, and MS/Ds are analyzed to assess analysis precision. Precision is best expressed in terms of relative percent difference (RPD).

Lab precision goals were met in that lab duplicates, LCS/LCSD, and MS/MSD RPDs were within control limits.

Field precision goals were met in that RPDs between the parent/field duplicate pair were within control limits except lead and molybdenum results that required qualification.

ACCURACY

Accuracy or bias is measured through the analyses of LCS/Ds and MS/MSDs. Sample specific accuracy is measured through surrogate recovery. Accuracy is expressed as percent recovery (%R).

Field accuracy goals were met except MS/MSD recoveries for dissolved lithium.

Lab accuracy goals were met in that LCS/LCSD recoveries were within control limits.

REPRESENTATIVENESS

Representativeness refers to the degree sample data accurately and precisely describes the population of samples at a sampling point or under certain environmental conditions. Samples that are not properly preserved or are analyzed beyond holding times may not be considered representative. Review of sampling procedures, laboratory preparation, analysis holding times, trip blank and rinsate blank analysis help in providing this assessment.

Representativeness goals were generally met. Samples were collected at predetermined locations according to the project plan.

Representativeness goals were not met in these instances:

- All pH and temperature results required qualification as estimated (J) due to analysis past the holding time;

- TDS in one sample required qualification as estimated (J-) due to analysis past the holding time;
- Beryllium in six samples required qualification as estimated with potential for high bias (J+) or (UJ) due to CCVLs above the upper control limit;
- Beryllium, molybdenum, and thallium in seven samples required qualification as estimated with potential for high bias (J+) due to detection in the MB;
- Total boron in three samples required qualification as estimated with potential for high bias (J+) or (UJ) due to detection in the MB;
- Barium, chromium, and cobalt required qualification as estimated with potential for high bias (J+) in the parent sample due to detection in the EB;
- Rad-228 and combined radium required qualification as estimated with potential for high bias (J+) in the parent sample due to detection in the EB;
- Beryllium in three samples, total boron in ten samples, dissolved boron in one sample, magnesium in one sample, total molybdenum in ten samples, dissolved molybdenum in one sample, potassium in one sample, and sodium in three samples required qualification as estimated with potential for high bias (J+) (or UJ if non-detect) due to detection in the ICB or CCB;
- Dissolved lithium in one sample required qualification as estimated (J) in the parent sample due to MS/MSD recoveries outside control limits;
- The MS/MSD for dissolved lithium, barium, calcium, magnesium, potassium, sodium, and sulfate could not be verified;
- Lead and molybdenum required qualification as estimated with potential for high bias (J+) in the parent sample and (J-) in the field duplicate due to RPDs outside control limits in one parent/duplicate pair.

COMPARABILITY

The selection of standardized methods and consistent laboratory practices facilitates the comparison of data between sampling events.

Comparability goals were met. Samples were analyzed by standardized methods (SW-846 and Standards Methods). Future sampling events will be analyzed by the same methods at the same labs to achieve comparability.

COMPLETENESS

Completeness is determined for both field and analytical objectives. Field completeness is calculated from the number of samples proposed versus the actual number of samples collected. Analytical completeness is expressed in terms of usable data.

Field completeness goals were nearly met. 8 of the 9 planned wells were sampled. W-15 was dry. This results in a field completeness of 89%.

Lab completeness goals were met. No data were rejected. Of the planned 10 samples for analysis, all 10 were analyzed for all analytes.

SENSITIVITY

Analytical sensitivity is the concentration at which the measurement system can quantitate target analytes in the environmental matrices of concern. Analytical sensitivity is expressed in terms of the RL, which is provided by the respective laboratories as their reasonable and defensible quantitation limit for environmental samples above the MDL, which is established by each laboratory using pure water or clean matrix.

Sensitivity goals were met. The MDLs were $\leq$ one-half the RLs except for Rad-228. This phase of the project is the establishment of baseline contaminant levels, and project RLs were compared to the Colorado drinking water maximum contaminant levels (MCLs), MCL goals (MCLGs), secondary MCLs, and/or action levels (ALs). RLs were at or below these levels.

Metals: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Mercury: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Anions: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Alkalinity: No data were rejected. Data required minimal qualification. All data are usable as qualified.

TDS: No data were rejected. Data required minimal qualification. All data are usable as qualified.

TSS: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Radium-226: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Radium-228: No data were rejected. Data required minimal qualification. All data are usable as qualified.

pH: No data were rejected. All data are usable as qualified.

DATA VALIDATION AND USABILITY REPORT

Metals by USEPA SW-846 Method 6010C/6020A
Mercury by USEPA SW-846 Method 7470A
Anions by USEPA SW-846 Method 9056A
Total Dissolved Solids (TDS) by Standard Method SM2540C
Total Suspended Solids (TSS) by Standard Method SM2540D
Radium-226 (Ra-226) by USEPA SW-846 Method 9315
Radium-228 (Ra-228) by USEPA SW-846 Method 9320
pH by USEPA SW-846 Method 9040B
Alkalinity by Standard Method SM2320B

Project: Xcel Energy Coal Combustion Residuals (CCR) Project – Comanche - August 2022

Project/Task Number: 10279381-001

Sample Data Package: 280-165874-1, 280-165874-2, 280-165874-1 (W-16)
Lab Report Dates: 9/9/2022 (Rev. 1 9/21/2022, Rev. 2 9/30/2022), 9/22/2022 (radiochem) (Rev. 2, 9/30/2022), 9/9/2022 (W-16)
Data Validation Report Date: 9/22/2022 – revised 10/2/2022 with W-6B1 update to reports (issued 9/30/2022)

Laboratory: TestAmerica Denver, Arvada, Colorado (metals, anions, TDS, TSS, pH, alkalinity);
TestAmerica Saint Louis, Earth City, Missouri (radiochem)

Sample Matrix: Groundwater

Sampling Dates: August 22-25, 2022

Validation Guidelines: Project Plan (*Statistical Method Certification for Compliance with the Coal Combustion Residuals [CCR] Rule, for Xcel Energy [HDR, December 7, 2015]*), United States Environmental Protection Agency (USEPA) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd edition (SW-846); USEPA *National Functional Guidelines for Inorganic Data Review*, USEPA-540-R-10-011, January 2010; USEPA *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use*, USEPA 540-R-08-005, January 13, 2009; and professional judgment

Validation Level: Stage 2BVM (100%)

Data Reviewer: Aryka Thomson, HDR

Sample ID	Matrix	Lab ID	Date Collected	Metals Mercury	Anions	TDS TSS	RA-226 RA-228	Dissolved Metals	Alk, Mg, K, Na
MW-7	GW	280-165874-9	08/24/2022	X	X	X	X		X
W-2A	GW	280-165874-1	08/22/2022	X	X	X	X		X
W-2C	GW	280-165874-2	08/23/2022	X	X	X	X		X
W-3B	GW	280-165874-3	08/23/2022	X	X	X	X		X
W-5B	GW	280-165874-4	08/23/2022	X	X	X	X		X
W-6B1	GW	280-165874-6	08/23/2022	X	X	X	X		X
W-10B	GW	280-165874-8	08/24/2022	X	X	X	X		X
W-14	GW	280-165874-10	08/24/2022	X	X	X	X		X
W-16*	GW	280-165864-1	08/25/2022	X*	X	X			X
W-5B-FD	QC	280-165874-5	08/23/2022	X	X	X	X		X
W-10B-EB	QC	280-165874-7	08/24/2022	X	X	X	X		X

*Reported separately, limited list of metals analyzed

SUMMARY

All laboratory data were acceptable with qualification.

**Reports were revised and reissued on 9/30/2022 to correct W-6B to W-6B1.

I. SAMPLE RECEIPT / CHAIN OF CUSTODY

Samples were shipped or hand-delivered to the TestAmerica Denver facility, who then forwarded the appropriate sample containers to the other facilities. The temperature of samples upon receipt were between 0.3°C and 0.8°C, within the acceptable range of 0-6°C. The chains of custody (COCs) from the field and for transfer to the different lab facilities were filled out and signed.

II. HOLDING TIMES

Holding time criteria were generally met except as noted below.

Metals: Samples were analyzed within 180 days of collection.

Mercury: All samples were analyzed within 28 days of collection.

Anions: Samples were analyzed within 28 days of collection.

Alkalinity: Samples were analyzed within 14 days of collection.

TDS: Samples were analyzed within 7 days of collection.

TSS: Samples were analyzed within 7 days of collection.

Radium-226: Samples had ingrowth times of at least 21 days.

Radium-228: Samples had ingrowth times of at least 36 hours.

pH: Samples were analyzed more than 24 hours after collection. The method states the samples are to be analyzed “as soon as possible.” All sample results have been qualified as estimated (J).

III. INSTRUMENT CALIBRATION

INITIAL CALIBRATIONS

Metals: Initial calibration criteria were met. One standard and a blank comprised the calibration. No qualification was required.

Mercury: Initial calibration criteria were met. The fit of the curve was ≥ 0.995 and the low standard was below the RL. No qualification was required.

Anions: Initial calibration criteria were met except. No qualification was required.

Alkalinity: Initial calibration criteria were met except. No qualification was required.

TDS: Not applicable. Analysis was gravimetric.

TSS: Not applicable. Analysis was gravimetric.

pH: The instrument was properly standardized using five buffer solutions. The correlation coefficient of the curve was 1.000. No qualification was required.

SECOND SOURCE STANDARDS

Metals: Second source standard criteria were met. All analytes had %D values less than 10%. No qualification was required.

Mercury: Second source standard criteria were met. All analytes had %D values less than 10%. No qualification was required.

Anions: Second source standard criteria were met. All analytes had %D values less than 10%. No qualification was required.

Alkalinity: Second source standard criteria were met. All analytes had %D values less than 10%. No qualification was required.

TDS: Not applicable. Analysis was gravimetric.

TSS: Not applicable. Analysis was gravimetric.

pH: Second source standard criteria were met. pH results were within limits. No qualification was required.

CONTINUING CALIBRATIONS

Metals: Continuing calibration criteria were met. All analytes had %D values less than 10%. No qualification was required.

Mercury: Continuing calibration criteria were met. All analytes had %D values less than 10%. No qualification was required.

Anions: Continuing calibration criteria were met. All analytes had %D values less than 10%. No qualification was required.

Alkalinity: Continuing calibration criteria were met. All analytes had %D values less than 10%. No qualification was required.

TDS: Not applicable. Analysis was gravimetric.

TSS: Not applicable. Analysis was gravimetric.

pH: Continuing calibration criteria were met. pH results were within limits. No qualification was required.

IV. BLANKS

Target analytes were not detected in the blanks except as noted below.

METHOD BLANKS (MB) AND EQUIPMENT BLANK (EB)

Metals: Metals were detected in the MBs and EBs as described below:

Analyte	MB or EB	Associated Samples	Result (mg/L)	Qualification
Barium	W-10B-EB	W-10B	0.0011	J+
Beryllium	W-10B-EB	W-10B	0.0001	J+
Boron (total)	MB 280-5852101-A	MW-7, W-2A, W-2C, W-3B, W-5B, W-5B-FD, W-6B1, W-10B, W-10B-EB, W-14	0.0065	J+
Boron (total)	W-10B-EB	W-10B	0.0043	J+
Calcium	W-10B-EB	W-10B	0.55	None (sample results much higher)
Chromium	W-10B-EB	W-10B	0.00073	J+
Magnesium	W-10B-EB	W-10B	0.075	None (sample results much higher)
Molybdenum	W-10B-EB	W-10B	0.00038	J+
Selenium	W-10B-EB	W-10B	0.00055	None (sample results much higher)
Sodium	W-10B-EB	W-10B	0.077	None (sample results much higher)

Mercury: Mercury was not detected in the MBs or the EB. No qualification was required.

Anions: Anions were not detected in the MBs. Sulfate was detected in EB W-10B-EB at 1.4 mg/L. Sample W-10B sulfate results were much higher. No qualification was required.

Alkalinity: Alkalinity was not detected in the MBs or the EB. No qualification was required.

TDS: TDS was not detected in the MBs or the EB. No qualification was required.

TSS: TSS was not detected in the MBs or the EB. No qualification was required.

Radium-226: Rad-226 was not detected in the MBs or the EB. No qualification was required.

Radium-228: Rad-228 was detected in the MB 160-5801771-A at 0.9689 pCi/L. All samples required qualification as estimated with potential for high bias (J+) in Rad-228 and consequently in combined radium results for all samples. Rad-228 was detected in the EB at 0.914 pCi/L. Rad-228 and combined radium results in the parent sample W-10B have been qualified as estimated with potential for high bias (J+).

pH: Not applicable.

INITIAL AND CONTINUING CALIBRATION BLANKS (ICB and CCB)

Metals: Metals were detected in several ICBs and CCBs as noted below.

Analyte	ICB or CCB	Associated Samples	Result (mg/L)	Qualification
Beryllium	CCB 280-585452/68	W-3B, W-5B, W-5B-FD, W-6B1, W-10B, W-10B-EB, W-14, MW-7	0.000207	J+ (or UJ if non-detect)
	CCB 280-581791/130	None	0.000223	None
Boron	CCB 280-585436/76	W-2A, W-2C, W-3B, W-5B, W-5B-FD, W-6B1, W-10B, W-10B-EB, W-14, MW-7	0.00279	J+ (or UJ if non-detect)
	CCB 280-585436/90		0.00344	
	CCB 280-585436/104		0.00349	
	CCB 280-585436/118		0.00260	
Calcium	CCB 280-585452/68	W-2A, W-2C, W-3B, W-5B, W-5B-FD, W-6B1, W-10B, W-10B-EB, W-14, MW-7	0.0534	None (sample results much higher)
	CCB 280-585452/68		0.0660	
Cobalt	CCB 280-585452/57	All samples	0.0000980	None (sample results much higher)
Molybdenum	ICB 280-585452/14	W-2A, W-2C, W-3B, W-5B, W-5B-FD, W-6B1, W-10B, W-10B-EB, W-14, MW-7	0.000663	J+
	CCB 280-585452/35		0.000549	
	CCB 280-585452/57		0.000533	
	CCB 280-585452/68		0.000505	
	CCB 280-585452/78		0.000652	
Sodium	CCB 280-586091	Non	0.000756	None

Mercury: Mercury was not detected in the ICBs or CCBs. No qualification was required.

Anions: Anions were not detected in the ICBs or CCBs. No qualification was required.

Alkalinity: Alkalinity was not detected in the ICBs or CCBs. No qualification was required.

TDS: Not applicable.

TSS: Not applicable.

Radium-226: Not applicable.

Radium-228: Not applicable.

pH: Not applicable.

V. LABORATORY CONTROL SAMPLES (LCS) and LABORATORY CONTROL SAMPLES DUPLICATE (LCSD)

Metals: LCS recoveries were within the project control limits of 75-125%. No qualification was required.

Mercury: LCS recoveries were within the project control limits of 75-125%. No qualification was required.

Anions: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

Alkalinity: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

TDS: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

TSS: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

Radium-226: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

Radium-228: LCS and LCSD recoveries were outside the project control limits of 75-125% at 146%.

From the Case Narrative: “The LCS/LCSD recovered at (146% & 126%). The limits in our LIMS system at 75-125 reflect the requirements of a regulatory agency that represents a large amount of our work. However, the samples associated with this LCS are not from this agency and are therefore held to our in-house statistical limits of (62-148%) per method requirements. The LCS passes, no further action is required (LCS 160-580177/2-A) and (LCSD 160-580177/3-A).”

The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No corrective action nor qualification was required.

pH: LCS results were within the control limits of 99-101%. No qualification was required.

VI. MATRIX SPIKE / MATRIX SPIKE DUPLICATE (MS/MSD)

No samples were designated on the COC for MS/MSD analysis.

Metals: The lab spiked sample W-14 from this project for lithium and boron. Recoveries and RPDs for dissolved boron were within control limits. Recoveries for lithium were outside control limits at 114%. W-14 lithium results have been qualified as estimated (J).

The lab spiked sample W-16 from this project for calcium, cobalt, magnesium, potassium, and sodium. Recoveries for all except cobalt were outside control limits. Calcium, magnesium, potassium, and sodium MS/MSD analyses could not be reliably evaluated as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action was deemed unnecessary, and no qualification was required.

Mercury: The lab spiked sample W-2A from this project for mercury. Recoveries and RPDs of were within control limits and no qualification was required.

Anions: The lab spike sample W-10B-EB from this project for anions. Recoveries and RPDs were within control limits and no qualification was required.

Radium-226: MS/MSD analysis was not performed for Rad-226 due to limited sample volume.

Radium-228: MS/MSD analysis was not performed for Rad-228 due to limited sample volume.

VII. DUPLICATES

FIELD DUPLICATES

Sample W-5B-FD was collected as a field duplicate of W-5B.

Metals: FD results were outside control limits as indicated below:

Analyte	Parent (mg/L)	FD (mg/L)	RPD (%)	Qualification
Beryllium	0.000094	ND	100	W-5B (J+), W-5B-FD (UJ)
Selenium	0.0012	0.00049	42	W-5B (J+), W-5B-FD (J-)

Anions: FD results were within control limits. No qualification was required.

Alkalinity: FD results were within control limits. No qualification was required.

TDS: FD results were within control limits. No qualification was required.

TSS: FD results were within control limits. No qualification was required.

Radium-226: Combined radium results were outside control limits at 43%; however, Rad-226 had a RPD of 7%. No qualification was required.

Radium-228: Combined radium results were outside control limits at 43%. Rad-228 had a RPD of 50%. Parent sample W-5B required qualification as estimated with high bias (J+) and field duplicate W-5B-FD required qualification as estimated with low bias (J-); however, other QC anomalies required qualification as estimated with high bias (J+). This has been resolved to a qualification as estimated (J).

pH: FD results were within control limits. No qualification was required.

LABORATORY DUPLICATES

Metals: Lab duplicate analysis was not performed for metals.

Anions: Lab duplicate analysis was performed on sample W-10B-EB from this project. RPDs were within control limits and no qualification was required.

Alkalinity: Lab duplicate analysis was not performed on samples from this project. Laboratory-generated duplicate analyses' resulting RPDs were within control limits and no qualification was required.

TDS: Lab duplicate analysis was not performed on samples from this project. Laboratory-generated duplicate analyses' resulting RPDs were within control limits and no qualification was required.

TSS: Lab duplicate analysis was performed on samples W-2A and W-16 from this project. RPDs were within control limits and no qualification was required.

pH: Lab duplicate analysis was performed on sample W-5B-FD from this project. Resulting RPDs were within control limits and no qualification was required.

VIII. INTERNAL STANDARDS (ISTD) OR TRACERS

All ISTD and tracer criteria were met except as noted below.

Metals: ISTD areas were greater than 30% of the initial calibration ISTD areas. No qualification was required.

Radium-226: Tracer recoveries in all samples were within limits.

Radium-228: Tracer recoveries in all samples were within limits.

IX. POST DIGESTION SPIKE AND DILUTION TEST

Post-digestion spike (PDS) analyses and serial dilution tests were performed for Method 6020A metals. PDS results were within the control limits of 75-125% except as noted below. The dilution tests were not applicable unless sample results were greater than 50 times the MDL.

Metals: The dilution test was performed on the same sample as the MS/MSD. Results were within control limits and no qualification was required.

X. INTERFERENCE CHECK SAMPLES (ICS)

ICS results were applicable to the Method 6010C and 6020A metals analyses. Results were within required limits of 80-120% except as noted below.

Metals: Recoveries were within required limits. No qualifications were required.

XI. REPORTING LIMITS (RL) AND METHOD DETECTION LIMITS (MDL)

This phase of the project is the establishment of baseline contaminant levels. RLs are compared, **for internal use only**, against the Colorado drinking water maximum contaminant levels (MCLs), MCL goals (MCLGs), secondary MCLs, action levels (ALs), and/or groundwater protection standards (GPS). RLs should be below these levels.

Metals: The RLs are compared to the MCLs, MCLGs, ALs and secondary MCLs in the table below.

Analyte	RL (mg/L)	MDL (mg/L)	MCL or AL (mg/L)	MCLG (mg/L)	GPS (mg/L)
Antimony	0.002	0.0004	0.006 (MCL)	0.006	0.006
Arsenic	0.005	0.00033	0.010 (MCL)	Zero	0.01
Barium	0.005	0.00029	2 (MCL)	2	2
Beryllium	0.001	0.00008	0.004 (MCL)	0.004	None
Boron	0.1	0.0015	Not Listed	Not Listed	None
Cadmium	0.001	0.00027	0.005 (MCL)	0.005	0.00588
Calcium	1	0.45	Not Listed	Not Listed	None
Chromium	0.002	0.0005	0.1 (MCL)	0.1	0.1
Cobalt	0.001	0.000092	Not Listed	Not Listed	0.0102

Analyte	RL (mg/L)	MDL (mg/L)	MCL or AL (mg/L)	MCLG (mg/L)	GPS (mg/L)
Lead	0.001	0.00018	0.015 (AL)	Zero	0.015
Lithium	0.02	0.0091	Not Listed	Not Listed	5.51
Molybdenum	0.002	0.00014	Not Listed	Not Listed	0.1
Selenium	0.005	0.00037	0.05 (MCL)	0.05	3.67
Thallium	0.001	0.000089	0.002 (MCL)	0.0005	0.00645

Mercury: The RL of 0.2 µg/L is below the MCL and MCLG of 0.02 mg/L (20 µg/L). RL is above the MDL of 0.061 µg/L.

Anions: The RLs of 3 mg/L, 0.5 mg/L and 5 mg/L for chloride, fluoride and sulfate respectively are below the secondary MCLs of 250 mg/L, 2.0 mg/L, and 250 mg/L, respectively. The RLs are above the MDLs of 1 mg/L, 0.17 mg/L, and 1 mg/L, respectively.

Alkalinity: The RLs of 10 mg/L for alkalinity, bicarbonate, and carbonate are below the MDLs of 3.1 mg/L for each parameter.

TDS: The RL is 10 mg/L; The Colorado drinking water standard is 400 mg/L or 1.25 times the background level, whichever is least restrictive. The RL is above the MDL of 4.7 mg/L.

TSS: The RL is 4 mg/L; there are no Colorado drinking water standards for TSS. The RL is above the MDL of 1.1 mg/L.

Radium 226: The RL of 1.0 picocurie per liter (pCi/L) is below the MCL of 5.0 pCi/L for combined radium 226 and radium 228.

Radium 228: The RL of 1.0 picocurie per liter (pCi/L) is below the MCL of 5.0 pCi/L for combined radium 226 and radium 228.

pH: The Colorado drinking water standard is pH value of 6.5 to 8.5.

XII. SAMPLE RESULTS / TRANSCRIPTION VERIFICATION

Transcription between the data package and the EDDs was verified. Sample results reported between the MDL and RL were qualified as estimated (J).

Metals: Several samples required dilution prior to analysis for total metals. The reporting limits have been adjusted accordingly.

Mercury: No issues.

Anions: No issues.

Alkalinity: No issues.

TDS: No issues.

TSS: No issues.

Radium-226: A reduced sample volume was prepared for all project samples W-2C, W-3B, W-5B, W-5B-FD, W-6B1, and W-10B due to matrix interferences, but all RLs were 1.0 pCi/L.

Radium-228: A reduced sample volume was prepared for all project samples W-2A, W-2C, W-3B, W-5B, W-5B-FD, W-6B1, and W-10B due to matrix interferences, but all RLs were 1.0 pCi/L.

pH: Sample did not equilibrate to within 0.05 pH units after three measurements. This was observed in a previous analysis thus the sample was not rerun.

XIII. PARCCS PARAMETERS AND DATA USABILITY

Data were usable as discussed below.

The data quality indicators (DQIs), expressed in terms of precision, accuracy, representativeness, comparability, completeness, and sensitivity (PARCCS parameters), were assessed. This included the evaluation of sample integrity, holding times, trip blanks, rinsate blanks, method blanks, internal standards, surrogate recoveries, MS/MSD recoveries, LCS/Ds, and field duplicate precision. The results of the DQI assessment are provided below.

PRECISION

Field duplicates are collected to assess sampling precision. Lab duplicates, LCS/Ds, and MS/Ds are analyzed to assess analysis precision. Precision is best expressed in terms of relative percent difference (RPD).

Lab precision goals were met in that lab duplicates, LCS/LCSD, and MS/MSD RPDs were within control limits.

Field precision goals were met in that RPDs between the parent/field duplicate pair were within control limits except beryllium, selenium, and Rad-228 (and combined radium) results that required qualification.

ACCURACY

Accuracy or bias is measured through the analyses of LCS/Ds and MS/MSDs. Sample specific accuracy is measured through surrogate recovery. Accuracy is expressed as percent recovery (%R).

Field accuracy goals were met except MS/MSD recoveries for lithium.

Lab accuracy goals were nearly met in that LCS/LCSD recoveries were within control limits except Rad-228.

REPRESENTATIVENESS

Representativeness refers to the degree sample data accurately and precisely describes the population of samples at a sampling point or under certain environmental conditions. Samples that are not properly preserved or are analyzed beyond holding times may not be considered representative. Review of sampling procedures, laboratory preparation, analysis holding times, trip blank and rinsate blank analysis help in providing this assessment.

Representativeness goals were generally met. Samples were collected at predetermined locations according to the project plan.

Representativeness goals were not met in these instances:

- All pH and temperature results required qualification as estimated (J) due to analysis past the holding time;
- Boron in ten samples required qualification as estimated with potential for high bias (J+) due to detection in the MB;
- Rad-228 in all samples required qualification as estimated with potential for high bias (J+) due to detection in the MB;
- Rad-228 required qualification as estimated with potential for high bias (J+) in the parent sample due to detection in the EB;
- Barium, beryllium, boron, chromium, and molybdenum required qualification as estimated with potential for high bias (J+) in the parent sample due to detection in the EB;
- Beryllium in eight samples, boron in ten samples, and molybdenum in ten samples, dissolved molybdenum in ten samples required qualification as estimated with potential for high bias (J+) (or UJ if non-detect) due to detection in the ICB or CCB;
- Lithium in one sample required qualification as estimated (J) in the parent sample due to MS/MSD recoveries outside control limits;
- The MS/MSD for calcium, magnesium, potassium, and sodium could not be verified;
- Beryllium and selenium required qualification as estimated with potential for high bias (J+) in the parent sample and with low bias or non-detect (J- or UJ) in the field duplicate due to RPDs outside control limits in one parent/duplicate pair;
- Rad-228 required qualification as estimated with high bias (J+) in the parent sample and estimated with low bias (J-) resolved to estimated (J) in the field duplicate due to RPDs outside control limits in one parent/field duplicate pair.

COMPARABILITY

The selection of standardized methods and consistent laboratory practices facilitates the comparison of data between sampling events.

Comparability goals were met. Samples were analyzed by standardized methods (SW-846 and Standards Methods). Future sampling events will be analyzed by the same methods at the same labs to achieve comparability.

COMPLETENESS

Completeness is determined for both field and analytical objectives. Field completeness is calculated from the number of samples proposed versus the actual number of samples collected. Analytical completeness is expressed in terms of usable data.

Field completeness goals were nearly met. 9 of the 10 planned wells were sampled. W-15 was dry. This results in a field completeness of 90%.

Lab completeness goals were met. No data were rejected. Of the planned 11 samples for analysis, all 11 were analyzed for all analytes.

SENSITIVITY

Analytical sensitivity is the concentration at which the measurement system can quantitate target analytes in the environmental matrices of concern. Analytical sensitivity is expressed in terms of the RL, which is provided by the respective laboratories as their reasonable and defensible quantitation limit for environmental samples above the MDL, which is established by each laboratory using pure water or clean matrix.

Sensitivity goals were met. The MDLs were $\leq$ one-half the RLs except for pH and Rad-228. This phase of the project is the establishment of baseline contaminant levels, and project RLs were compared to the Colorado drinking water maximum contaminant levels (MCLs), MCL goals (MCLGs), secondary MCLs, and/or action levels (ALs). RLs were at or below these levels.

Metals: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Mercury: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Anions: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Alkalinity: No data were rejected. Data required minimal qualification. All data are usable as qualified.

TDS: No data were rejected. Data required minimal qualification. All data are usable as qualified.

TSS: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Radium-226: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Radium-228: No data were rejected. Data required minimal qualification. All data are usable as qualified.

pH: No data were rejected. All data are usable as qualified.

DATA VALIDATION AND USABILITY REPORT

Metals by USEPA SW-846 Method 6010C/6020A
Mercury by USEPA SW-846 Method 7470A
Anions by USEPA SW-846 Method 9056A
Total Dissolved Solids (TDS) by Standard Method SM2540C
Total Suspended Solids (TSS) by Standard Method SM2540D
Radium-226 (Ra-226) by USEPA SW-846 Method 9315
Radium-228 (Ra-228) by USEPA SW-846 Method 9320
pH by USEPA SW-846 Method 9040B
Alkalinity by Standard Method SM2320B

Project: Xcel Energy Coal Combustion Residuals (CCR) Project –
Comanche - September 2022

Project/Task Number: 10279381-001

Sample Data Package: 280-167106-1, 280-167106-2, 280-167107-1 (W-16)
Lab Report Dates: 10/17/2022, 11/1/2022 (radiochem),
10/14/2022 (W-16)
Data Validation Report Date: 11/14/2022

Laboratory: TestAmerica Denver, Arvada, Colorado (metals, anions, TDS, TSS,
pH, alkalinity);
TestAmerica Saint Louis, Earth City, Missouri (radiochem)

Sample Matrix: Groundwater

Sampling Dates: September 28-30, 2022

Validation Guidelines: Project Plan (*Statistical Method Certification for Compliance with the Coal Combustion Residuals [CCR] Rule, for Xcel Energy [HDR, December 7, 2015]*), United States Environmental Protection Agency (USEPA) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd edition (SW-846); USEPA *National Functional Guidelines for Inorganic Data Review*, USEPA-540-R-10-011, January 2010; USEPA *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use*, USEPA 540-R-08-005, January 13, 2009; and professional judgment

Validation Level: Stage 2BVM (100%)

Data Reviewer: Aryka Thomson, HDR

Sample ID	Matrix	Lab ID	Date Collected	Metals Mercury	Anions	TDS TSS	RA-226 RA-228	Dissolved Metals	Alk, Mg, K, Na
W-6B1	GW	280-167106-3	09/29/2022	X	X	X	X		X
W-10B	GW	280-167106-5	09/30/2022	X	X	X	X		X
W-14	GW	280-167106-1	09/28/2022	X	X	X	X		X
W-16*	GW	280-167107-1	09/29/2022	X*	X	X			X
W-14-FD	QC	280-167106-2	09/28/2022	X	X	X	X		X
W-10B-EB	QC	280-167106-4	09/30/2022	X	X	X	X		X

*Reported separately, limited list of metals analyzed

SUMMARY

All laboratory data were acceptable with qualification.

I. SAMPLE RECEIPT / CHAIN OF CUSTODY

Samples were shipped or hand-delivered to the TestAmerica Denver facility, who then forwarded the appropriate sample containers to the other facilities. The temperature of samples upon receipt were between 0.7°C and 2.1°C, within the acceptable range of 0-6°C. The chains of custody (COCs) from the field and for transfer to the different lab facilities were filled out and signed.

II. HOLDING TIMES

Holding time criteria were generally met except as noted below.

Metals: Samples were analyzed within 180 days of collection.

Mercury: All samples were analyzed within 28 days of collection.

Anions: Samples were analyzed within 28 days of collection.

Alkalinity: Samples were analyzed within 14 days of collection.

TDS: Samples were analyzed within 7 days of collection.

TSS: Samples were analyzed within 7 days of collection.

Radium-226: Samples had ingrowth times of at least 21 days.

Radium-228: Samples had ingrowth times of at least 36 hours.

pH: Samples were analyzed more than 24 hours after collection. The method states the samples are to be analyzed “as soon as possible.” All sample results have been qualified as estimated (J).

III. INSTRUMENT CALIBRATION

INITIAL CALIBRATIONS

Metals: Initial calibration criteria were met. One standard and a blank comprised the calibration. No qualification was required.

Mercury: Initial calibration criteria were met. The fit of the curve was ≥ 0.995 and the low standard was below the RL. No qualification was required.

Anions: Initial calibration criteria were met except. No qualification was required.

Alkalinity: Initial calibration criteria were met except. No qualification was required.

TDS: Not applicable. Analysis was gravimetric.

TSS: Not applicable. Analysis was gravimetric.

pH: The instrument was properly standardized using five buffer solutions. The correlation coefficient of the curve was 1.000. No qualification was required.

SECOND SOURCE STANDARDS

Metals: Second source standard criteria were met. All analytes had %D values less than 10%. No qualification was required.

Mercury: Second source standard criteria were met. All analytes had %D values less than 10%. No qualification was required.

Anions: Second source standard criteria were met. All analytes had %D values less than 10%. No qualification was required.

Alkalinity: Second source standard criteria were met. All analytes had %D values less than 10%. No qualification was required.

TDS: Not applicable. Analysis was gravimetric.

TSS: Not applicable. Analysis was gravimetric.

pH: Second source standard criteria were met. pH results were within limits. No qualification was required.

CONTINUING CALIBRATIONS

Metals: Continuing calibration criteria were nearly met. All analytes had %D values less than 10% except CCV 280-589801/173 recovered at 121% for beryllium, a %D of 19%. Affected samples W-14, W-14-FD, W-6B1, and W-10B required qualification as estimated with high bias (J+) or UJ if non-detect for total beryllium.

The low level continuing calibration verification (CCVL) associated with batch 280-589086 recovered above the upper control limit for lithium. The samples associated with this CCVL were either below the reporting limit or greater than 10x the level of the CCVL; therefore, the data have been reported.

Mercury: Continuing calibration criteria were met. All analytes had %D values less than 10%. No qualification was required.

Anions: Continuing calibration criteria were met. All analytes had %D values less than 10%. No qualification was required.

Alkalinity: Continuing calibration criteria were met. All analytes had %D values less than 10%. No qualification was required.

TDS: Not applicable. Analysis was gravimetric.

TSS: Not applicable. Analysis was gravimetric.

pH: Continuing calibration criteria were met. pH results were within limits. No qualification was required.

IV. BLANKS

Target analytes were not detected in the blanks except as noted below.

METHOD BLANKS (MB) AND EQUIPMENT BLANK (EB)

Metals: Metals were detected in the MBs and EBs as described below (*pending laboratory response regarding sodium “B” flag but no evident detection in blanks*):

Analyte	MB or EB	Associated Samples	Result (mg/L)	Qualification
Antimony (dissolved)	MB 280-5886741-D	W-6B1, W-10B	0.00181	J+
Arsenic (dissolved)	MB 280-5886741-D	W-6B1, W-10B	0.00485	J+
Barium (dissolved)	MB 280-5886741-D	W-6B1, W-10B	0.000659	J+
Barium (total)	W-10B-EB	W-10B	0.00041	J+
Boron (total)	W-10B-EB	W-10B	0.002	None (sample results much higher)
Calcium (total)	W-10B-EB	W-10B	0.058	None (sample results much higher)
Chromium (dissolved)	MB 280-5886741-D	W-6B1, W-10B	0.00197	J+
Lithium (total)	W-10B-EB	W-10B	0.012	None (sample results much higher)
Magnesium (total)	W-10B-EB	W-10B	0.064	None (sample results much higher)
Molybdenum (dissolved)	MB 280-5886741-D	W-6B1, W-10B	0.000803	J+
Selenium (dissolved)	MB 280-5886741-D	W-6B1, W-10B	0.000391	None (sample results much higher)

Mercury: Mercury was not detected in the MBs or the EB. No qualification was required.

Anions: Anions were not detected in the MBs or the EB. No qualification was required.

Alkalinity: Alkalinity was not detected in the MBs. Bicarbonate alkalinity was detected in the EB at 3.9 mg/L. W-10B required qualification as estimated with high bias (J+) for bicarbonate alkalinity and total alkalinity.

TDS: TDS was not detected in the MBs or the EB. No qualification was required.

TSS: TSS was not detected in the MBs. TSS was detected in the EB at 1.2 mg/L. W-10B required qualification as estimated with high bias (J+) for TSS.

Radium-226: Rad-226 was not detected in the MBs or the EB. No qualification was required.

Radium-228: Rad-228 was detected in the MB 160-5848581-A at 1.086 pCi/L and MB 160-5873171-A at 0.7798 pCi/L. All samples required qualification as estimated with potential for high bias (J+) in Rad-228 and consequently in combined radium results for all samples.

pH: Not applicable.

INITIAL AND CONTINUING CALIBRATION BLANKS (ICB and CCB)

Metals: Metals were detected in several ICBs and CCBs as noted below.

Analyte	ICB or CCB	Associated Samples	Result (mg/L)	Qualification
Beryllium	CCB 280-589035/85	W-6B1, W-10B, W-10B-EB, W-14, W-14-FD (all total)	0.000099	None
	CCB 280-589035/97		0.000105	
	CCB 280-589354/122	W-6B1 (D), W-10B (D)	0.000196	J+ (or UJ if non-detect)
	CCB 280-589801/37	W-6B1, W-10B, W-14, W-14-FD (all total)	0.000120	J+ (or UJ if non-detect)
	CCB 280-589801/142		0.000236	
	CCB 280-589801/174		0.000271	
Boron	CCB 280-589086/100	W-6B1, W-10B, W-14, W-14-FD, W-16 (all total)	0.00268	None (sample results much higher)
	CCB 280-589196/19	W-6B1 (D), W-10B (D)	0.00722	None (sample results much higher)
Calcium	CCB 280-589354/122	W-6B1 (D), W-10B (D)	0.000178	None (sample results much higher)
Cobalt	CCB 280-589199/154	W-14 (T), W-14-FD (T), W-6B1 (D), W-6B1 (T), W-10B (D), W-10B (T)	0.000095	None
Lithium	CCB 280-589086/114	W-6B1, W-10B, W-14, W-14-FD (all total)	0.0145	J+ (or UJ if non-detect)
Molybdenum	ICB 280-589035/32	W-6B1, W-10B, W-10B-EB, W-14, W-14-FD (all total)	0.000676	J+ (or UJ if non-detect)
	CCB 280-589035/85		0.000641	
	CCB 280-589035/97		0.000612	
	CCB 280-589035/108		0.000548	
	CCB 280-589035/118		0.000431	
	CCB 280-589199/154	W-14 (T), W-14-FD (T), W-6B1 (D), W-6B1 (T), W-10B (D), W-10B (T)	0.000184	None
Potassium	CCB 280-589801/37	W-6B1, W-10B, W-14, W-14-FD, W-16 (all total)	0.0610	None (sample results much higher)
	CCB 280-589801/78		0.0557	
	CCB 280-589801/88		0.0723	
	CCB 280-589801/174		0.0593	
	CCB 280-589871/81	None	0.0522	None
Selenium	CCB 280-589199/154	W-14 (T), W-14-FD (T), W-6B1 (D), W-6B1 (T), W-10B (D), W-10B (T)	0.00111	None
Sodium	CCB 280-589155/67	W-16	0.0775	None

Analyte	ICB or CCB	Associated Samples	Result (mg/L)	Qualification
	CCB 280-589155/79		0.0685	(sample results much higher)
	CCB 280-589155/87		0.182	

Mercury: Mercury was not detected in the ICBs or CCBs. No qualification was required.

Anions: Anions were not detected in the ICBs or CCBs. No qualification was required.

Alkalinity: Bicarbonate alkalinity was detected in the CCB 588714/30 at 3.11 mg/L and in CCB 588714/44 at 3.16 mg/L. All samples required qualification as estimated with high bias (J+) for bicarbonate alkalinity and total alkalinity.

TDS: Not applicable.

TSS: Not applicable.

Radium-226: Not applicable.

Radium-228: Not applicable.

pH: Not applicable.

V. LABORATORY CONTROL SAMPLES (LCS) and LABORATORY CONTROL SAMPLES DUPLICATE (LCSD)

Metals: LCS recoveries were within the project control limits of 75-125%. No qualification was required.

Mercury: LCS recoveries were within the project control limits of 75-125%. No qualification was required.

Anions: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

Alkalinity: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

TDS: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

TSS: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

Radium-226: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

Radium-228: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs

were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

pH: LCS results were within the control limits of 99-101%. No qualification was required.

VI. MATRIX SPIKE / MATRIX SPIKE DUPLICATE (MS/MSD)

No samples were designated on the COC for MS/MSD analysis.

Metals: The lab spiked sample W-6B1 from this project for dissolved metals. Cobalt, lead, thallium, and calcium recovered below control limits and selenium and beryllium recovered above the control limits. W-6B1 dissolved cobalt, lead, thallium, calcium, selenium, and beryllium results have been qualified as estimated (J) or UJ if non-detect.

Total cobalt and calcium recovered below control limits and magnesium and potassium recovered above control limits in a laboratory-generated MS/MSD sample. No qualification was required.

The lab spiked sample W-16 from this project for calcium, cobalt, magnesium, potassium, and sodium. Recoveries for all except cobalt were outside control limits. Calcium, magnesium, potassium, and sodium MS/MSD analyses could not be reliably evaluated as the concentrations present in the parent sample were 4 times greater than the matrix spike concentration. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action was deemed unnecessary, and no qualification was required.

Mercury: The lab did not spike any samples from this project for mercury. Recoveries and RPDs of were within control limits and no qualification was required.

Anions: The lab spike sample W-10B-EB from this project for anions. Recoveries and RPDs were within control limits and no qualification was required.

Radium-226: MS/MSD analysis was not performed for Rad-226 due to limited sample volume.

Radium-228: MS/MSD analysis was not performed for Rad-228 due to limited sample volume.

VII. DUPLICATES

FIELD DUPLICATES

Sample W-14-FD was collected as a field duplicate of W-14.

Metals: FD results were within control limits. No qualification was required.

Anions: FD results were within control limits. No qualification was required.

Alkalinity: FD results were within control limits. No qualification was required.

TDS: FD results were within control limits. No qualification was required.

TSS: FD results were outside control limits at an RPD of 33%. TSS required qualification as estimated with high bias (J+) in the parent sample and estimated with low bias (J-) in the field duplicate.

Radium-226: FD results were within control limits. No qualification was required.

Radium-228: FD results were within control limits. No qualification was required.

pH: FD results were within control limits. No qualification was required.

LABORATORY DUPLICATES

Metals: Lab duplicate analysis was not performed for metals.

Anions: Lab duplicate analysis was performed on sample W-10B-EB from this project. RPDs were within control limits and no qualification was required.

Alkalinity: Lab duplicate analysis was not performed on samples from this project. Laboratory-generated duplicate analyses' resulting RPDs were within control limits and no qualification was required.

TDS: Lab duplicate analysis was not performed on samples from this project. Laboratory-generated duplicate analyses' resulting RPDs were within control limits and no qualification was required.

TSS: Lab duplicate analysis was performed on samples W-2A and W-16 from this project. RPDs were within control limits and no qualification was required.

pH: Lab duplicate analysis was performed on sample W-5B-FD from this project. Resulting RPDs were within control limits and no qualification was required.

VIII. INTERNAL STANDARDS (ISTD) OR TRACERS

All ISTD and tracer criteria were met except as noted below.

Metals: ISTD areas were greater than 30% of the initial calibration ISTD areas. No qualification was required.

Radium-226: Tracer recoveries in all samples were within limits.

Radium-228: Tracer recoveries in all samples were within limits.

IX. POST DIGESTION SPIKE AND DILUTION TEST

Post-digestion spike (PDS) analyses and serial dilution tests were performed for Method 6020A metals. PDS results were within the control limits of 75-125% except as noted below. The dilution tests were not applicable unless sample results were greater than 50 times the MDL.

Metals: The dilution test was performed on the same sample as the MS/MSD. Results were within control limits except selenium recovered high and required qualification as estimated (J) in W-6B1.

X. INTERFERENCE CHECK SAMPLES (ICS)

ICS results were applicable to the Method 6010C and 6020A metals analyses. Results were within required limits of 80-120% except as noted below.

Metals: Recoveries were within required limits. No qualifications were required.

XI. REPORTING LIMITS (RL) AND METHOD DETECTION LIMITS (MDL)

This phase of the project is the establishment of baseline contaminant levels. RLs are compared, for

internal use only, against the Colorado drinking water maximum contaminant levels (MCLs), MCL goals (MCLGs), secondary MCLs, action levels (ALs), and/or groundwater protection standards (GPS). RLs should be below these levels.

Metals: The RLs are compared to the MCLs, MCLGs, ALs and secondary MCLs in the table below.

Analyte	RL (mg/L)	MDL (mg/L)	MCL or AL (mg/L)	MCLG (mg/L)	GPS (mg/L)
Antimony	0.002	0.0004	0.006 (MCL)	0.006	0.006
Arsenic	0.005	0.00033	0.010 (MCL)	Zero	0.01
Barium	0.005	0.00029	2 (MCL)	2	2
Beryllium	0.001	0.00008	0.004 (MCL)	0.004	None
Boron	0.1	0.0015	Not Listed	Not Listed	None
Cadmium	0.001	0.00027	0.005 (MCL)	0.005	0.00588
Calcium	1	0.45	Not Listed	Not Listed	None
Chromium	0.002	0.0005	0.1 (MCL)	0.1	0.1
Cobalt	0.001	0.000092	Not Listed	Not Listed	0.0102
Lead	0.001	0.00018	0.015 (AL)	Zero	0.015
Lithium	0.02	0.0091	Not Listed	Not Listed	5.51
Molybdenum	0.002	0.00014	Not Listed	Not Listed	0.1
Selenium	0.005	0.00037	0.05 (MCL)	0.05	3.67
Thallium	0.001	0.000089	0.002 (MCL)	0.0005	0.00645

Mercury: The RL of 0.2 µg/L is below the MCL and MCLG of 0.02 mg/L (20 µg/L). RL is above the MDL of 0.061 µg/L.

Anions: The RLs of 3 mg/L, 0.5 mg/L and 5 mg/L for chloride, fluoride and sulfate respectively are below the secondary MCLs of 250 mg/L, 2.0 mg/L, and 250 mg/L, respectively. The RLs are above the MDLs of 1 mg/L, 0.17 mg/L, and 1 mg/L, respectively.

Alkalinity: The RLs of 10 mg/L for alkalinity, bicarbonate, and carbonate are below the MDLs of 3.1 mg/L for each parameter.

TDS: The RL is 10 mg/L; The Colorado drinking water standard is 400 mg/L or 1.25 times the background level, whichever is least restrictive. The RL is above the MDL of 4.7 mg/L.

TSS: The RL is 4 mg/L; there are no Colorado drinking water standards for TSS. The RL is above the MDL of 1.1 mg/L.

Radium 226: The RL of 1.0 picocurie per liter (pCi/L) is below the MCL of 5.0 pCi/L for combined

radium 226 and radium 228.

Radium 228: The RL of 1.0 picocurie per liter (pCi/L) is below the MCL of 5.0 pCi/L for combined radium 226 and radium 228.

pH: The Colorado drinking water standard is pH value of 6.5 to 8.5.

XII. SAMPLE RESULTS / TRANSCRIPTION VERIFICATION

Transcription between the data package and the EDDs was verified. Sample results reported between the MDL and RL were qualified as estimated (J).

Metals: Several samples required dilution prior to analysis for total metals. The reporting limits have been adjusted accordingly.

Mercury: No issues.

Anions: No issues.

Alkalinity: No issues.

TDS: No issues.

TSS: No issues.

Radium-226: No issues.

Radium-228: A reduced sample volume was prepared for all project samples W-6B1, W-14, and W-14-FD due to matrix interferences, but all RLs were 1.0 pCi/L.

pH: Sample did not equilibrate to within 0.05 pH units after three measurements. This was observed in a previous analysis thus the sample was not rerun.

XIII. PARCCS PARAMETERS AND DATA USABILITY

Data were usable as discussed below.

The data quality indicators (DQIs), expressed in terms of precision, accuracy, representativeness, comparability, completeness, and sensitivity (PARCCS parameters), were assessed. This included the evaluation of sample integrity, holding times, trip blanks, rinsate blanks, method blanks, internal standards, surrogate recoveries, MS/MSD recoveries, LCS/Ds, and field duplicate precision. The results of the DQI assessment are provided below.

PRECISION

Field duplicates are collected to assess sampling precision. Lab duplicates, LCS/Ds, and MS/Ds are analyzed to assess analysis precision. Precision is best expressed in terms of relative percent difference (RPD).

Lab precision goals were met in that lab duplicates, LCS/LCSD, and MS/MSD RPDs were within control limits.

Field precision goals were met in that RPDs between the parent/field duplicate pair were within control limits except TSS results that required qualification.

ACCURACY

Accuracy or bias is measured through the analyses of LCS/Ds and MS/MSDs. Sample specific accuracy is measured through surrogate recovery. Accuracy is expressed as percent recovery (%R).

Field accuracy goals were nearly met except MS/MSD recoveries for dissolved cobalt, lead, thallium, calcium, selenium, and beryllium.

Lab accuracy goals were met in that LCS/LCSD recoveries were within control limits.

REPRESENTATIVENESS

Representativeness refers to the degree sample data accurately and precisely describes the population of samples at a sampling point or under certain environmental conditions. Samples that are not properly preserved or are analyzed beyond holding times may not be considered representative. Review of sampling procedures, laboratory preparation, analysis holding times, trip blank and rinsate blank analysis help in providing this assessment.

Representativeness goals were generally met. Samples were collected at predetermined locations according to the project plan.

Representativeness goals were not met in these instances:

- All pH and temperature results required qualification as estimated (J) due to analysis past the holding time;
- Beryllium in four samples required qualification as estimated with high bias (J+) (or UJ if non-detect) due to a CCV with high recovery;
- Dissolved antimony, arsenic, barium, chromium, and molybdenum required qualification as estimated with high bias (J+) due to detection in the MB;
- Total barium required qualification as estimated with high bias (J+) due to detection in the MB;
- Rad-228 and combined radium in all samples required qualification as estimated with potential for high bias (J+) due to detection in two MBs;
- Bicarbonate alkalinity and total alkalinity required qualification as estimated with high bias (J+) in the parent sample due to detection in the EB;
- TSS required qualification as estimated with high bias (J+) in the parent sample due to detection in the EB;
- Total beryllium in four samples, dissolved beryllium in two samples, total lithium in four samples, and total molybdenum in five samples required qualification as estimated with potential for high bias (J+) (or UJ if non-detect) due to detection in the ICB or CCB;
- Bicarbonate alkalinity and total alkalinity in all samples required qualification as estimated with potential for high bias (J+) (or UJ if non-detect) due to detection in the ICB or CCB;
- Dissolved cobalt, lead, thallium, calcium, selenium, and beryllium in one sample required qualification as estimated (J) in the parent sample due to MS/MSD recoveries outside control limits;

- The MS/MSD for calcium, magnesium, potassium, and sodium could not be verified;
- TSS required qualification as estimated with high bias (J+) in the parent sample and estimated with low bias (J-) resolved to estimated (J) in the field duplicate due to RPDs outside control limits in one parent/field duplicate pair.

COMPARABILITY

The selection of standardized methods and consistent laboratory practices facilitates the comparison of data between sampling events.

Comparability goals were met. Samples were analyzed by standardized methods (SW-846 and Standards Methods). Future sampling events will be analyzed by the same methods at the same labs to achieve comparability.

COMPLETENESS

Completeness is determined for both field and analytical objectives. Field completeness is calculated from the number of samples proposed versus the actual number of samples collected. Analytical completeness is expressed in terms of usable data.

Field completeness goals were nearly met. 4 of the 6 planned wells were sampled. W-13 and W-15 were dry. This results in a field completeness of 67%.

Lab completeness goals were met. No data were rejected. Of the planned 6 samples for analysis, all 6 were analyzed for all requested analytes.

SENSITIVITY

Analytical sensitivity is the concentration at which the measurement system can quantitate target analytes in the environmental matrices of concern. Analytical sensitivity is expressed in terms of the RL, which is provided by the respective laboratories as their reasonable and defensible quantitation limit for environmental samples above the MDL, which is established by each laboratory using pure water or clean matrix.

Sensitivity goals were met. The MDLs were $\leq$ one-half the RLs except for pH and Rad-228. This phase of the project is the establishment of baseline contaminant levels, and project RLs were compared to the Colorado drinking water maximum contaminant levels (MCLs), MCL goals (MCLGs), secondary MCLs, and/or action levels (ALs). RLs were at or below these levels.

Metals: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Mercury: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Anions: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Alkalinity: No data were rejected. Data required minimal qualification. All data are usable as qualified.

TDS: No data were rejected. Data required minimal qualification. All data are usable as qualified.

TSS: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Radium-226: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Radium-228: No data were rejected. Data required minimal qualification. All data are usable as qualified.

pH: No data were rejected. All data are usable as qualified.

DATA VALIDATION AND USABILITY REPORT

Metals by USEPA SW-846 Method 6010C/6020A

Mercury by USEPA SW-846 Method 7470A

Anions by USEPA SW-846 Method 9056A

Total Dissolved Solids (TDS) by Standard Method SM2540C

Total Suspended Solids (TSS) by Standard Method SM2540D

Radium-226 (Ra-226) by USEPA SW-846 Method 9315

Radium-228 (Ra-228) by USEPA SW-846 Method 9320

pH by USEPA SW-846 Method 9040B

Alkalinity by Standard Method SM2320B

Project: Xcel Energy Coal Combustion Residuals (CCR) Project – Comanche - November 2022

Project/Task Number: 10279361-001

Sample Data Package: 280-168611-1, 280-168612-1, 280-168612-2, 280-168613-1, 280-168613-2, 280-169258-1, 280-169800-1, 280-169800-2
Lab Report Dates: 12/7/22, 12/8/22, 1/6/23, 12/9/22, 1/6/22, 12/12/22, 12/19/22, 12/29/22, respectively
Data Validation Report Date: 1/15/23

Laboratory: TestAmerica Denver, Arvada, Colorado (metals, anions, TDS, TSS, pH, alkalinity);
TestAmerica Saint Louis, Earth City, Missouri (radiochem)

Sample Matrix: Groundwater

Sampling Dates: October 27-November 30, 2022

Validation Guidelines: Project Plan (*Statistical Method Certification for Compliance with the Coal Combustion Residuals [CCR] Rule, for Xcel Energy [HDR, December 7, 2015]*), United States Environmental Protection Agency (USEPA) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd edition (SW-846); USEPA *National Functional Guidelines for Inorganic Data Review*, USEPA-540-R-10-011, January 2010; USEPA *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use*, USEPA 540-R-08-005, January 13, 2009; and professional judgment

Validation Level: Stage 2BVM (100%)

Data Reviewer: Aryka Thomson, HDR

Sample ID	Matrix	Lab ID	Date Collected	Metals Mercury	Anions	TDS TSS	RA-226 RA-228	Alkalinity	Dissolved Metals
MW-1B	GW	280-168614-1	11/01/2022	App III	X	X		X	
MW-2B	GW	280-168614-2	11/01/2022	App III	X	X		X	
MW-3	GW	280-169800-1	11/29/2022	App III	X	X		X	
MW-4B	GW	280-168614-3	11/02/2022	App III	X	X		X	
MW-5	GW	280-169800-2	11/29/2022	App III	X	X		X	
MW-6	GW	280-169258-1	11/08/2022	App III	X	X		X	
MW-7	GW	280-168614-4	11/01/2022	App III	X	X		X	
W-1	GW	280-169800-3	11/30/2022	X	X	X	X	X	
W-2C	GW	280-168613-1	10/27/2022	X	X	X	X	X	
W-3B	GW	280-168613-2	10/27/2022	X	X	X	X	X	
W-5B	GW	280-168613-3	10/27/2022	X	X	X	X	X	
W-6B1	GW	280-168613-4	10/27/2022	X	X	X	X	X	
W-7	GW	280-168613-5	10/28/2022	X	X	X	X	X	

Sample ID	Matrix	Lab ID	Date Collected	Metals Mercury	Anions	TDS TSS	RA-226 RA-228	Alkalinity	Dissolved Metals
W-9	GW	280-168613-6	10/29/2022	X	X	X	X	X	
W-10B	GW	280-168613-7	10/28/2022	X	X	X	X	X	X
W-11	GW	280-168613-8	10/29/2022	X	X	X	X	X	X
W-12	GW	280-168613-9	10/29/2022	X	X	X	X	X	
W-14	GW	280-168612-1	10/31/2022	X	X	X	X	X	X
W-16	GW	280-168611-1	10/31/2022	App III	X	X		X	
W-17	GW	280-168612-2	11/02/2022	X	X	X	X	X	X
MW-2BD	QC	280-168614-5	11/01/2022	App III	X	X		X	
W-14D	QC	280-168612-3	10/31/2022	X	X	X	X	X	X
W-10BEB	QC	280-168613-10	10/28/2022	X	X	X	X	X	

SUMMARY

All laboratory data were acceptable with qualification.

I. SAMPLE RECEIPT / CHAIN OF CUSTODY

Samples were shipped or hand-delivered to the TestAmerica Denver facility, who then forwarded the appropriate sample containers to the other facilities. Samples were received at 0.1°C, 0.3°C, 0.9°C, 1.3°C, 1.7°C, 1.8°C, 1.9°C, and 2.4°C, within the EPA recommended temperature range of 0-6°C.

280-168613-A-9 and 280-168613-B-9 were received with a pH >2 SU. We added the minimum amount of HNO₃ to preserve. W-2C (280-168613-1), W-3B (280-168613-2), W-5B (280-168613-3), W-6B1 (280-168613-4), W-7 (280-168613-5), W-9 (280-168613-6), W-10B (280-168613-7), W-11 (280-168613-8), W-12 (280-168613-9) and W-10BEB (280-168613-10).

280-168613-A-9 and 280-168613-B-9 were received with a pH >2 SU. The lab added the minimum amount of HNO₃ to preserve.

II. HOLDING TIMES

Holding time criteria were generally met except as noted below.

Metals: Samples were analyzed within 180 days of collection.

Mercury: Samples were analyzed within 28 days of collection.

Anions: Samples were analyzed within 28 days of collection except those noted below. Samples required qualification as estimated (J or UJ if non-detect). Reanalysis of samples outside of holding time was due to instrument issues that caused a backlog and increased turnaround time or further dilution being required.

Analyte	Associated Samples
Chloride	W-6B1, W-10B, and W-12
Fluoride	MW-1B, MW-2B, MW-2BD, MW-4B, MW-7, W-6B1, W-7, W-9, W-10B, W-10EB, W-11, W-12, W-14, W-14D, W-16, W-17
Sulfate	MW-1B, MW-2B, MW-2BD, MW-4B, MW-6, MW-7, W-2C, W-3B, W-5B, W-6B1, W-7, W-9, W-10B, W-11, W-12, W-14, W-14D, W-16, W-17

Alkalinity: Samples were analyzed within 14 days of collection

TDS: Samples were analyzed within 7 days of collection except MW-6, W-2C, W-3B, W-5B, W-6B1, W-7, W-10B, and W-10BEB, which required qualification as estimated (J or UJ if non-detect). MW-6 was received outside the holding time.

TSS: Samples were analyzed within 7 days of collection except MW-6, W-2C, W-3B, W-5B, W-6B1, W-7, W-10B, and W-10BEB, which required qualification as estimated (J or UJ if non-detect). MW-6 was received outside the holding time.

Radium-226: Sample had ingrowth times of at least 21 days.

Radium-228: Sample had ingrowth times of at least 36 hours.

pH: Sample was analyzed more than 24 hours after collection. The method states the samples are to be analyzed “as soon as possible.” All sample results have been qualified as estimated (J).

III. INSTRUMENT CALIBRATION

INITIAL CALIBRATIONS

Metals: Initial calibration criteria were met. One standard and a blank comprised the calibration. No qualification was required.

Mercury: Initial calibration criteria were met. The fit of the curve was ≥ 0.995 and the low standard was below the RL. No qualification was required.

Anions: Initial calibration criteria were met. No qualification was required.

Alkalinity: Initial calibration criteria were met. No qualification was required.

TDS: Not applicable. Analysis was gravimetric.

TSS: Not applicable. Analysis was gravimetric.

Radium-226: Not applicable.

Radium-228: Not applicable.

pH: The instrument was properly standardized using five buffer solutions. The correlation coefficient of the curve was 1.000. No qualification was required.

SECOND SOURCE STANDARDS

Metals: Second source standard criteria were met. All analytes had %D values less than 10%. No qualification was required.

Mercury: Second source standard criteria were met. All analytes had %D values less than 10%. No qualification was required.

Anions: Second source standard criteria were met. All analytes had %D values less than 10%. No qualification was required.

Alkalinity: Not applicable.

TDS: Not applicable. Analysis was gravimetric.

TSS: Not applicable. Analysis was gravimetric.

Radium-226: Not applicable.

Radium-228: Not applicable.

pH: Second source standard criteria were met. pH results were within limits. No qualification was required.

CONTINUING CALIBRATIONS

Metals: Continuing calibration criteria were nearly met. All analytes had %D values less than 10% except “The continuing calibration verification (CCV) associated with batch 280-593310 recovered (111%&112%) for As and Be which is above the upper control limit (110%). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: (CCV 280-593310/104), (280-168613-F-8-D), (280-168613-F-8-E MS), (280-168613-F-8-F MSD), (280-168613-F-8-D PDS) and (280-168613-F-8-D SD ^5).” No project samples were affected so no qualification was required.

Mercury: Continuing calibration criteria were met. All analytes had %D values less than 10%. No qualification was required.

Anions: Continuing calibration criteria were met. All analytes had %D values less than 10%. No qualification was required.

Alkalinity: Continuing calibration criteria were met. All analytes had %D values less than 10%. No qualification was required.

TDS: Not applicable. Analysis was gravimetric.

TSS: Not applicable. Analysis was gravimetric.

Radium-226: Not applicable.

Radium-228: Not applicable.

pH: Continuing calibration criteria were met. pH results were within limits. No qualification was required.

IV. BLANKS

Target analytes were not detected in the blanks except as noted below.

METHOD BLANKS (MB) AND EQUIPMENT BLANK (EB)

Metals: Metals were detected in the MBs or the EB as indicated below.

Method Blank or Equipment Blank	Analyte	Result (mg/L)	Affected Samples	Qualifier
MB 280-5955331-A	Arsenic	0.00079	MW-3, W-1	J+
MB 280-5939661-A	Boron	0.00289	MW-6	None (sample results much higher)
MB 280-5955331-A	Cadmium	0.000283	MW-3, W-1	J+
MB 280-5924171-A	Calcium	0.0781	W-2C, W-3B, W-5B, W-6B1, W-7, W-9, W-10B, W-11, W-14, W-14D, W-16, W-17	None (sample results much higher)
MB 280-5924171-A	Magnesium	0.0342	W-2C, W-3B, W-5B, W-6B1, W-7, W-9, W-10B, W-11, W-14, W-14D, W-16, W-17	None (sample results much higher)

Method Blank or Equipment Blank	Analyte	Result (mg/L)	Affected Samples	Qualifier
MB 280-5939561-A	Potassium	0.0548	MW-6	None (sample results much higher)
MB 280-5955331-A	Selenium	0.00051	MW-3, W-1	None (sample results much higher)
W-10BEB	Selenium	0.00081	W-10B	None (sample results much higher)
MB 280-5924171-A	Sodium	0.087	W-2C, W-3B, W-5B, W-6B1, W-7, W-9, W-10B, W-11, W-14, W-14D, W-16, W-17	None (sample results much higher)

Mercury: Mercury was not detected in the MBs or the EB. No qualification was required.

Anions: Anions were not detected in the MBs. Sulfate was detected in EB W-10BEB at 3.3 mg/L. Sample results were much higher and no qualification was required.

Alkalinity: Bicarbonate and alkalinity were detected in the MBs and EB as indicated below.

Method Blank or Equipment Blank	Analyte	Result (mg/L)	Affected Samples	Qualifier
MB 280-5924716	Alkalinity	3.3	MW-1B, MW-2B, MW-2BD, MW-4B, MW-7	None (sample results much higher)
MB 280-59550131	Alkalinity and bicarbonate	3.19	MW-3, MW-5, W-1	None (sample results much higher)
MB 280-59550157	Alkalinity	3.92	MW-3, MW-5, W-1	None (sample results much higher)
W-10BEB	Alkalinity and bicarbonate	3.4	W-10B	None (sample results much higher)

TDS: TDS was not detected in the MBs or the EB. No qualification was required.

TSS: TSS was not detected in the MBs. TSS was detected in EB W-10BEB at 1.6 mg/L. W-10B was qualified as estimated with high bias (J+) for TSS.

Radium-226: Rad-226 was not detected in the MBs. Rad-226 was detected in EB W-10BEB at 0.116 pCi/L. W-10B required qualification as estimated with high bias (J+) for Rad-226 and combined radium.

Radium-228: Rad-228 was not detected in the MBs or the EB. No qualification was required.

pH: Not applicable.

INITIAL AND CONTINUING CALIBRATION BLANKS (ICB and CCB)

Metals: Metals were detected in the ICBs or CCBs as indicated below:

Analyte	ICB or CCB	Associated Samples	Result (mg/L)	Qualification
Beryllium	CCB 280-594350/89	MW-6	0.000104	UJ
	CCB 280-592687/75	W-2C, W-3B, W-5B, W-10B, W-10BEB, W-14, W-14D, W-17	0.000197	J+ (or UJ if non-detect)
	CCB 280-592687/123		0.0000960	
	CCB 280-592825/62	W-2C, W-3B, W-5B, W-6B1, W-7, W-9, W-10B, W-10BEB, W-11, W-12, W-14, W-14D, W-17	0.000104	J+ (or UJ if non-detect)
	CCB 280-592825/86		0.000107	
	CCB 280-592825/98		0.000268	
	CCB 280-592825/109		0.000257	
	CCB 280-592825/130		0.000102	
	CCB 280-592825/142		0.000280	
	CCB 280-593209/52	None	0.0000810	None
	CCB 280-293310/105	None	0.0000860	None
	CCB 280-596140/34	MW-5	0.000175	J+
	CCB 280-595811/163	None	0.0000840	None
Boron	CCB 280-594648/29	MW-6	0.00179	None (sample results much higher)
	CCB 280-593129/117	W-10B (D), W-11 (D)	0.00160	
	CCB 280-593129/145		0.00167	
	CCB 280-593129/156		0.00215	None (sample results much higher)
	CCB 280-593627/46	W-3B, W-6B1, W-7, W10B	0.00339	
	CCB 280-596356/17	MW-3, MW-5, W-1	0.00183	
	CCB 280-596356/29		0.00166	
Calcium	CCB 280-592825/109	W-2C, W-3B, W-5B, W-6B1, W-7, W-9, W-10B, W-10BEB, W-11, W-12, W-14, W-14D, W-17	0.0491	None (sample results much higher)
	CCB 280-593209/62	W-10B (D), W-11 (D), W-14 (D), W-14D (D), W-17 (D)	0.0527	
	CCB 280-593209/71		0.0447	
	CCB 280-593209/83		0.0623	
Cobalt	CCB 280-293310/105	None	0.000234	None
Lithium	CCB 280-595031/20	MW-6	0.0154	J+
	CCB 280-595031/34		0.0168	
	CCB 280-595031/47		0.0153	
	CCB 280-593129/145	W-10B (D), W-11 (D)	0.0120	None (sample results much higher)
	CCB 280-593129/156		0.0144	
Magnesium	CCB 280-596140/45	MW-5	0.216	None (sample results much higher)
	CCB 280-596307/71	MW-5	0.180	
	CCB 280-595882/59	MW-3, W-1	0.319	
Molybdenum	CCB 280-593209/33	W-10B (D), W-11 (D), W-14 (D), W-14D (D), W-17 (D)	0.000267	J+
	CCB 280-593310/33	W-11 (D)	0.000267	J+

	CCB 280-592825/98	W-2C, W-3B, W-5B, W-6B1, W-7, W-9, W-10B, W-10BEB, W-11, W-12, W-14, W-14D, W-17	0.000177	J+ (or UJ if non-detect)
	CCB 280-592825/109		0.000212	
Potassium	CCB 280-595427/56	MW-6	0.0632	None (sample results much higher)
	CCB 280-595427/67		0.0560	
	CCB 280-596140/45	MW-5	0.128	
	CCB 280-596307/71	MW-5	0.133	
Selenium	CCB 280-293310/105	W-14 (D), W-14D (D), W-17 (D)	0.000938	None (sample results much higher)
Sodium	CCB 280-592825/74	W-2C, W-3B, W-5B, W-6B1, W-7, W-9, W-10B, W-10BEB, W-11, W-12, W-14, W-14D, W-17	0.0718	None (sample results much higher)
	CCB 280-592825/86		0.102	
	CCB 280-596140/45	MW-5	3.470	
	CCB 280-596307/63	MW-5	0.159	
	CCB 280-596307/71		2.180	
	CCB 280-595882/50	MW-3, W-1	0.0983	
	CCB 280-595882/59		0.863	

From the Case Narrative: “The instrument blank for analytical batch 280-592825 contained 102 ppb Na greater than one-half the reporting limit (RL) of 150 ppb Na, and were not re-analyzed because sample > 10x the blank. The data have been qualified and reported.

An instrument blank (CCB) for analytical batch 280-595882 contained Mg and Na greater than one-half the reporting limit (RL), and were not re-analyzed because samples contained greater than 10x the level in the blank. The data have been qualified and reported.

An instrument blank (CCB) for analytical batch 280-596140 contained K, Mg, and Na greater than one-half the reporting limit (RL). Associated QC samples (MB, LCS) were not re-analyzed because the results were acceptable, they preceded the high CCB and the high results in the CCB were due to carryover from samples run after the QC samples. Reanalysis was not possible because samples are no longer available; analyte requests were added one month later. The data have been qualified and reported.”

Mercury: Mercury was not detected in the ICBs or CCBs. No qualification was required.

Anions: Anions were not detected in the ICBs or CCBs. No qualification was required.

Alkalinity: Alkalinity was detected in the ICBs or CCBs as indicated below.

Analyte	ICB or CCB	Associated Samples	Result (mg/L)	Qualification
Alkalinity and bicarbonate	CCB 595501/29	MW-3, MW-5, W-1	3.33	J+
	CCB 595501/55		3.20	
	CCB 595501/69		5.77	
	CCB 595501/78		3.42	

Radium-226: Not applicable.

Radium-228: Not applicable.

TDS: Not applicable.

TSS: Not applicable.

pH: Not applicable.

V. LABORATORY CONTROL SAMPLES (LCS) and LABORATORY CONTROL SAMPLES DUPLICATE (LCSD)

Metals: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

Mercury: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

Anions: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

Alkalinity: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

TDS: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

TSS: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

Radium-226: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

Radium-228: LCS and LCSD recoveries were within the project control limits of 75-125% except LCS 160-5892632-A recovered at 137%. From the case narrative, "The limits in our LIMS system at (75-125%) reflect the requirements of a regulatory agency that represents a large amount of our work. However the samples associated with this LCS are not from this agency and are therefore held to our in-house statistical limits of (62-148%) per method requirements. The LCS is within criteria and no further action is required." The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

pH: LCS results were within the control limits of 99-101%. No qualification was required.

VI. MATRIX SPIKE / MATRIX SPIKE DUPLICATE (MS/MSD)

No samples were designated on the COC for MS/MSD analysis.

Metals: The lab spiked samples MW-6 and W-2C from this project for boron and lithium, W-16 for boron, MW-5 and W-14D for total metals, W-11 for dissolved metals, and MW-2BD for calcium, magnesium, potassium, and sodium. Results were within control limits except as noted below. Laboratory-generated MS/MSD analyses were outside control limits for barium, calcium, magnesium, potassium, and sodium because the concentration in the unspiked sample exceeded four times the spike amount. No qualification was required.

Analyte	Associated Samples	Recovery (%)	Qualification
Beryllium	MW-5	131	J
Calcium	MW-2BD	0 (spike amount >4x original)	J
	MW-5		J
	W-11 (diss.)		J
	W-14D		J
Magnesium	MW-2BD	6755 (spike amount >4x original)	J
	MW-5	0 (spike amount >4x original)	J
Potassium	MW-2BD	0 (spike amount >4x original)	J
	MW-5		J
Selenium	W-11 (diss.)	25	J
	W-14D	242	J
Sodium	MW-2BD	10530 (spike amount >4x original)	J
	MW-5	0 (spike amount >4x original)	J

Mercury: MS/MSD analysis was performed on sample W-10B for mercury. The results were within the control limits and no qualification was required.

Anions: The lab spiked samples MW-2B and W-14D for chloride and sample W-10BEB for chloride, fluoride, and sulfate. Results for chloride in MW-2B and W-10BEB and sulfate in W-10BEB were outside control limits and required qualification as estimated (J or UJ if non-detect). According to the case narratives,

- Fluoride failed the recovery criteria low for the MS and MSD of sample 280-169545-1 in batch 280-596092.
- Fluoride failed the recovery criteria low for the MS of sample 280-168810-11 in batch 280-594925. Fluoride exceeded the RPD limit for the MSD of sample 280-168810-11 in batch 280-594925.
- Chloride, Fluoride and Sulfate failed the recovery criteria low for the MS of sample 280-168910-6 in batch 280-594925.
- Chloride and Fluoride failed the recovery criteria low for the MSD of sample 280-168910-6 in batch 280-594925.
- Sulfate failed the recovery criteria low for the MS and MSD of sample 280-169085-5 in batch 280-596213. Fluoride failed the recovery criteria high.
- Chloride and Sulfate failed the recovery criteria low for the MS and MSD of sample 280-169569-2 in batch 280-596701.

These samples were not associated with project samples and no qualification was required.

VII. DUPLICATES

FIELD DUPLICATES

Sample MW-2BD was collected as a field duplicate of MW-2B for the Landfill and W-14D was collected as a field duplicate of W-14 for the Bottom Ash Pond.

Metals: FD results were within control limits except three constituents in the Bottom Ash Pond duplicate analysis. Antimony and beryllium required qualification as estimated with high bias (J+) in W-14 and as estimated but not detected (UJ) in the field duplicate W-14D. Arsenic required qualification as estimated but not detected (UJ) in the parent sample W-14 and estimated with high bias (J+) in W-14D.

Anions: FD results were within control limits. No qualification was required.

Alkalinity: FD results were within control limits. No qualification was required.

TDS: FD results were within control limits. No qualification was required.

TSS: FD results had an RPD of 25%, outside control limits for the Landfill field duplicate. MW-2B required qualification as estimated with low bias (J-) and MW-2BD required qualification as estimated with high bias (J+).

Rad-226: FD results were within control limits. No qualification was required.

Rad-228: FD results were within control limits. No qualification was required.

pH: FD results were within control limits. No qualification was required.

LABORATORY DUPLICATES

Metals: Lab duplicate analysis was not performed for metals.

Anions: Lab duplicate analysis was performed on samples MW-2B and W-14 for chloride and on sample W-10BEB for chloride, fluoride, and sulfate. RPDs were within control limits and no qualification was required. The laboratory-generated duplicate results were within control limits and no qualification was required.

Alkalinity: Lab duplicate analysis was not performed on a sample from this project for alkalinity. The laboratory-generated duplicate results were within control limits and no qualification was required.

TDS: Lab duplicate analysis was performed on sample W-14D from this project for TDS. RPDs were within control limits. The laboratory-generated duplicate results were within control limits and no qualification was required.

TSS: Lab duplicate analysis was performed on samples MW-1B, MW-2B, and W-2C from this project for TSS. RPDs were outside control limits for MW-1B and MW-2B and required qualification as estimated (J). The laboratory-generated duplicate results were within control limits and no additional qualification was required.

Rad-226: Lab duplicate analysis was not performed for Rad-226. The LCS/LCSD results were used to assess batch precision.

Rad-228: Lab duplicate analysis was not performed for Rad-228. The LCS/LCSD results were used to assess batch precision.

pH: Lab duplicate analysis was performed on sample W-14D from this project for pH. Results were within control limits. The laboratory-generated duplicate results were within control limits and no qualification was required.

VIII. INTERNAL STANDARDS (ISTD) OR TRACERS

All ISTD and tracer criteria were met except as noted below.

Metals: ISTD areas were greater than 30% of the initial calibration ISTD areas. No qualification was required.

Radium-226: Tracer recoveries in all samples were within limits.

Radium-228: Tracer recoveries in all samples were within limits.

IX. POST DIGESTION SPIKE AND DILUTION TEST

Post-digestion spike (PDS) analyses and serial dilution tests were performed for boron only. Results were within control limits and no qualification was required. The dilution tests were not applicable unless sample results were greater than 50 times the MDL.

Metals: The dilution test was performed for barium, boron, cadmium, calcium, cobalt, lithium, magnesium, molybdenum, potassium, selenium, sodium, and thallium. Results were within control limits and no qualification was required.

X. INTERFERENCE CHECK SAMPLES (ICS)

ICS results were applicable to the Method 6010C and 6020A metals analyses. Results were within required limits of 80-120% except as noted below.

Metals: Recoveries were within required limits except “The interference check standard solution (ICSA) associated with batch 280-592687 had results for one or more elements at a level greater than 2x the Reporting Limit. The ICSA result (2.17 ppb) was >2x the RL (1 ppb) for Ba. The vendor acknowledges that these elements are trace impurities in the ICSA standard. These results are not indicative of a matrix interference.” No qualifications were required.

XI. REPORTING LIMITS (RL) AND METHOD DETECTION LIMITS (MDL)

This phase of the project is the establishment of baseline contaminant levels. RLs are compared, **for internal use only**, against the Colorado drinking water maximum contaminant levels (MCLs), MCL goals (MCLGs), secondary MCLs, and/or action levels (ALs). RLs should be below these levels. MDLs are compared against GPS or UPLs to ensure that the analyses are detecting at least as low as the GPS.

Metals: The RLs are compared to the MCLs, MCLGs, ALs and secondary MCLs in the table below.

Analyte	RL (mg/L)	MDL (mg/L)	MCL or AL (mg/L)	MCLG (mg/L)	Landfill UPL (mg/L)	Bottom Ash Pond GPS (mg/L)
Antimony	0.002	0.0004	0.006 (MCL)	0.006	0.0070	0.006
Arsenic	0.005	0.00033	0.010 (MCL)	Zero	0.21	0.014
Barium	0.001	0.00029	2 (MCL)	2	0.037	2
Beryllium	0.001	0.00008	0.004 (MCL)	0.004	0.0046	0.004
Boron	0.1	0.0015	Not Listed	Not Listed	6.9	None
Cadmium	0.001	0.00027	0.005 (MCL)	0.005	0.025	0.0063
Calcium	10	1.9	Not Listed	Not Listed	630	None
Chromium	0.002	0.0005	0.1 (MCL)	0.1	0.059	0.1
Cobalt	0.001	0.000092	Not Listed	Not Listed	0.051	0.0092
Lead	0.001	0.00018	0.015 (AL)	Zero	0.0092	0.015
Lithium	0.04	0.018	Not Listed	Not Listed	6.3	7.2
Molybdenum	0.002	0.00014	Not Listed	Not Listed	0.017	0.1
Selenium	0.005	0.00037	0.05 (MCL)	0.05	2.9	4.0
Thallium	0.001	0.000089	0.002 (MCL)	0.0005	0.0076	0.0062

Mercury: The RL of 0.2 µg/L is below the MCL and MCLG of 0.02 mg/L (20 µg/L). RL is above the MDL of 0.11 µg/L. The UPL at the Landfill is 0.00024 mg/L and the GPS at the BAP is 0.002 mg/L.

Anions: The RLs of 3 mg/L, 0.5 mg/L and 5 mg/L for chloride, fluoride and sulfate respectively are below the secondary MCLs of 250 mg/L, 2.0 mg/L, and 250 mg/L, respectively. The RLs are above the MDLs of 1 mg/L, 0.17 mg/L, and 1 mg/L, respectively. The UPLs at the Landfill are 460 mg/L, 84 mg/L, and 69,000 mg/L, respectively. The GPS at the BAP for fluoride is 570 mg/L.

TDS: The RL is 10 mg/L; The Colorado drinking water standard is 400 mg/L or 1.25 times the background level, whichever is least restrictive. The RL is above the MDL of 4.7 mg/L. The UPL is 120,000 mg/L.

TSS: The RL is 4 mg/L; there are no Colorado drinking water standards for TSS. The RL is above the MDL of 1.1 mg/L.

Radium 226: The RL of 1.0 picocurie per liter (pCi/L) is below the MCL of 5.0 pCi/L for combined radium 226 and radium 228. The UPL for combined radium at the Landfill is 8.28 pCi/L and the GPS for combined radium at the BAP is 8.15 pCi/L. "The following sample(s) did not meet the requested limit (RL) due to the reduced sample volume attributed to the presence of matrix interference. During preparation the analyst visually noted matrix effects. The data have been reported with this narrative.

W-11 (280-168613-8). The detection goal was not met for the following sample(s). Samples were prepped at a reduced volume due to the presence of matrix interferences: W-6B1 (280-168613-4) and W-9 (280-168613-6). Analytical results are reported with the detection limit achieved.”

Radium 228: The RL of 1.0 picocurie per liter (pCi/L) is below the MCL of 5.0 pCi/L for combined radium 226 and radium 228. The UPL for combined radium at the Landfill is 8.28 pCi/L and the GPS for combined radium at the BAP is 8.15 pCi/L. “The following sample(s) did not meet the requested limit (RL) due to the reduced sample volume attributed to the presence of matrix interference. During preparation the analyst visually noted matrix effects. The data have been reported with this narrative. W-11 (280-168613-8). The detection goal was not met for the following sample(s). Samples were prepped at a reduced volume due to the presence of matrix interferences: W-6B1 (280-168613-4) and W-9 (280-168613-6). Analytical results are reported with the detection limit achieved.”

pH: The Colorado drinking water standard is pH value of 6.5 to 8.5.

XII. SAMPLE RESULTS / TRANSCRIPTION VERIFICATION

Transcription between the data package and the EDDs was verified. Sample results reported between the MDL and RL were qualified as estimated (J).

Metals: No issues.

Mercury: No issues.

Anions: No issues.

Alkalinity:

TDS: No issues.

TSS: No issues.

Rad-226: The sample collection time was not recorded on the sample container received. Logged per the COC: W-17 (280-168612-2).

Rad-228: The sample collection time was not recorded on the sample container received. Logged per the COC: W-17 (280-168612-2).

pH: Sample did not equilibrate to within 0.05 pH units after three measurements. This was observed in a previous analysis thus the sample was not rerun: W-10BEB (280-168613-10)

XIII. PARCCS PARAMETERS AND DATA USABILITY

Data were usable as discussed below.

The data quality indicators (DQIs), expressed in terms of precision, accuracy, representativeness, comparability, completeness, and sensitivity (PARCCS parameters), were assessed. This included the evaluation of sample integrity, holding times, trip blanks, rinsate blanks, method blanks, internal standards, surrogate recoveries, MS/MSD recoveries, LCS/Ds, and field duplicate precision. The results of the DQI assessment are provided below.

PRECISION

Field duplicates are collected to assess sampling precision. Lab duplicates, LCS/Ds, and MS/Ds are

analyzed to assess analysis precision. Precision is best expressed in terms of relative percent difference (RPD).

Lab precision goals were nearly met. Lab duplicates, LCS/LCSD, and MS/MSD RPDs were within control limits except a TSS lab duplicate outside control limits.

Field precision goals were nearly met in that field duplicate/parent pair RPDs were within control limits except antimony, arsenic, beryllium, and TSS.

ACCURACY

Accuracy or bias is measured through the analyses of LCS/Ds and MS/MSDs. Sample specific accuracy is measured through surrogate recovery. Accuracy is expressed as percent recovery (%R).

Field accuracy goals were nearly met in that MS/MSD recoveries were within control limits except beryllium, calcium, magnesium, potassium, selenium, sodium, chloride, and sulfate.

Lab accuracy goals were met in that LCS/LCSD recoveries were within control limits.

REPRESENTATIVENESS

Representativeness refers to the degree sample data accurately and precisely describes the population of samples at a sampling point or under certain environmental conditions. Samples that are not properly preserved or are analyzed beyond holding times may not be considered representative. Review of sampling procedures, laboratory preparation, analysis holding times, trip blank and rinsate blank analysis help in providing this assessment.

Representativeness goals were generally met. Samples were collected at predetermined locations according to the project plan.

Representativeness goals were not met in these instances:

- All pH and temperature results required qualification as estimated (J) due to analysis past the holding time;
- Chloride in three samples, fluoride in 16 samples, and sulfate in 19 samples required qualification as estimated (J or UJ if non-detect) due to analysis past the holding time;
- TDS in eight samples and TSS in eight samples required qualification as estimated (J or UJ if non-detect) due to analysis past the holding time;
- Arsenic and cadmium in two samples required qualification as estimated with high bias (J+) due to detection in a MB;
- TSS, Rad-226, and combined radium in one sample required qualification as estimated with high bias (J+) due to detection in the EB;
- Beryllium in 14 samples, lithium in one sample, dissolved molybdenum in five samples, and total molybdenum in 13 samples required qualification as estimated with high bias (J+ or UJ if non-detect) due to detection in a CCB;
- Alkalinity and bicarbonate in three samples required qualification as estimated with high bias (J+ or UJ if non-detect) due to detection in a CCB;

- Beryllium in one sample, dissolved selenium in one sample, and total selenium in one sample required qualification as estimated (J) due to MS/MSD recoveries outside control limits;
- Calcium in four samples, magnesium in two samples, potassium in two samples, and sodium in two samples required qualification as estimated (J) due to MS/MSD recoveries outside control limits. The accuracy of these analytes could not be verified;
- Chloride and sulfate in one sample and chloride in another sample required qualification as estimated (J) due to MS/MSD recoveries outside control limits;
- Antimony and beryllium required qualification as estimated with high bias (J+) in the parent sample and as estimated but not detected (UJ) in the field duplicate due to RPDs outside control limits in a parent/field duplicate pair;
- Arsenic required qualification as estimated but not detected (UJ) in the parent sample and as estimated with high bias (J+) in the field duplicate due to RPDs outside control limits in a parent/field duplicate pair;
- TSS required qualification as estimated with low bias (J-) in the parent sample and as estimated with high bias (J+) in the field duplicate due to RPDs outside control limits in a parent/field duplicate pair;
- TSS in two samples required qualification as estimated (J) due to laboratory duplicate RPDs outside control limits.

COMPARABILITY

The selection of standardized methods and consistent laboratory practices facilitates the comparison of data between sampling events.

Comparability goals were met. Samples were analyzed by standardized methods (SW-846 and Standards Methods). Future sampling events will be analyzed by the same methods at the same labs to achieve comparability.

COMPLETENESS

Completeness is determined for both field and analytical objectives. Field completeness is calculated from the number of samples proposed versus the actual number of samples collected. Analytical completeness is expressed in terms of usable data.

Field completeness goals were met. All ten planned wells were sampled.

Lab completeness goals were met. No data were rejected. Of the planned 23 samples for analysis, all 23 were analyzed for all analytes.

SENSITIVITY

Analytical sensitivity is the concentration at which the measurement system can quantitate target analytes in the environmental matrices of concern. Analytical sensitivity is expressed in terms of the RL, which is provided by the respective laboratories as their reasonable and defensible quantitation limit for environmental samples above the MDL, which is established by each laboratory using pure water or clean matrix.

Sensitivity goals were met. The MDLs were $\leq$ one-half the RLs except for pH and Rad-228. This

phase of the project is the establishment of baseline contaminant levels, and project RLs were compared to the Colorado drinking water maximum contaminant levels (MCLs), MCL goals (MCLGs), secondary MCLs, and/or action levels (ALs). RLs were at or below these levels.

Metals: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Mercury: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Anions: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Alkalinity: No data were rejected. Data required minimal qualification. All data are usable as qualified.

TDS: No data were rejected. Data required minimal qualification. All data are usable as qualified.

TSS: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Rad-226: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Rad-228: No data were rejected. Data required minimal qualification. All data are usable as qualified.

pH: No data were rejected. All data are usable as qualified.

DATA VALIDATION AND USABILITY REPORT

Metals by USEPA SW-846 Method 6010C/6020A

Mercury by USEPA SW-846 Method 7470A

Anions by USEPA SW-846 Method 9056A

Total Dissolved Solids (TDS) by Standard Method SM2540C

Total Suspended Solids (TSS) by Standard Method SM2540D

Radium-226 (Ra-226) by USEPA SW-846 Method 9315

Radium-228 (Ra-228) by USEPA SW-846 Method 9320

pH by USEPA SW-846 Method 9040B

Alkalinity by Standard Method SM2320B

Project: Xcel Energy Coal Combustion Residuals (CCR) Project –
Comanche - December 2022

Project/Task Number: 10279361-001

Sample Data Package: 280-170243-1, 280-170243-2
Lab Report Dates: 1/4/23, 1/13/23
Data Validation Report Date: 1/18/23

Laboratory: TestAmerica Denver, Arvada, Colorado (metals, anions, TDS, TSS, pH, alkalinity);
TestAmerica Saint Louis, Earth City, Missouri (radiochem)

Sample Matrix: Groundwater

Sampling Dates: December 8-9, 2022

Validation Guidelines: Project Plan (*Statistical Method Certification for Compliance with the Coal Combustion Residuals [CCR] Rule, for Xcel Energy [HDR, December 7, 2015]*), United States Environmental Protection Agency (USEPA) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd edition (SW-846); USEPA *National Functional Guidelines for Inorganic Data Review*, USEPA-540-R-10-011, January 2010; USEPA *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use*, USEPA 540-R-08-005, January 13, 2009; and professional judgment

Validation Level: Stage 2BVM (100%)

Data Reviewer: Aryka Thomson, HDR

Sample ID	Matrix	Lab ID	Date Collected	Metals Mercury	Anions	TDS TSS	RA-226 RA-228	Alkalinity	Dissolved Metals
MW-8	GW	280-170243-1	12/08/2022	X	X	X	X	X	X
MW-9	GW	280-170243-2	12/09/2022	X	X	X	X	X	

SUMMARY

All laboratory data were acceptable with qualification.

I. SAMPLE RECEIPT / CHAIN OF CUSTODY

Samples were shipped or hand-delivered to the TestAmerica Denver facility, who then forwarded the appropriate sample containers to the other facilities. Samples were received at 0.1°C, within the EPA recommended temperature range of 0-6°C.

II. HOLDING TIMES

Holding time criteria were generally met except as noted below.

Metals: Samples were analyzed within 180 days of collection.

Mercury: Samples were analyzed within 28 days of collection.

Anions: Samples were analyzed within 28 days of collection.

Alkalinity: Samples were analyzed within 14 days of collection

TDS: Samples were analyzed within 7 days of collection.

TSS: Samples were analyzed within 7 days of collection except MW-9, which required qualification as estimated (J).

Radium-226: Sample had ingrowth times of at least 21 days.

Radium-228: Sample had ingrowth times of at least 36 hours.

pH: Sample was analyzed more than 24 hours after collection. The method states the samples are to be analyzed “as soon as possible.” All sample results have been qualified as estimated (J).

III. INSTRUMENT CALIBRATION

INITIAL CALIBRATIONS

Metals: Initial calibration criteria were met. One standard and a blank comprised the calibration. No qualification was required.

Mercury: Initial calibration criteria were met. The fit of the curve was ≥ 0.995 and the low standard was below the RL. No qualification was required.

Anions: Initial calibration criteria were met. No qualification was required.

Alkalinity: Initial calibration criteria were met. No qualification was required.

TDS: Not applicable. Analysis was gravimetric.

TSS: Not applicable. Analysis was gravimetric.

Radium-226: Not applicable.

Radium-228: Not applicable.

pH: The instrument was properly standardized using five buffer solutions. The correlation coefficient of the curve was 1.000. No qualification was required.

SECOND SOURCE STANDARDS

Metals: Second source standard criteria were met. All analytes had %D values less than 10%. No qualification was required.

Mercury: Second source standard criteria were met. All analytes had %D values less than 10%. No qualification was required.

Anions: Second source standard criteria were met. All analytes had %D values less than 10%. No qualification was required.

Alkalinity: Not applicable.

TDS: Not applicable. Analysis was gravimetric.

TSS: Not applicable. Analysis was gravimetric.

Radium-226: Not applicable.

Radium-228: Not applicable.

pH: Second source standard criteria were met. pH results were within limits. No qualification was required.

CONTINUING CALIBRATIONS

Metals: Continuing calibration criteria were nearly met. All analytes had %D values less than 10% except "The continuing calibration verification (CCV) associated with batch 280-598120 recovered (111%) above the upper control limit (110%) for Be. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: MW-8 (280-170243-1) and (CCV 280-598120/57). MW-8 required qualification as estimated but not detected (UJ) for beryllium.

Mercury: Continuing calibration criteria were met. All analytes had %D values less than 10%. No qualification was required.

Anions: Continuing calibration criteria were met. All analytes had %D values less than 10%. No qualification was required.

Alkalinity: Continuing calibration criteria were met. All analytes had %D values less than 10%. No qualification was required.

TDS: Not applicable. Analysis was gravimetric.

TSS: Not applicable. Analysis was gravimetric.

Radium-226: Not applicable.

Radium-228: Not applicable.

pH: Continuing calibration criteria were met. pH results were within limits. No qualification was required.

IV. BLANKS

Target analytes were not detected in the blanks except as noted below.

METHOD BLANKS (MB) AND EQUIPMENT BLANK (EB)

An equipment blank was not collected as a part of this batch. See the Data Validation and Usability Report for Valmont Station December 2022 data.

Metals: Metals were detected in the MBs.

Method Blank or Equipment Blank	Analyte	Result (mg/L)	Affected Samples	Qualifier
MB 280-5966831-A	Barium	0.000362	MW-8, MW-9	J+
MB 280-5966931-A	Boron (total)	0.00289	MW-8, MW-9	None (sample results much higher)
MB 280-5968901-B	Boron (dissolved)	0.00196	MW-8	None (sample results much higher)
MB 280-5966831-A	Molybdenum	0.000141	MW-8, MW-9	J+

Mercury: Mercury was not detected in the MBs. No qualification was required.

Anions: Anions were not detected in the MBs. No qualification was required.

Alkalinity: Bicarbonate and alkalinity were detected in the MBs.

Method Blank or Equipment Blank	Analyte	Result (mg/L)	Affected Samples	Qualifier
MB 280-59662332	Alkalinity and bicarbonate	4.46	MW-8, MW-9	J+
MB 280-5966236	Alkalinity	3.43	MW-8, MW-9	J+
MB 280-5966236	Bicarbonate	3.21	MW-8, MW-9	J+

TDS: TDS was not detected in the MBs. No qualification was required.

TSS: TSS was not detected in the MBs. No qualification was required.

Radium-226: Rad-226 was not detected in the MBs. No qualification was required.

Radium-228: Rad-228 was not detected in the MBs. No qualification was required.

pH: Not applicable.

INITIAL AND CONTINUING CALIBRATION BLANKS (ICB and CCB)

Metals: Metals were detected in the ICBs or CCBs as indicated below:

Analyte	ICB or CCB	Associated Samples	Result (mg/L)	Qualification
Beryllium	CCB 280-598120/36	MW-8 (D), MW-8, MW-9	0.000100	J+ (or UJ if non-detect)
	CCB 280-598120/49		0.000152	
	CCB 280-598120/58		0.000160	
Boron	CCB 280-598404/18	MW-8 (D)	0.00465	None (sample results much higher)
	CCB 280-598404/23		0.00181	
	CCB 280-598404/28		0.00750	
	CCB 280-597466/41	None	0.00195	None
	CCB 280-597466/55		0.00201	
Lead	CCB 280-597258/66	MW-8, MW-9	0.000273	J+
Molybdenum	CCB 280-597253/42	MW-8, MW-9	0.000242	None

Mercury: Mercury was not detected in the ICBs or CCBs. No qualification was required.

Anions: Anions were not detected in the ICBs or CCBs. No qualification was required.

Alkalinity: Alkalinity and bicarbonate were detected in CCB 596628/44 at 5.35 mg/L. MW-8 and MW-9 required qualification as estimated with high bias (J+).

Radium-226: Not applicable.

Radium-228: Not applicable.

TDS: Not applicable.

TSS: Not applicable.

pH: Not applicable.

V. LABORATORY CONTROL SAMPLES (LCS) and LABORATORY CONTROL SAMPLES DUPLICATE (LCSD)

Metals: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

Mercury: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

Anions: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

Alkalinity: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

TDS: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

TSS: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

Radium-226: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

Radium-228: LCS and LCSD recoveries were within the project control limits of 75-125%. The RPDs were within the control limit of 20% as suggested in the Functional Guidelines. No qualification was required.

pH: LCS results were within the control limits of 99-101%. No qualification was required.

VI. MATRIX SPIKE / MATRIX SPIKE DUPLICATE (MS/MSD)

No samples were designated on the COC for MS/MSD analysis.

Metals: The lab spiked sample MW-9 from this project for metals. Results were within control limits except calcium, magnesium, and sodium because the concentration in the unspiked sample exceeded four times the spike amount. These analytes were qualified as estimated (J) in MW-9. Laboratory-generated MS/MSD analyses were within control limits except calcium, potassium, and sodium, whose concentrations in the unspiked sample exceeded four times the spike amount (specified below).

- Boron and Lithium failed the recovery criteria low for the MS of sample 280-169949-3 in batch 280-597034.
- Calcium and Sodium failed the recovery criteria low for the MS and the MSD of sample 280-169541-1 in batch 280-597566.
- Potassium failed the recovery criteria low for the MS and the MSD of sample 280-170710-1 in batch 280-598120.

These samples were not associated with project samples, so no qualification was required.

Mercury: The lab did not spike samples from this project for mercury. The results of laboratory-generated MS/MSD analyses were within the control limits and no qualification was required.

Anions: The lab did not spike samples from this project for anions. Results for laboratory-generated MS/MSD analyses were within control limits except as noted below:

- Chloride and Fluoride failed the recovery criteria low for the MS and the MSD of sample 280-170192-5 in batch 280-597496.

These samples were not associated with project samples and no qualification was required.

VII. DUPLICATES

FIELD DUPLICATES

A field duplicate was not collected as a part of this batch. See the Data Validation and Usability Report for Valmont Station December 2022 data.

LABORATORY DUPLICATES

Metals: Lab duplicate analysis was not performed for metals.

Anions: Lab duplicate analysis was not performed on a sample from this project for anions. The

laboratory-generated duplicate results were within control limits and no qualification was required.

Alkalinity: Lab duplicate analysis was not performed on a sample from this project for alkalinity. The laboratory-generated duplicate results were within control limits and no qualification was required.

TDS: Lab duplicate analysis was not performed on a sample from this project for TDS. The laboratory-generated duplicate results were within control limits and no qualification was required.

TSS: Lab duplicate analysis was not performed on a sample from this project for TSS. The laboratory-generated duplicate results were within control limits and no additional qualification was required.

Rad-226: Lab duplicate analysis was not performed for Rad-226. The LCS/LCSD results were used to assess batch precision.

Rad-228: Lab duplicate analysis was not performed for Rad-228. The LCS/LCSD results were used to assess batch precision.

pH: Lab duplicate analysis was not performed on a sample from this project for pH. The laboratory-generated duplicate results were within control limits and no qualification was required.

VIII. INTERNAL STANDARDS (ISTD) OR TRACERS

All ISTD and tracer criteria were met except as noted below.

Metals: ISTD areas were greater than 30% of the initial calibration ISTD areas. No qualification was required.

Radium-226: Tracer recoveries in all samples were within limits.

Radium-228: Tracer recoveries in all samples were within limits.

IX. POST DIGESTION SPIKE AND DILUTION TEST

Post-digestion spike (PDS) analyses and serial dilution test results were within control limits except calcium and potassium. These analyses were not associated with project samples and no qualification was required. The dilution tests were not applicable unless sample results were greater than 50 times the MDL.

Metals: The dilution test was performed for barium, boron, calcium, cobalt, lithium, magnesium, molybdenum, potassium, selenium, sodium, and thallium. Results were within control limits and no qualification was required.

X. INTERFERENCE CHECK SAMPLES (ICS)

ICS results were applicable to the Method 6010C and 6020A metals analyses. Results were within required limits of 80-120% except as noted below.

Metals: Recoveries were within required limits except “The interference check standard solution (ICSA) associated with batch[es] 280-598120 [and 280-598107] had results for one or more elements at a level greater than 2 times the Reporting Limit. The following are the affected analytes: Ba. The vendor acknowledges that these elements are trace impurities in the ICSA standard. These results are not indicative of a matrix interference.” No qualifications were required.

XI. REPORTING LIMITS (RL) AND METHOD DETECTION LIMITS (MDL)

This phase of the project is the establishment of baseline contaminant levels. RLs are compared, **for internal use only**, against the Colorado drinking water maximum contaminant levels (MCLs), MCL goals (MCLGs), secondary MCLs, and/or action levels (ALs). RLs should be below these levels. MDLs are compared against GPS or UPLs to ensure that the analyses are detecting at least as low as the GPS.

Metals: The RLs are compared to the MCLs, MCLGs, ALs and secondary MCLs in the table below.

Analyte	RL (mg/L)	MDL (mg/L)	MCL or AL (mg/L)	MCLG (mg/L)	Landfill UPL (mg/L)	Bottom Ash Pond GPS (mg/L)
Antimony	0.002	0.0004	0.006 (MCL)	0.006	0.0070	0.006
Arsenic	0.005	0.00033	0.010 (MCL)	Zero	0.21	0.014
Barium	0.001	0.00029	2 (MCL)	2	0.037	2
Beryllium	0.001	0.00008	0.004 (MCL)	0.004	0.0046	0.004
Boron	0.1	0.0015	Not Listed	Not Listed	6.9	None
Cadmium	0.001	0.00027	0.005 (MCL)	0.005	0.025	0.0063
Calcium	10	1.9	Not Listed	Not Listed	630	None
Chromium	0.002	0.0005	0.1 (MCL)	0.1	0.059	0.1
Cobalt	0.001	0.000092	Not Listed	Not Listed	0.051	0.0092
Lead	0.001	0.00018	0.015 (AL)	Zero	0.0092	0.015
Lithium	0.02	0.0091	Not Listed	Not Listed	6.3	7.2
Molybdenum	0.002	0.00014	Not Listed	Not Listed	0.017	0.1
Selenium	0.005	0.00037	0.05 (MCL)	0.05	2.9	4.0
Thallium	0.001	0.000089	0.002 (MCL)	0.0005	0.0076	0.0062

Mercury: The RL of 0.2 µg/L is below the MCL and MCLG of 0.02 mg/L (20 µg/L). RL is above the MDL of 0.061 µg/L. The UPL at the Landfill is 0.00024 mg/L and the GPS at the BAP is 0.002 mg/L.

Anions: The RLs of 3 mg/L, 0.5 mg/L and 5 mg/L for chloride, fluoride and sulfate respectively are below the secondary MCLs of 250 mg/L, 2.0 mg/L, and 250 mg/L, respectively. The RLs are above the MDLs of 1 mg/L, 0.17 mg/L, and 1 mg/L, respectively. The UPLs at the Landfill are 460 mg/L, 84 mg/L, and 69,000 mg/L, respectively. The GPS at the BAP for fluoride is 570 mg/L.

TDS: The RL is 10 mg/L; The Colorado drinking water standard is 400 mg/L or 1.25 times the background level, whichever is least restrictive. The RL is above the MDL of 4.7 mg/L. The UPL is 120,000 mg/L.

TSS: The RL is 4 mg/L; there are no Colorado drinking water standards for TSS. The RL is above the MDL of 1.1 mg/L.

Radium 226: The RL of 1.0 picocurie per liter (pCi/L) is below the MCL of 5.0 pCi/L for combined radium 226 and radium 228. The UPL for combined radium at the Landfill is 8.28 pCi/L and the GPS for combined radium at the BAP is 8.15 pCi/L.

Radium 228: The RL of 1.0 picocurie per liter (pCi/L) is below the MCL of 5.0 pCi/L for combined radium 226 and radium 228. The UPL for combined radium at the Landfill is 8.28 pCi/L and the GPS for combined radium at the BAP is 8.15 pCi/L. “The following sample did not meet the requested limit (RL) due to the reduced sample volume attributed to the presence of matrix interference: MW-8 (280-170243-1). During preparation the analyst visually noted matrix effects. The data have been reported with this narrative.”

pH: The Colorado drinking water standard is pH value of 6.5 to 8.5.

XII. SAMPLE RESULTS / TRANSCRIPTION VERIFICATION

Transcription between the data package and the EDDs was verified. Sample results reported between the MDL and RL were qualified as estimated (J).

Metals: No issues.

Mercury: No issues.

Anions: No issues.

Alkalinity: No issues.

TDS: No issues.

TSS: No issues.

Rad-226: No issues.

Rad-228: No issues.

pH: No issues.

XIII. PARCCS PARAMETERS AND DATA USABILITY

Data were usable as discussed below.

The data quality indicators (DQIs), expressed in terms of precision, accuracy, representativeness, comparability, completeness, and sensitivity (PARCCS parameters), were assessed. This included the evaluation of sample integrity, holding times, trip blanks, rinsate blanks, method blanks, internal standards, surrogate recoveries, MS/MSD recoveries, LCS/Ds, and field duplicate precision. The results of the DQI assessment are provided below.

PRECISION

Field duplicates are collected to assess sampling precision. Lab duplicates, LCS/Ds, and MS/Ds are analyzed to assess analysis precision. Precision is best expressed in terms of relative percent difference (RPD).

Lab precision goals were met. Lab duplicates, LCS/LCSD, and MS/MSD RPDs were within control limits.

Field precision goals were not assessed as a part of this batch.

ACCURACY

Accuracy or bias is measured through the analyses of LCS/Ds and MS/MSDs. Sample specific accuracy is measured through surrogate recovery. Accuracy is expressed as percent recovery (%R).

Field accuracy goals were nearly met in that MS/MSD recoveries were within control limits except calcium, magnesium, and sodium.

Lab accuracy goals were met in that LCS/LCSD recoveries were within control limits.

REPRESENTATIVENESS

Representativeness refers to the degree sample data accurately and precisely describes the population of samples at a sampling point or under certain environmental conditions. Samples that are not properly preserved or are analyzed beyond holding times may not be considered representative. Review of sampling procedures, laboratory preparation, analysis holding times, trip blank and rinsate blank analysis help in providing this assessment.

Representativeness goals were generally met. Samples were collected at predetermined locations according to the project plan.

Representativeness goals were not met in these instances:

- All pH and temperature results required qualification as estimated (J) due to analysis past the holding time;
- TSS in one sample required qualification as estimated (J) due to analysis past the holding time;
- Beryllium in one sample required qualification as estimated but not detected (UJ) due to a CCV %D greater than 10%;
- Barium and molybdenum in two samples required qualification as estimated with high bias (J+) due to detection in a MB;
- Alkalinity and bicarbonate in two samples required qualification as estimated with high bias (J+) due to detection in a MB;
- Lead in two samples, total beryllium in two samples, and dissolved beryllium in one sample required qualification as estimated with high bias (J+ or UJ if non-detect) due to detection in a CCB;
- Alkalinity and bicarbonate in two samples required qualification as estimated with high bias (J+) due to detection in a CCB;
- Calcium, magnesium, and potassium in one sample required qualification as estimated (J) due to MS/MSD recoveries outside control limits. The accuracy of these analytes could not be verified.

COMPARABILITY

The selection of standardized methods and consistent laboratory practices facilitates the comparison

of data between sampling events.

Comparability goals were met. Samples were analyzed by standardized methods (SW-846 and Standards Methods). Future sampling events will be analyzed by the same methods at the same labs to achieve comparability.

COMPLETENESS

Completeness is determined for both field and analytical objectives. Field completeness is calculated from the number of samples proposed versus the actual number of samples collected. Analytical completeness is expressed in terms of usable data.

Field completeness goals were met. Both planned wells were sampled.

Lab completeness goals were met. No data were rejected. Of the planned two samples for analysis, both were analyzed for all analytes.

SENSITIVITY

Analytical sensitivity is the concentration at which the measurement system can quantitate target analytes in the environmental matrices of concern. Analytical sensitivity is expressed in terms of the RL, which is provided by the respective laboratories as their reasonable and defensible quantitation limit for environmental samples above the MDL, which is established by each laboratory using pure water or clean matrix.

Sensitivity goals were met. The MDLs were $\leq$ one-half the RLs except for pH, Rad-226, and Rad-228. This phase of the project is the establishment of baseline contaminant levels, and project RLs were compared to the Colorado drinking water maximum contaminant levels (MCLs), MCL goals (MCLGs), secondary MCLs, and/or action levels (ALs). RLs were at or below these levels.

Metals: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Mercury: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Anions: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Alkalinity: No data were rejected. Data required minimal qualification. All data are usable as qualified.

TDS: No data were rejected. Data required minimal qualification. All data are usable as qualified.

TSS: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Rad-226: No data were rejected. Data required minimal qualification. All data are usable as qualified.

Rad-228: No data were rejected. Data required minimal qualification. All data are usable as qualified.

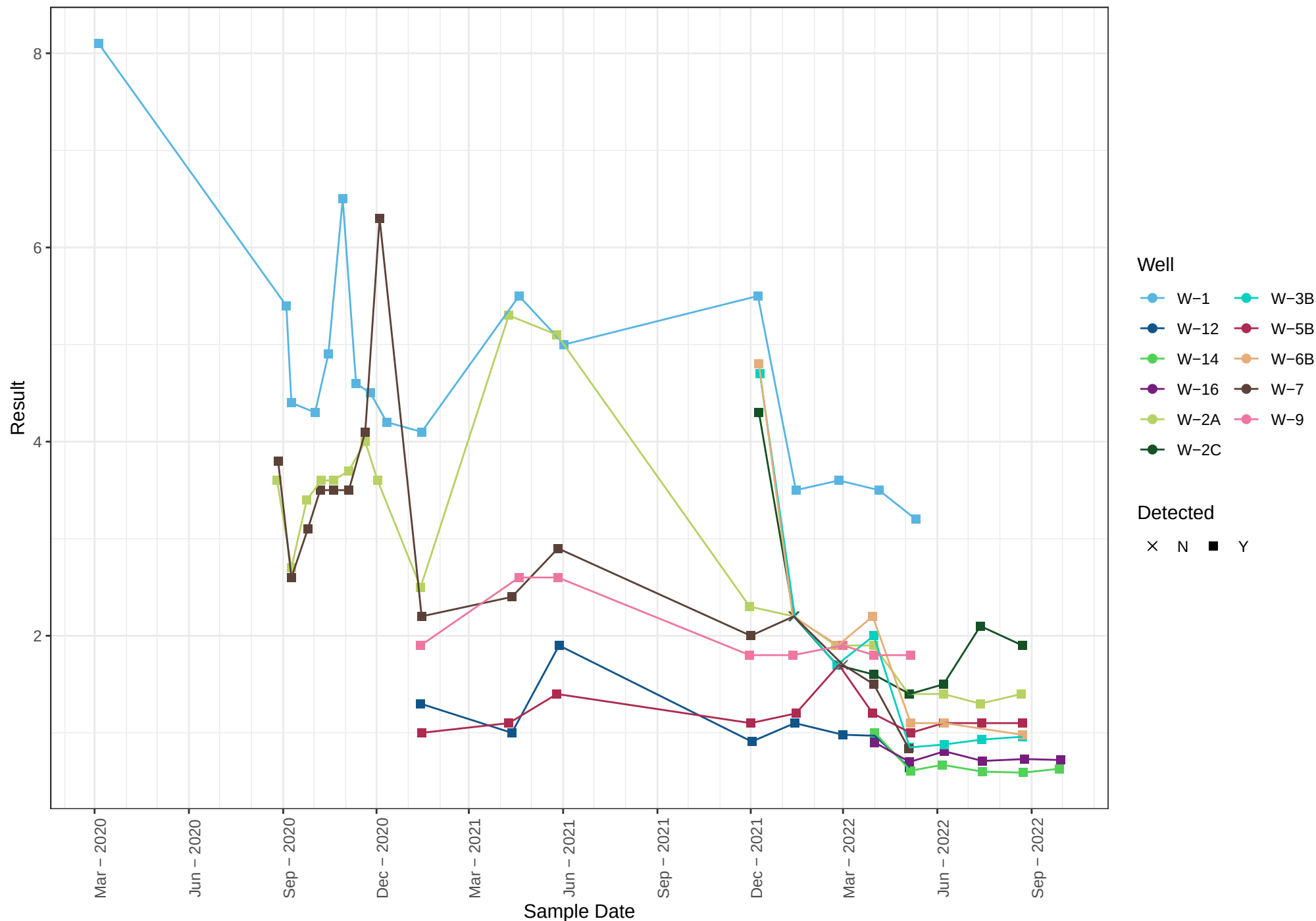
pH: No data were rejected. All data are usable as qualified.

Appendix C

**Water Quality Graphs for Constituents in
Appendix III**

Comanche – Bottom Ash Pond Wells

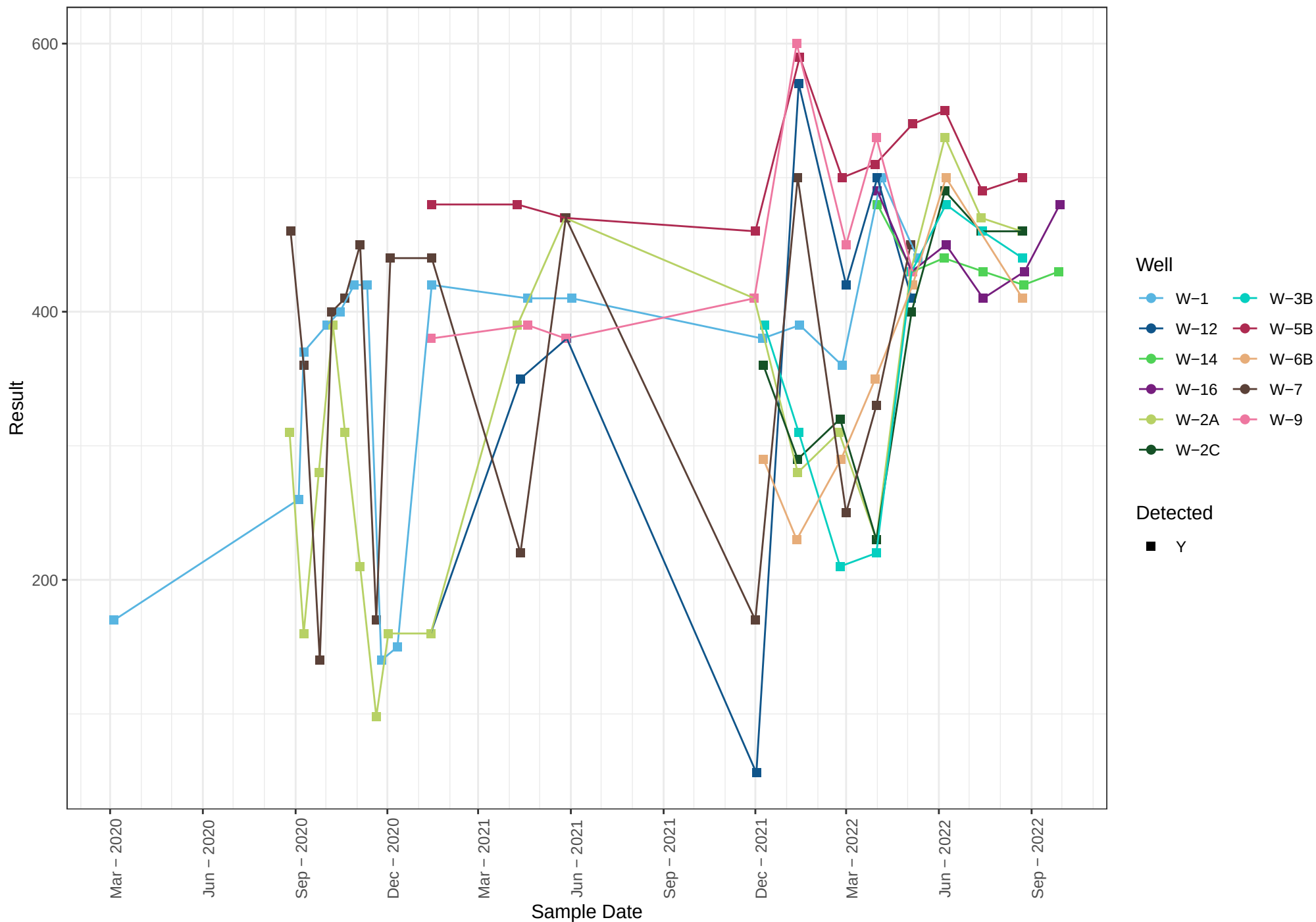
Boron (mg/l)



Method detection limit shown for non-detects

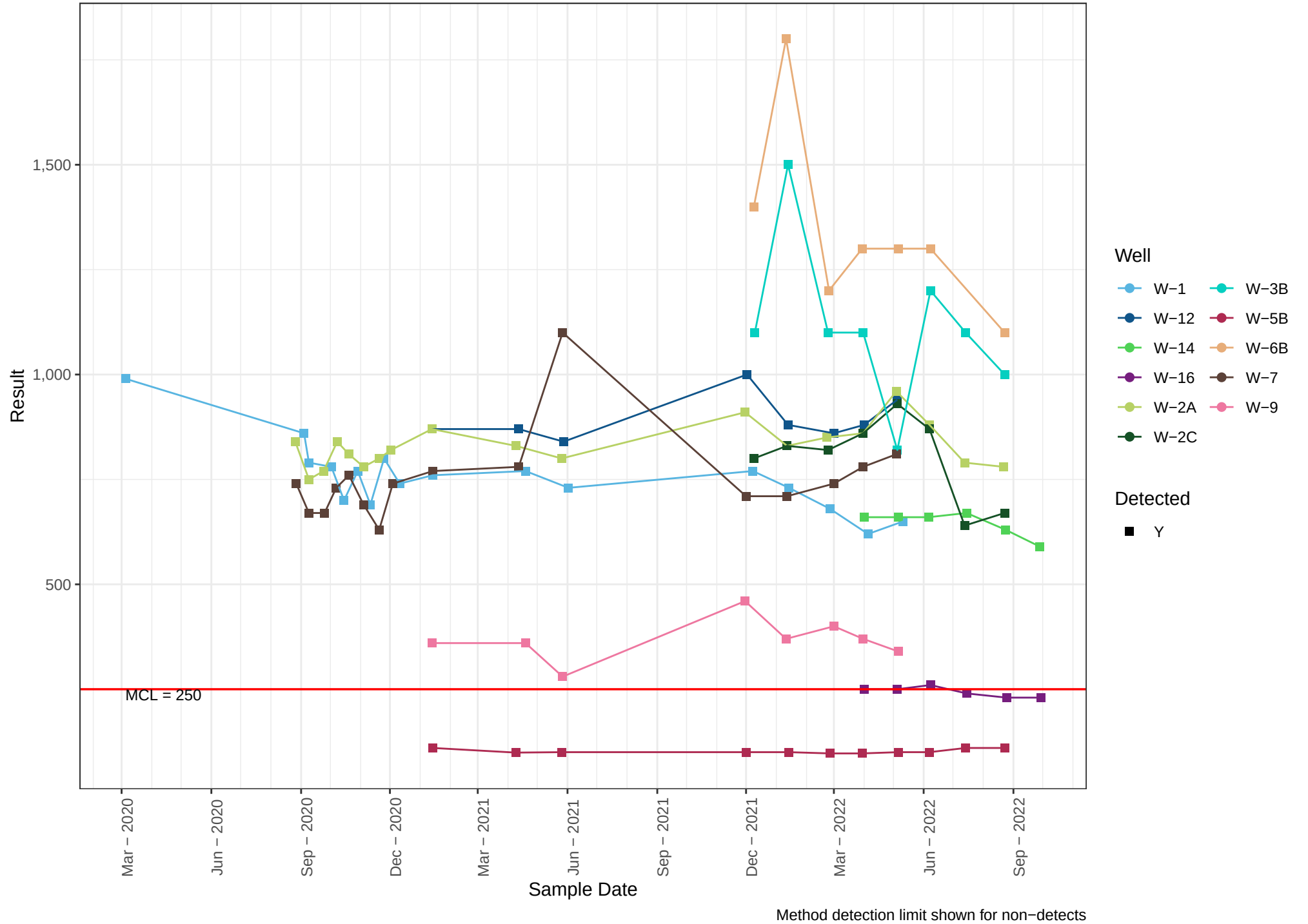
Comanche – Bottom Ash Pond Wells

Calcium (mg/l)



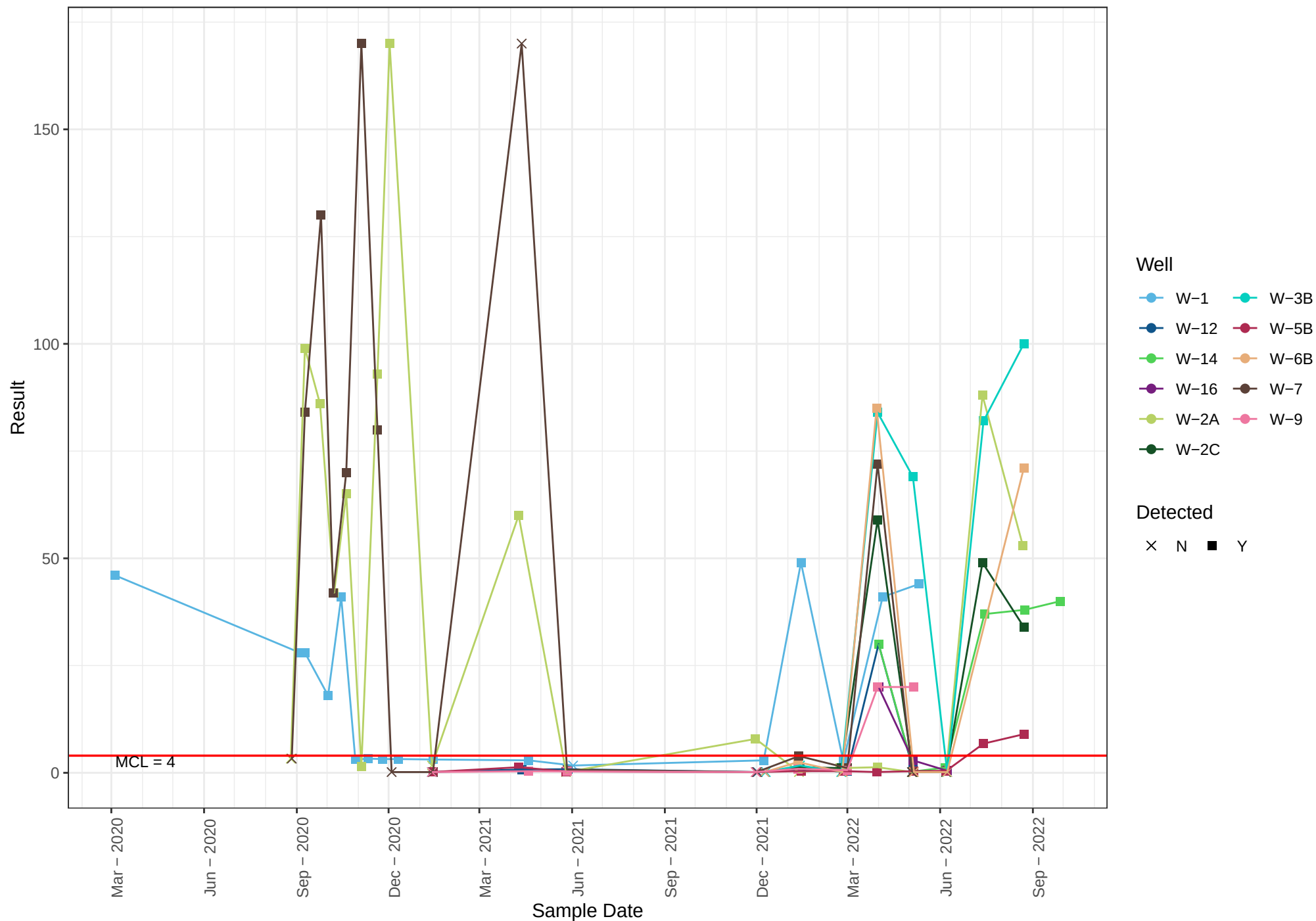
Method detection limit shown for non-detects

Comanche – Bottom Ash Pond Wells
Chloride (as Cl) (mg/l)



Comanche – Bottom Ash Pond Wells

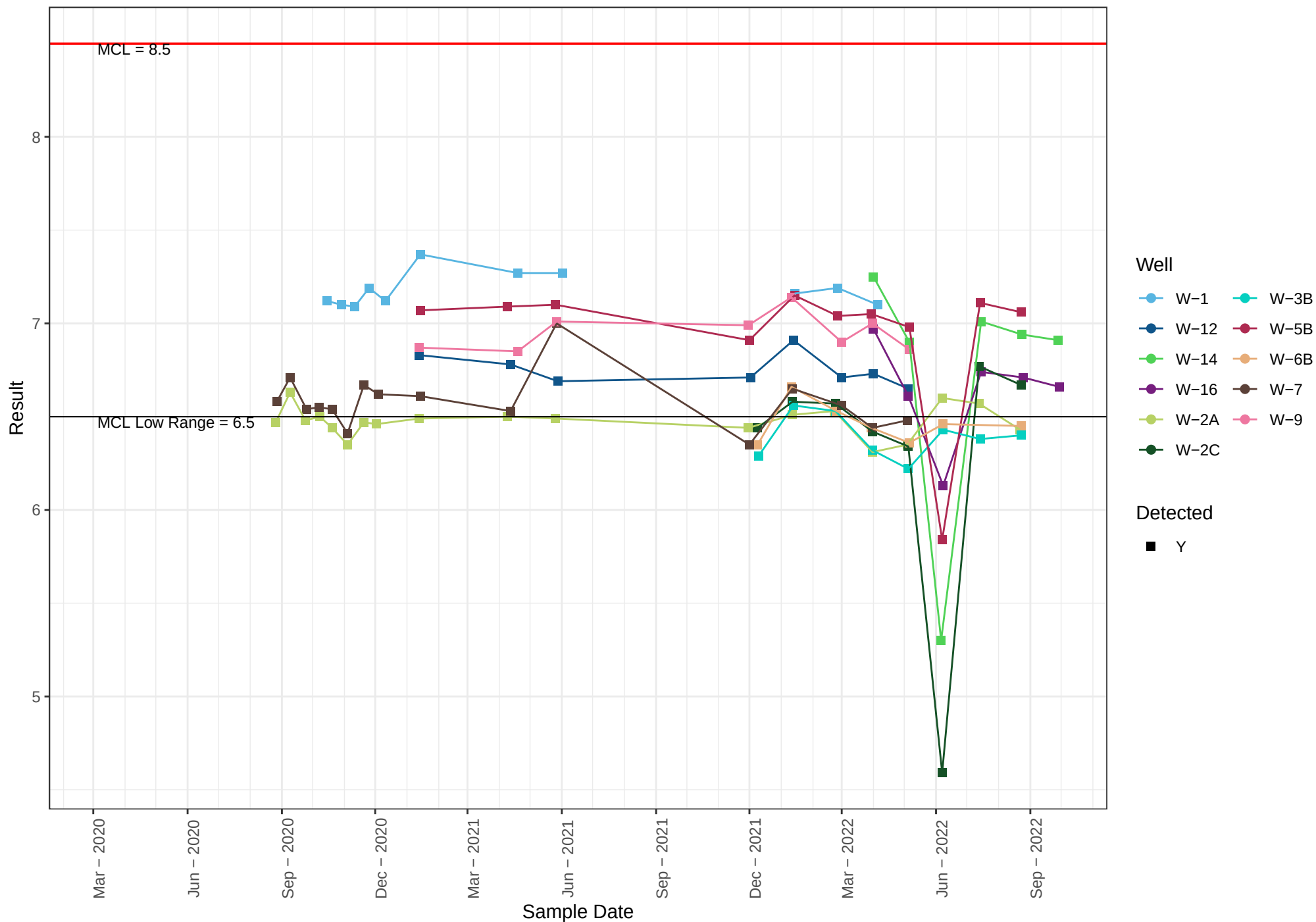
Fluoride (mg/l)



Method detection limit shown for non-detects

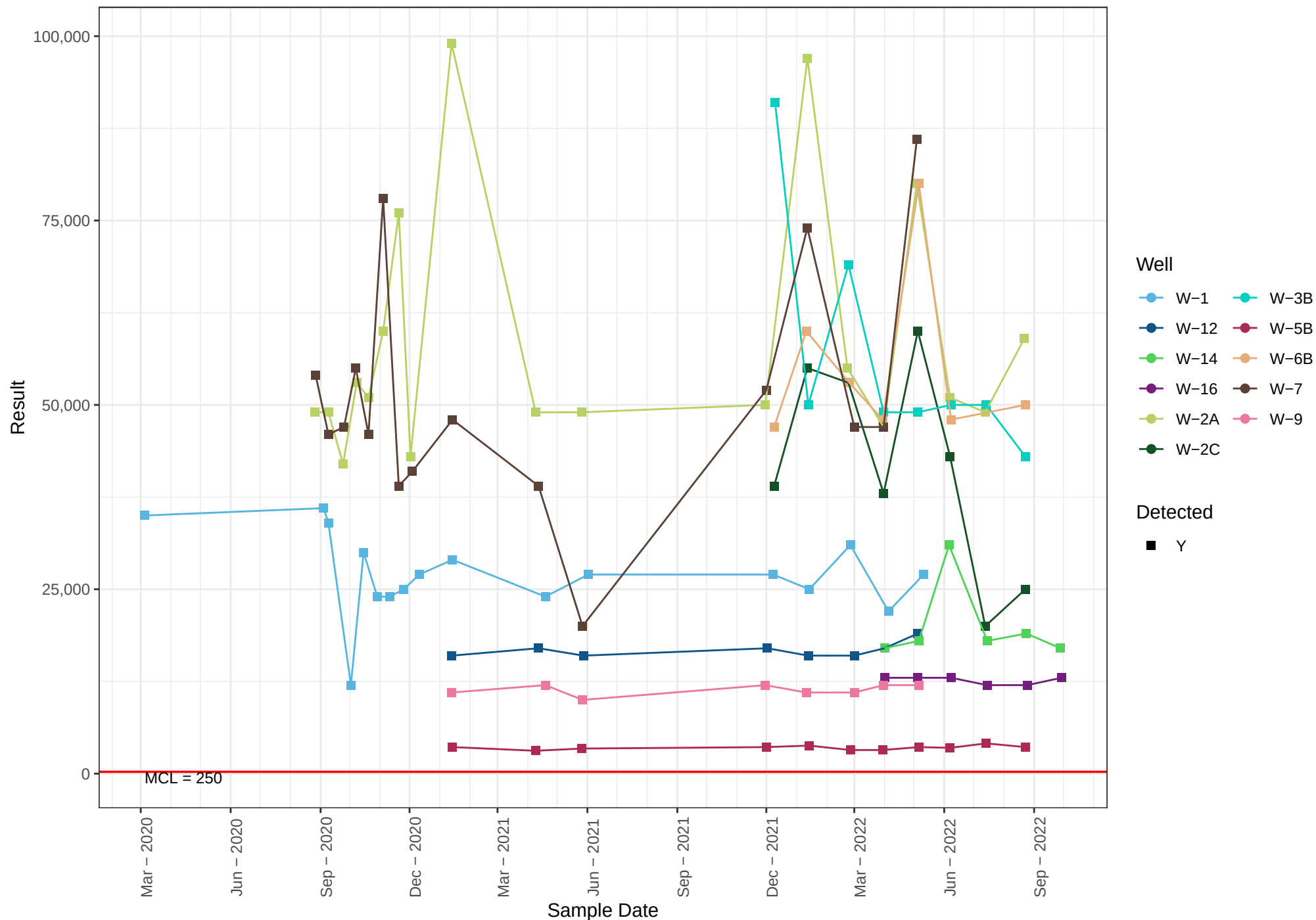
Comanche – Bottom Ash Pond Wells

pH (field) (su)



Comanche – Bottom Ash Pond Wells

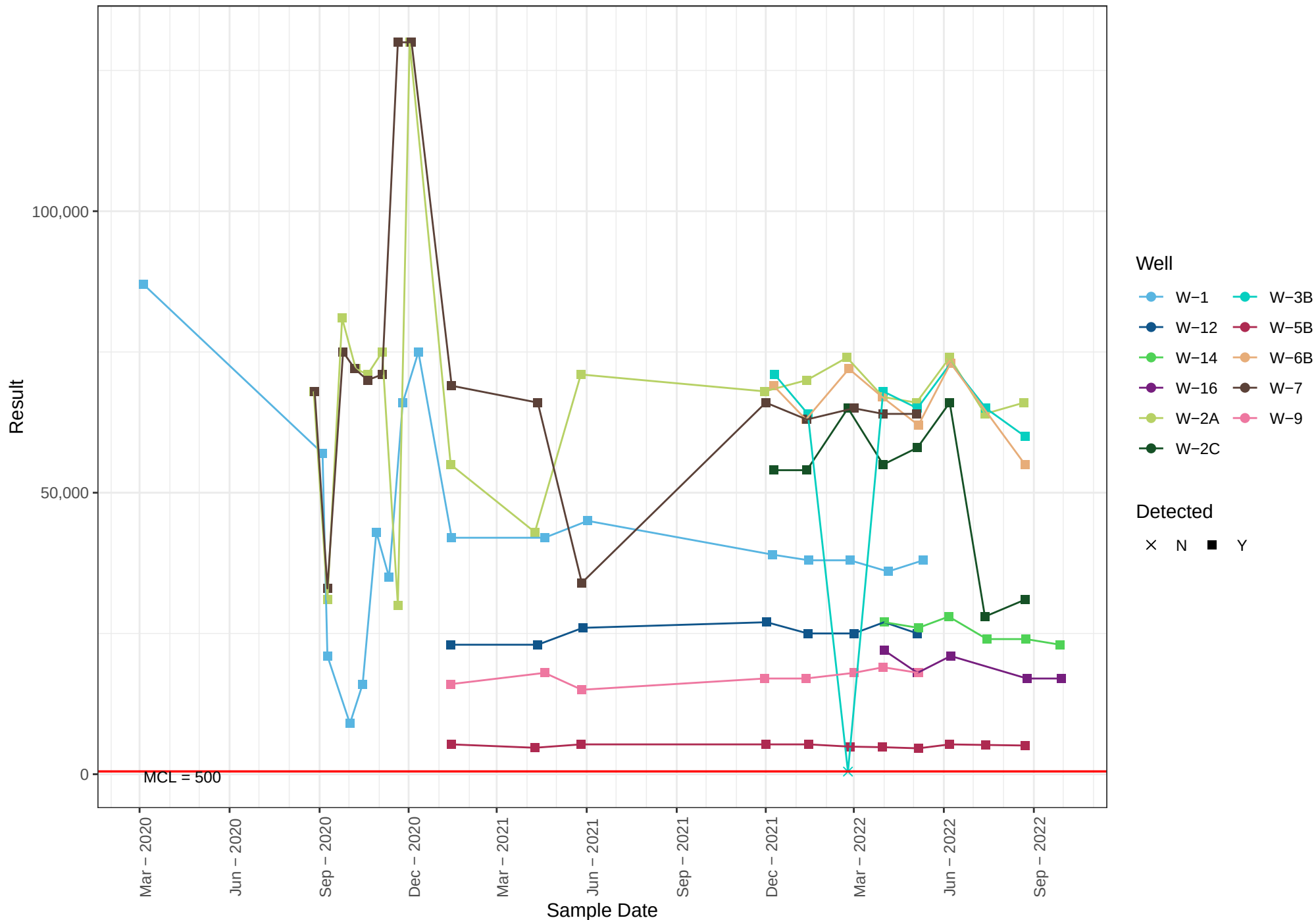
Sulfate (as SO₄) (mg/l)



Method detection limit shown for non-detects

Comanche – Bottom Ash Pond Wells

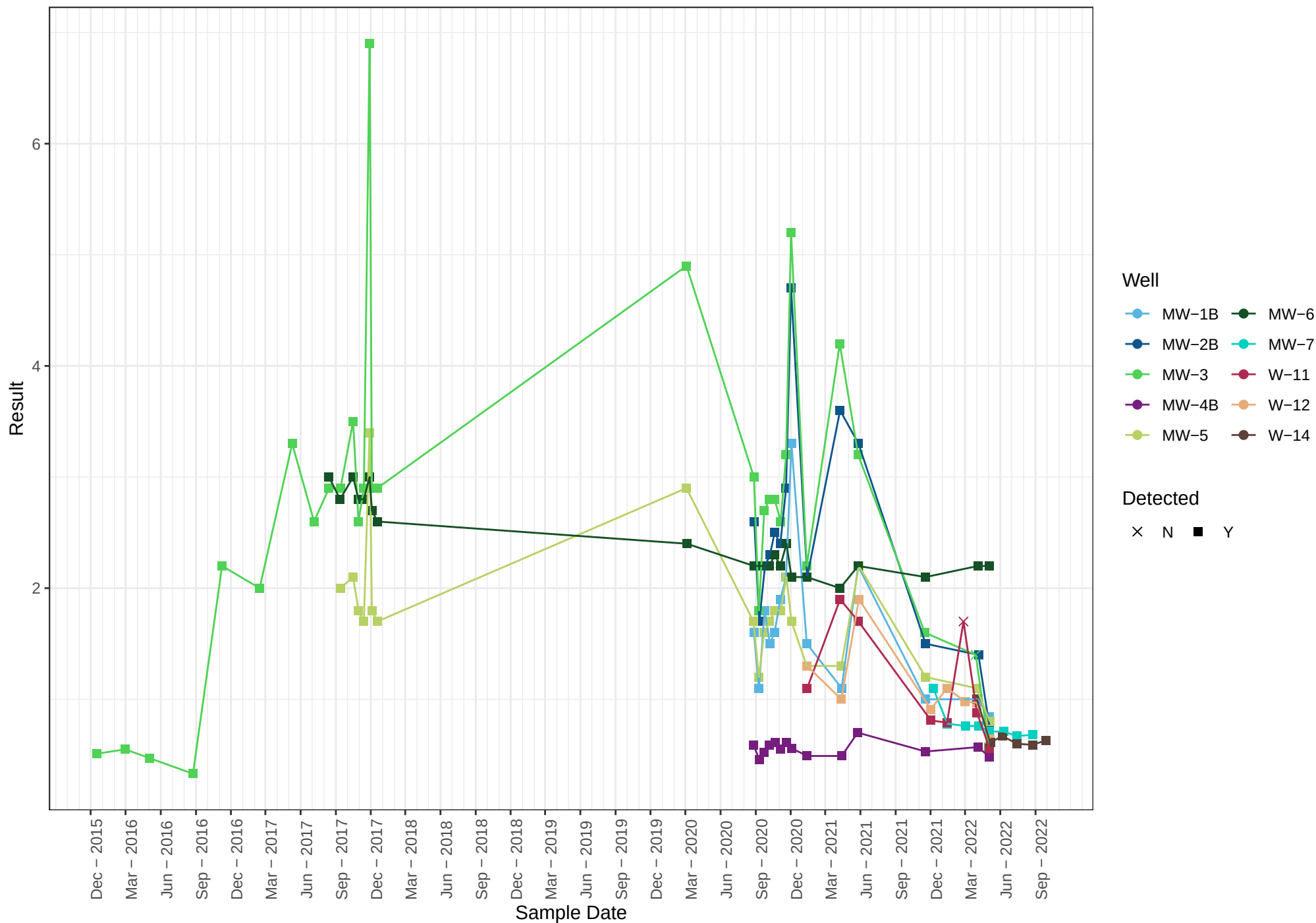
Total Dissolved Solids (mg/l)



Method detection limit shown for non-detects

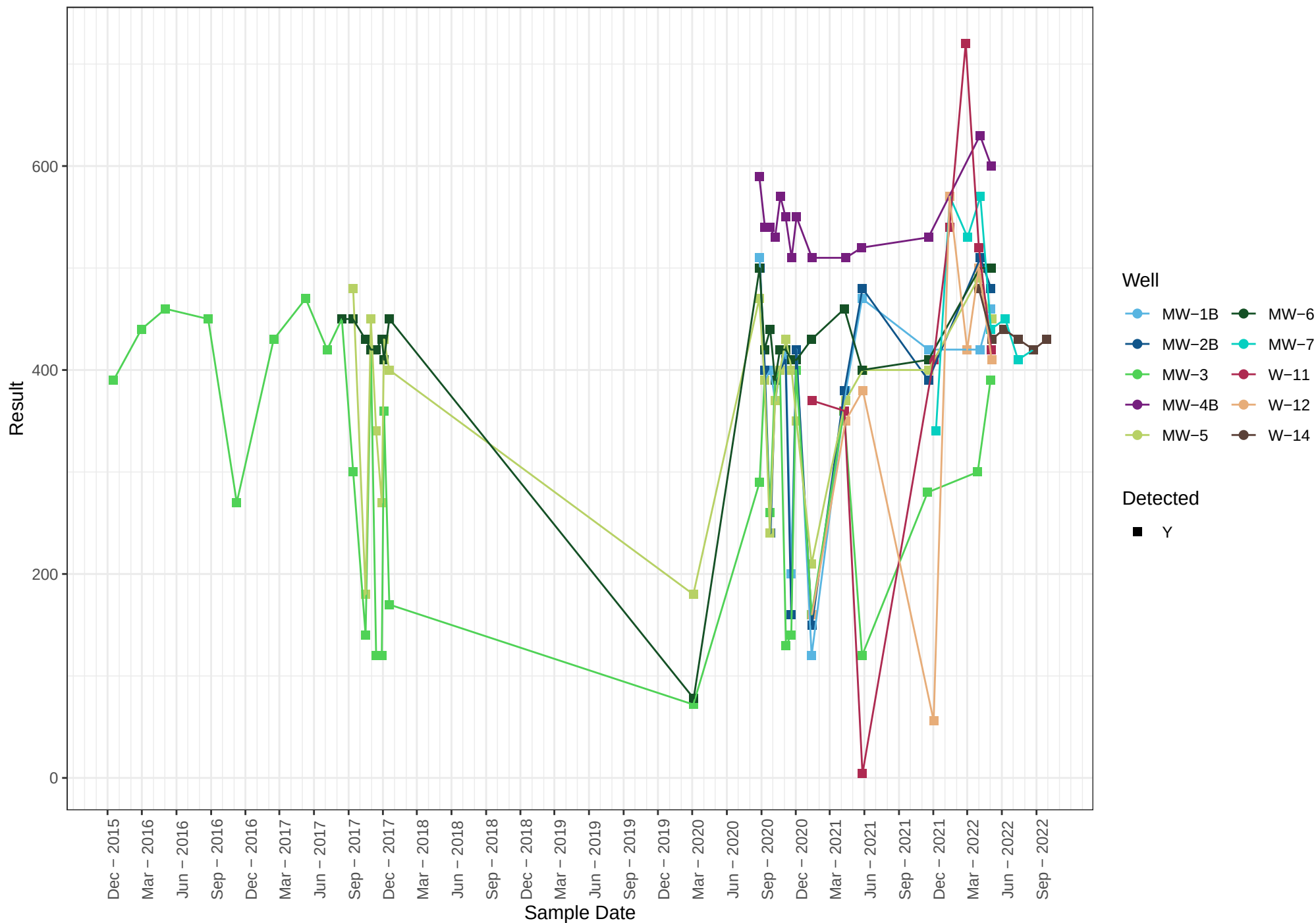
Comanche – Landfill Wells

Boron (mg/l)



Comanche – Landfill Wells

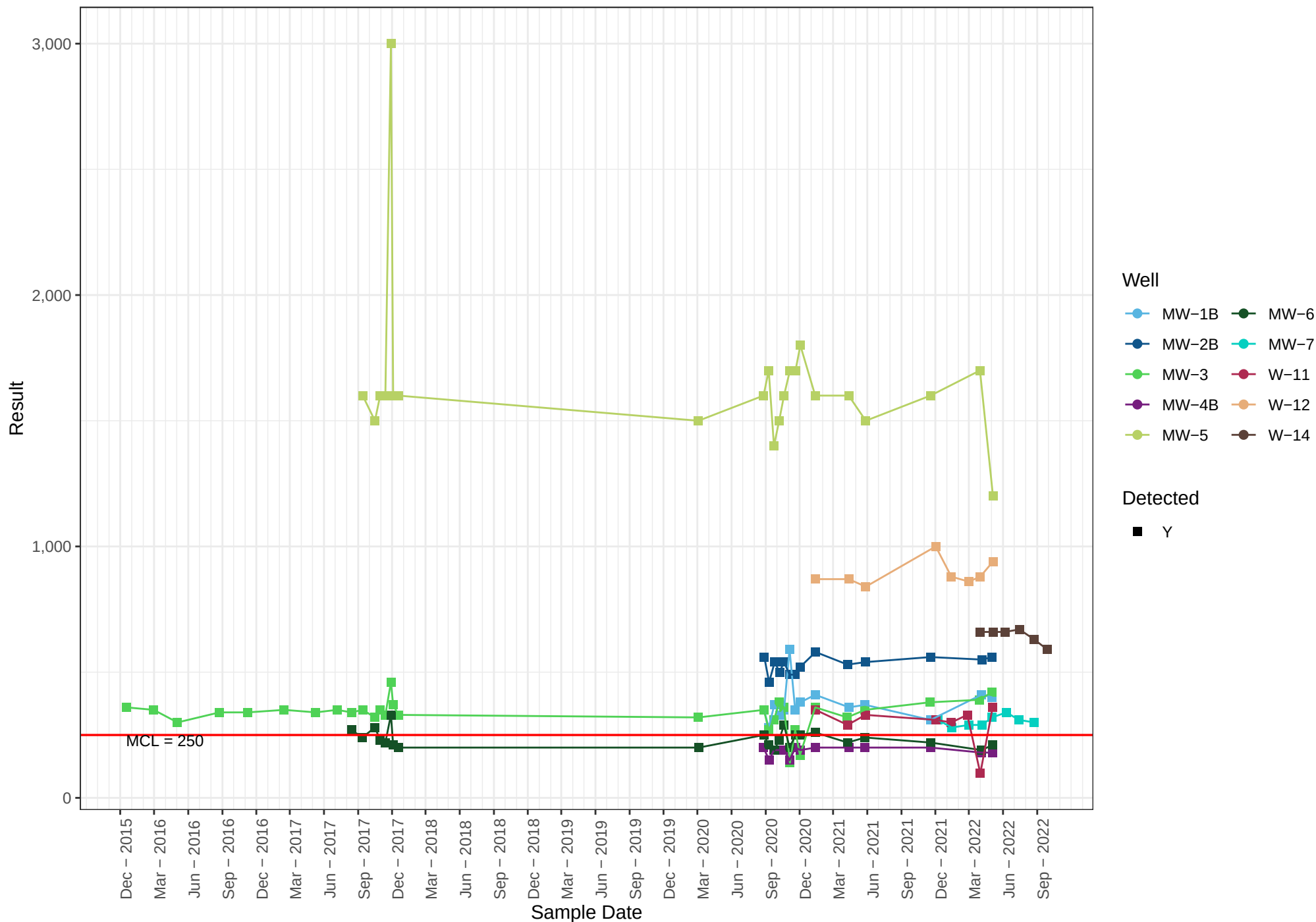
Calcium (mg/l)



Method detection limit shown for non-detects

Comanche – Landfill Wells

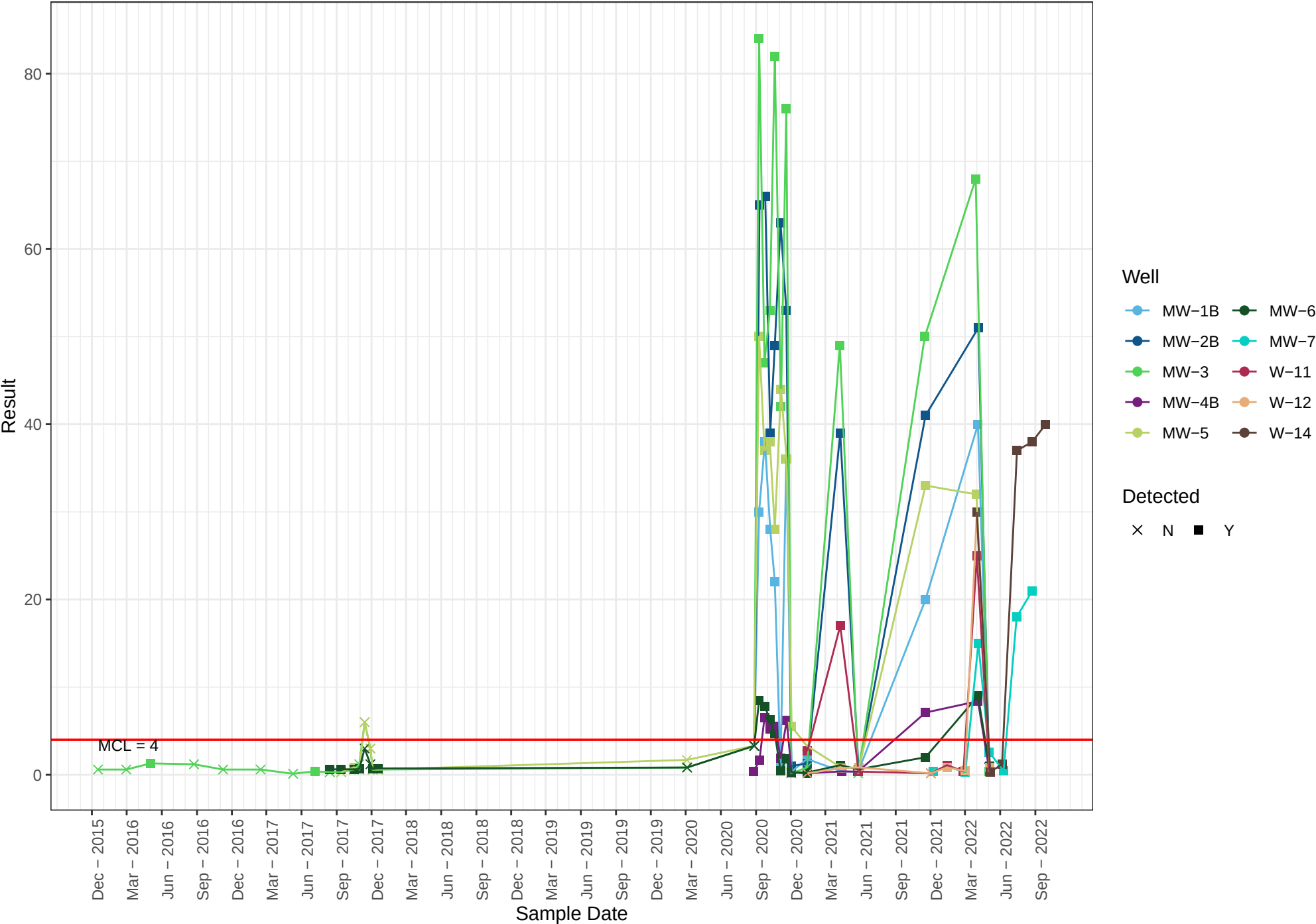
Chloride (as Cl) (mg/l)



Method detection limit shown for non-detects

Comanche – Landfill Wells

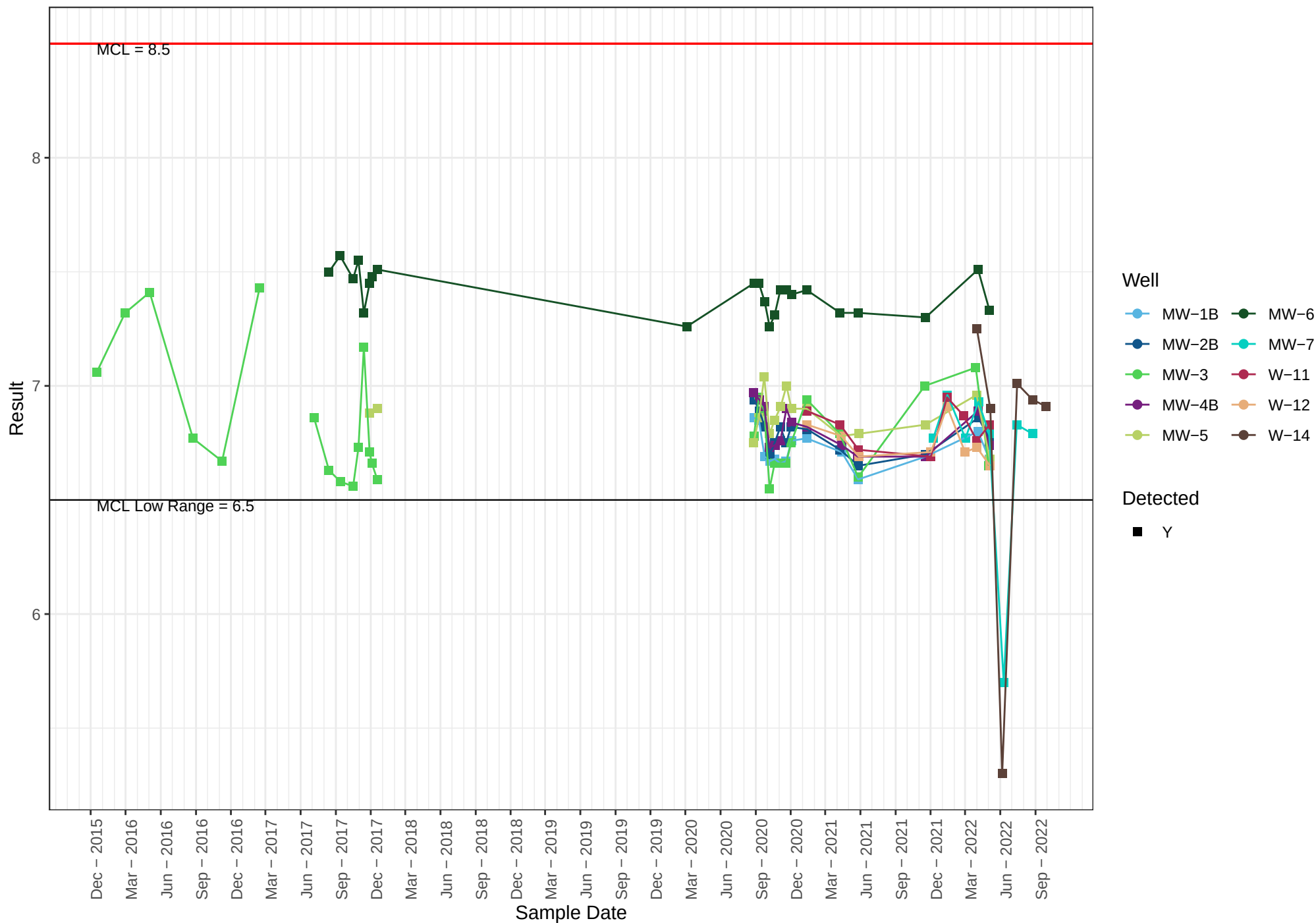
Fluoride (mg/l)



Method detection limit shown for non-detects

Comanche – Landfill Wells

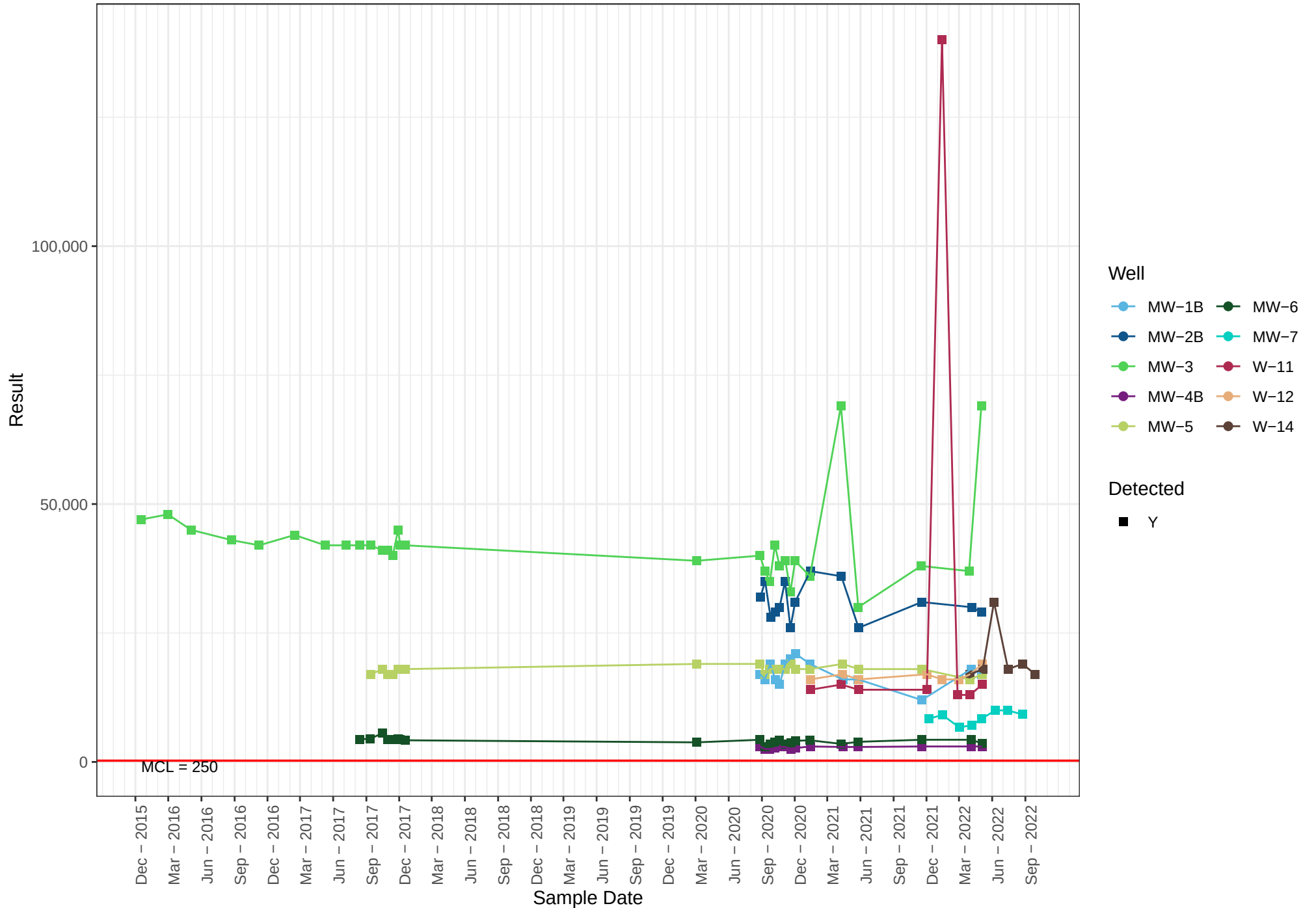
pH (field) (su)



Method detection limit shown for non-detects

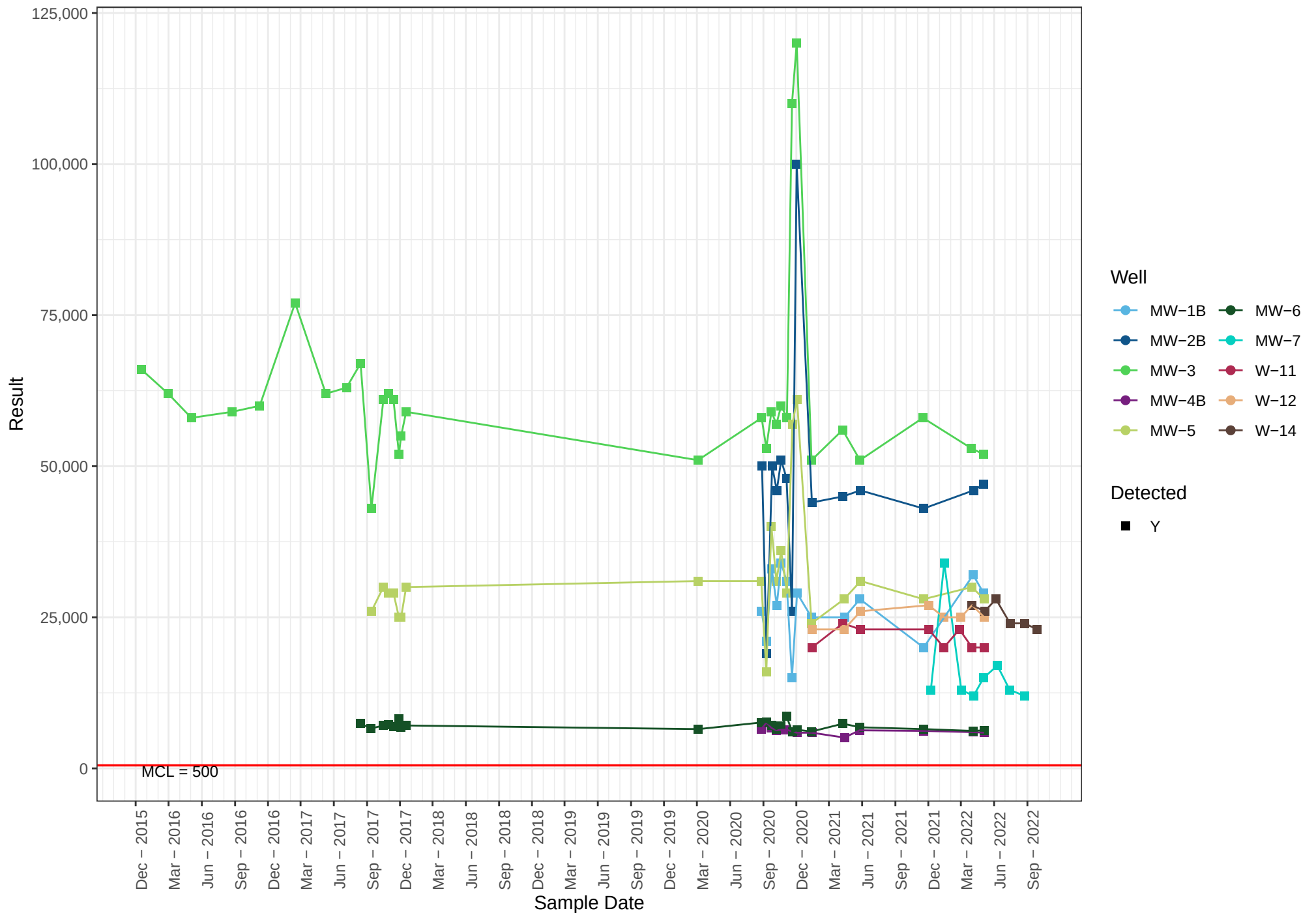
Comanche – Landfill Wells

Sulfate (as SO4) (mg/l)



Comanche – Landfill Wells

Total Dissolved Solids (mg/l)



Method detection limit shown for non-detects

Appendix D

Statistical Output Report



Table 1: Summary Statistics, Non-Detects Included

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit ^a	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	MAD/0.675	Skewness	Kurtosis
10_1_105	W-9	Appendix III	Boron	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Nonparametric	Nonparametric	1.99	1.80	1.70	2.60	0.352	0.177	0.148	1.49	0.532
10_1_107	W-9	Appendix III	Calcium	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	446	430	380	600	74.3	0.167	59.3	1.37	1.28
10_1_108	W-9	Appendix III	Chloride (as Cl)	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	368	370	280	460	47.6	0.130	14.8	0.177	2.37
10_1_111	W-9	Appendix III	Fluoride	mg/l	9	2	22%	2021-01-13 to 2022-10-29	Lognormal	Nonparametric	4.77	0.380	0.170	20.0	8.64	1.81	0.311	1.62	0.729
10_1_117	W-9	Appendix III	pH (field)	su	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	6.96	6.99	6.85	7.14	0.0985	0.0141	0.133	0.466	-0.586
10_1_118	W-9	Appendix III	pH (lab)	su	9	0	0%	2021-01-13 to 2022-10-29	Lognormal; Normal	Normal	7.31	7.30	7.20	7.50	0.0928	0.0127	0	0.944	1.35
10_1_123	W-9	Appendix III	Sulfate (as SO4)	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	11556	12000	10000	13000	882	0.0763	1481	-0.214	0.144
10_1_127	W-9	Appendix III	Total Dissolved Solids	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	16778	17000	13000	19000	1856	0.111	1481	-1.09	0.963
10_2_101	W-9	Appendix IV	Antimony	mg/l	9	4	44%	2021-01-13 to 2022-10-29	Gamma; Lognormal	Gamma	0.00248	0.00170	0.000470	0.00760	0.00233	0.941	0.00178	1.49	2.13
10_2_102	W-9	Appendix IV	Arsenic	mg/l	9	4	44%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	0.00173	0.000890	0.000710	0.00380	0.00138	0.799	0.000207	0.942	-1.31
10_2_103	W-9	Appendix IV	Barium	mg/l	9	1	11%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	0.0266	0.0210	0.0140	0.0880	0.0233	0.877	0.00593	2.88	8.48
10_2_104	W-9	Appendix IV	Beryllium	mg/l	8	8	100%	2021-01-13 to 2022-10-29		Nonparametric	0.00427	0.00106	0.0000800	0.0270	0.00923	2.16	0.00135	2.77	7.75
10_2_106	W-9	Appendix IV	Cadmium	mg/l	9	5	56%	2021-01-13 to 2022-10-29		Nonparametric	0.00140	0.000990	0.000340	0.00550	0.00156	1.11	0.000326	2.79	8.10
10_2_109	W-9	Appendix IV	Chromium, Total	mg/l	9	6	67%	2021-01-13 to 2022-10-29		Nonparametric	0.0149	0.00380	0.000870	0.110	0.0357	2.40	0.00193	2.99	8.95
10_2_110	W-9	Appendix IV	Cobalt	mg/l	9	1	11%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	0.00646	0.00410	0.000840	0.0190	0.00658	1.02	0.00341	1.34	0.481
10_2_112	W-9	Appendix IV	Fluoride (App IV)	mg/l	9	2	22%	2021-01-13 to 2022-10-29	Lognormal	Nonparametric	4.77	0.380	0.170	20.0	8.64	1.81	0.311	1.62	0.729
10_2_113	W-9	Appendix IV	Lead	mg/l	9	7	78%	2021-01-13 to 2022-10-29		Nonparametric	0.00346	0.000450	0.000230	0.0240	0.00775	2.24	0.000326	2.93	8.70
10_2_114	W-9	Appendix IV	Lithium	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	1.11	1.20	0.870	1.30	0.142	0.127	0.148	-0.616	-0.777
10_2_115	W-9	Appendix IV	Mercury	mg/l	8	8	100%	2021-01-13 to 2022-10-29		Nonparametric	0.000110	0.000120	0.0000610	0.000150	0.0000330	0.299	0.0000148	-0.814	-0.620
10_2_116	W-9	Appendix IV	Molybdenum	mg/l	9	3	33%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	0.0189	0.00750	0.00310	0.120	0.0380	2.01	0.00267	2.98	8.93
10_2_120	W-9	Appendix IV	Radium-226+228	pci/l	8	1	12%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	1.89	1.79	1.43	2.67	0.439	0.232	0.378	0.958	-0.132
10_2_122	W-9	Appendix IV	Selenium	mg/l	9	1	11%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	0.0158	0.00550	0.00310	0.0960	0.0302	1.92	0.00267	2.96	8.83
10_2_126	W-9	Appendix IV	Thallium	mg/l	9	5	56%	2021-01-13 to 2022-10-29		Nonparametric	0.00344	0.000620	0.000220	0.0260	0.00847	2.46	0.000563	2.99	8.96
10_3_119	W-9	Supplemental	Radium-226	pci/l	8	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	0.788	0.739	0.436	1.09	0.254	0.322	0.377	0.0312	-1.68
10_3_121	W-9	Supplemental	Radium-228	pci/l	8	2	25%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	1.19	1.12	0.627	1.97	0.424	0.355	0.351	0.710	0.413
10_3_124	W-9	Supplemental	Temperature (field)	deg c	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	16.6	15.8	13.4	19.6	2.10	0.126	1.63	0.209	-0.942
10_3_125	W-9	Supplemental	Temperature (lab)	deg c	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	20.7	20.4	18.3	23.5	1.88	0.0912	2.07	0.246	-1.29
10_3_128	W-9	Supplemental	Total Suspended Solids	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	8.04	5.20	2.00	24.0	7.01	0.871	4.74	1.65	3.02
1_1_105	W-1	Appendix III	Boron	mg/l	18	0	0%	2020-03-05 to 2022-11-30	Gamma; Lognormal; Normal	Normal	4.66	4.45	3.00	8.10	1.26	0.270	1.33	1.22	2.14
1_1_107	W-1	Appendix III	Calcium	mg/l	18	0	0%	2020-03-05 to 2022-11-30	Nonparametric	Nonparametric	361	395	140	500	107	0.298	37.0	-1.22	0.419
1_1_108	W-1	Appendix III	Chloride (as Cl)	mg/l	18	0	0%	2020-03-05 to 2022-11-30	Gamma; Lognormal; Normal	Normal	756	765	620	990	82.1	0.109	51.9	1.15	3.15
1_1_111	W-1	Appendix III	Fluoride	mg/l	18	1	6%	2020-03-05 to 2022-11-30	Nonparametric	Nonparametric	23.2	10.6	1.70	96.0	25.8	1.11	12.5	1.39	2.19
1_1_117	W-1	Appendix III	pH (field)	su	12	0	0%	2020-10-15 to 2022-11-30	Gamma; Lognormal; Normal	Normal	7.19	7.17	7.09	7.37	0.0915	0.0127	0.111	0.700	-0.599
1_1_118	W-1	Appendix III	pH (lab)	su	18	0	0%	2020-03-05 to 2022-11-30	Nonparametric	Nonparametric	7.42	7.40	7.30	7.60	0.0808	0.0109	0	1.05	1.33
1_1_123	W-1	Appendix III	Sulfate (as SO4)	mg/l	18	0	0%	2020-03-05 to 2022-11-30	Normal	Normal	26889	27000	12000	36000	5487	0.204	4444	-0.702	2.32
1_1_127	W-1	Appendix III	Total Dissolved Solids	mg/l	18	0	0%	2020-03-05 to 2022-11-30	Gamma; Lognormal; Normal	Normal	42111	38500	9000	87000	19393	0.461	8148	0.701	0.826
1_2_101	W-1	Appendix IV	Antimony	mg/l	18	13	72%	2020-03-05 to 2022-11-30	Nonparametric	Nonparametric	0.00214	0.000715	0.000400	0.00690	0.00217	1.02	0.000467	1.12	-0.113
1_2_102	W-1	Appendix IV	Arsenic	mg/l	18	3	17%	2020-03-05 to 2022-11-30	Normal	Normal	0.00801	0.00810	0.000770	0.0170	0.00429	0.535	0.00281	-0.113	0.0853
1_2_103	W-1	Appendix IV	Barium	mg/l	18	3	17%	2020-03-05 to 2022-11-30	Lognormal	Lognormal	0.0287	0.0210	0.0130	0.0920	0.0215	0.750	0.0104	1.97	3.64
1_2_104	W-1	Appendix IV	Beryllium	mg/l	17	15	88%	2020-03-05 to 2022-11-30		Nonparametric	0.00152	0.000410	0.0000800	0.00540	0.00158	1.04	0.000489	1.06	0.328
1_2_106	W-1	Appendix IV	Cadmium	mg/l	18	9	50%	2020-03-05 to 2022-11-30	Gamma; Lognormal; Normal	Nonparametric	0.000784	0.000565	0.000200	0.00200	0.000541	0.690	0.000341	1.32	1.05
1_2_109	W-1	Appendix IV	Chromium, Total	mg/l	18	8	44%	2020-03-05 to 2022-11-30	Gamma; Lognormal	Gamma	0.00768	0.00490	0.00100	0.0220	0.00606	0.789	0.00526	1.16	0.848

(Table continues on next page)

^a Non-detects are excluded from goodness-of-fit tests.



Table 1: Summary Statistics, Non-Detects Included *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit ^a	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	MAD/0.675	Skewness	Kurtosis
1_2_110	W-1	Appendix IV	Cobalt	mg/l	18	7	39%	2020-03-05 to 2022-11-30	Gamma; Lognormal; Normal	Normal	0.00185	0.00180	0.000390	0.00380	0.000986	0.532	0.000963	0.749	-0.200
1_2_112	W-1	Appendix IV	Fluoride (App IV)	mg/l	18	1	6%	2020-03-05 to 2022-11-30	Nonparametric	Nonparametric	23.2	10.6	1.70	96.0	25.8	1.11	12.5	1.39	2.19
1_2_113	W-1	Appendix IV	Lead	mg/l	18	9	50%	2020-03-05 to 2022-11-30	Gamma; Lognormal	Nonparametric	0.00236	0.00205	0.000300	0.00640	0.00173	0.734	0.00169	0.922	0.105
1_2_114	W-1	Appendix IV	Lithium	mg/l	18	0	0%	2020-03-05 to 2022-11-30	Gamma; Lognormal; Normal	Normal	2.13	2.15	1.70	2.50	0.227	0.107	0.222	-0.523	-0.106
1_2_115	W-1	Appendix IV	Mercury	mg/l	17	17	100%	2020-03-05 to 2022-11-30		Nonparametric	0.000190	0.000130	0.0000610	0.00130	0.000287	1.52	0	4.07	16.7
1_2_116	W-1	Appendix IV	Molybdenum	mg/l	18	1	6%	2020-03-05 to 2022-11-30	Gamma; Lognormal; Normal	Normal	0.0208	0.0195	0.0140	0.0290	0.00462	0.222	0.00519	0.453	-0.886
1_2_120	W-1	Appendix IV	Radium-226+228	pci/l	18	0	0%	2020-03-24 to 2022-11-30	Gamma; Lognormal	Gamma	2.20	2.0	0.899	4.82	1.06	0.482	0.644	1.66	2.68
1_2_122	W-1	Appendix IV	Selenium	mg/l	18	0	0%	2020-03-05 to 2022-11-30	Gamma; Lognormal	Gamma	0.881	0.805	0.570	1.60	0.254	0.289	0.141	1.67	2.92
1_2_126	W-1	Appendix IV	Thallium	mg/l	18	11	61%	2020-03-05 to 2022-11-30	Lognormal	Nonparametric	0.00111	0.000615	0.000200	0.00520	0.00128	1.15	0.000607	2.17	5.59
1_3_119	W-1	Supplemental	Radium-226	pci/l	18	1	6%	2020-03-24 to 2022-11-30	Gamma; Lognormal	Gamma	0.684	0.573	0.336	2.15	0.420	0.614	0.206	2.76	9.03
1_3_121	W-1	Supplemental	Radium-228	pci/l	18	2	11%	2020-03-24 to 2022-11-30	Gamma; Lognormal; Normal	Normal	1.55	1.25	0.587	4.48	0.946	0.608	0.569	1.87	4.55
1_3_124	W-1	Supplemental	Temperature (field)	deg c	12	0	0%	2020-10-15 to 2022-11-30	Nonparametric	Nonparametric	29.8	16.2	11.0	184	48.7	1.64	1.78	3.45	12
1_3_125	W-1	Supplemental	Temperature (lab)	deg c	18	0	0%	2020-03-05 to 2022-11-30	Gamma; Lognormal; Normal	Normal	21.4	21.4	19.1	24.5	1.36	0.0637	1.41	0.381	0.0474
1_3_128	W-1	Supplemental	Total Suspended Solids	mg/l	18	0	0%	2020-03-05 to 2022-11-30	Gamma; Lognormal	Gamma	47.1	24.0	2.40	270	64.7	1.38	29.9	2.71	8.45
2_1_105	W-11	Appendix III	Boron	mg/l	9	1	11%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	1.12	0.880	0.560	1.90	0.515	0.461	0.400	0.588	-1.54
2_1_107	W-11	Appendix III	Calcium	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Normal	Normal	424	420	4.10	720	192	0.454	88.9	-1.03	3.07
2_1_108	W-11	Appendix III	Chloride (as Cl)	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Nonparametric	Nonparametric	263	310	2.90	360	125	0.476	29.6	-1.63	1.48
2_1_111	W-11	Appendix III	Fluoride	mg/l	9	1	11%	2021-01-13 to 2022-10-29	Gamma; Lognormal	Gamma	5.28	0.400	0.170	25.0	9.17	1.74	0.341	1.79	2.01
2_1_117	W-11	Appendix III	pH (field)	su	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	6.81	6.83	6.69	6.95	0.0851	0.0125	0.104	0.154	-0.884
2_1_118	W-11	Appendix III	pH (lab)	su	9	0	0%	2021-01-13 to 2022-10-29		Nonparametric	7.21	7.20	7.10	7.30	0.0782	0.0108	0.148	-0.216	-1.04
2_1_123	W-11	Appendix III	Sulfate (as SO4)	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Nonparametric	Nonparametric	28000	14000	13000	140000	42006	1.50	1481	3.0	8.99
2_1_127	W-11	Appendix III	Total Dissolved Solids	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Lognormal; Normal	Normal	21222	20000	18000	24000	2048	0.0965	2963	-0.0462	-1.43
2_2_101	W-11	Appendix IV	Antimony	mg/l	9	7	78%	2021-01-13 to 2022-10-29		Nonparametric	0.00210	0.000570	0.000400	0.00770	0.00297	1.41	0.000252	1.60	0.780
2_2_102	W-11	Appendix IV	Arsenic	mg/l	9	3	33%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Gamma	0.00758	0.00530	0.000430	0.0190	0.00803	1.06	0.00720	0.626	-1.57
2_2_103	W-11	Appendix IV	Barium	mg/l	9	1	11%	2021-01-13 to 2022-10-29	Nonparametric	Nonparametric	0.0480	0.0150	0.0120	0.240	0.0760	1.58	0.00444	2.52	6.44
2_2_104	W-11	Appendix IV	Beryllium	mg/l	8	6	75%	2021-01-13 to 2022-10-29		Nonparametric	0.00424	0.000465	0.000120	0.0270	0.00926	2.18	0.000481	2.75	7.66
2_2_106	W-11	Appendix IV	Cadmium	mg/l	9	2	22%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	0.00171	0.00140	0.000200	0.00550	0.00149	0.873	0.000444	2.42	6.79
2_2_109	W-11	Appendix IV	Chromium, Total	mg/l	9	5	56%	2021-01-13 to 2022-10-29		Nonparametric	0.0153	0.00210	0.000980	0.110	0.0357	2.32	0.00163	2.95	8.75
2_2_110	W-11	Appendix IV	Cobalt	mg/l	9	1	11%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	0.0147	0.0170	0.000190	0.0230	0.00742	0.504	0.00593	-1.02	0.320
2_2_112	W-11	Appendix IV	Fluoride (App IV)	mg/l	9	1	11%	2021-01-13 to 2022-10-29	Gamma; Lognormal	Gamma	5.28	0.400	0.170	25.0	9.17	1.74	0.341	1.79	2.01
2_2_113	W-11	Appendix IV	Lead	mg/l	9	7	78%	2021-01-13 to 2022-10-29		Nonparametric	0.00345	0.000450	0.000370	0.0240	0.00774	2.24	0.000119	2.96	8.80
2_2_114	W-11	Appendix IV	Lithium	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Normal	Normal	3.24	3.70	0.0560	4.50	1.30	0.400	0.444	-2.18	5.47
2_2_115	W-11	Appendix IV	Mercury	mg/l	8	8	100%	2021-01-13 to 2022-10-29		Nonparametric	0.000110	0.000120	0.0000610	0.000150	0.0000330	0.299	0.0000148	-0.814	-0.620
2_2_116	W-11	Appendix IV	Molybdenum	mg/l	9	5	56%	2021-01-13 to 2022-10-29		Nonparametric	0.0187	0.00440	0.00110	0.120	0.0382	2.05	0.00148	2.94	8.73
2_2_120	W-11	Appendix IV	Radium-226+228	pci/l	8	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal	Gamma	4.13	3.62	2.17	6.59	1.57	0.381	0.393	0.945	-0.221
2_2_122	W-11	Appendix IV	Selenium	mg/l	9	1	11%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	2.40	2.60	0.000890	3.20	0.951	0.396	0.444	-2.39	6.51
2_2_126	W-11	Appendix IV	Thallium	mg/l	9	2	22%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Nonparametric	0.00597	0.00390	0.000200	0.0260	0.00762	1.28	0.000593	2.82	8.30
2_3_119	W-11	Supplemental	Radium-226	pci/l	8	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	1.41	1.52	0.972	1.72	0.280	0.199	0.207	-0.706	-1.21
2_3_121	W-11	Supplemental	Radium-228	pci/l	8	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal	Gamma	2.72	2.07	1.20	4.98	1.44	0.529	0.600	1.10	-0.368
2_3_124	W-11	Supplemental	Temperature (field)	deg c	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	15.1	15.0	11.6	18.2	1.89	0.125	1.19	-0.203	0.892
2_3_125	W-11	Supplemental	Temperature (lab)	deg c	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	21.4	21.0	19.6	22.7	1.18	0.0551	2.07	-0.167	-1.72
2_3_128	W-11	Supplemental	Total Suspended Solids	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	12.1	7.20	2.00	39.0	11.5	0.949	4.15	1.89	3.85

(Table continues on next page)

^a Non-detects are excluded from goodness-of-fit tests.



Table 1: Summary Statistics, Non-Detects Included *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit ^a	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	MAD/0.675	Skewness	Kurtosis
3_1_105	W-12	Appendix III	Boron	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	1.05	0.980	0.640	1.90	0.376	0.358	0.178	1.49	3.05
3_1_107	W-12	Appendix III	Calcium	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Normal	Normal	360	390	56.0	570	160	0.444	59.3	-0.928	0.576
3_1_108	W-12	Appendix III	Chloride (as Cl)	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	901	880	840	1000	55.1	0.0611	29.6	0.938	-0.517
3_1_111	W-12	Appendix III	Fluoride	mg/l	9	2	22%	2021-01-13 to 2022-10-29	Nonparametric	Nonparametric	3.81	0.770	0.170	30.0	9.83	2.58	0.504	2.99	8.97
3_1_117	W-12	Appendix III	pH (field)	su	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	6.74	6.71	6.65	6.91	0.0817	0.0121	0.0296	1.17	0.873
3_1_118	W-12	Appendix III	pH (lab)	su	9	0	0%	2021-01-13 to 2022-10-29		Nonparametric	7.14	7.10	7.10	7.20	0.0527	0.00738	0	0.271	-2.57
3_1_123	W-12	Appendix III	Sulfate (as SO4)	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	16889	17000	16000	19000	1054	0.0624	1481	1.09	0.611
3_1_127	W-12	Appendix III	Total Dissolved Solids	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	25111	25000	23000	27000	1453	0.0579	1481	-0.243	-0.616
3_2_101	W-12	Appendix IV	Antimony	mg/l	9	3	33%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	0.00202	0.000720	0.000590	0.00690	0.00227	1.13	0.000148	1.58	1.66
3_2_102	W-12	Appendix IV	Arsenic	mg/l	9	8	89%	2021-01-13 to 2022-10-29		Nonparametric	0.00128	0.000750	0.000330	0.00380	0.00127	0.987	0.000622	1.42	0.746
3_2_103	W-12	Appendix IV	Barium	mg/l	9	1	11%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	0.0232	0.0150	0.0130	0.0880	0.0244	1.05	0.00148	2.97	8.85
3_2_104	W-12	Appendix IV	Beryllium	mg/l	8	6	75%	2021-01-13 to 2022-10-29		Nonparametric	0.00415	0.000465	0.000100	0.0270	0.00928	2.24	0.000430	2.77	7.76
3_2_106	W-12	Appendix IV	Cadmium	mg/l	9	2	22%	2021-01-13 to 2022-10-29	Gamma; Normal	Normal	0.00164	0.00130	0.000540	0.00550	0.00147	0.900	0.000148	2.80	8.20
3_2_109	W-12	Appendix IV	Chromium, Total	mg/l	9	5	56%	2021-01-13 to 2022-10-29		Nonparametric	0.0142	0.00200	0.000910	0.110	0.0359	2.53	0.00151	2.99	8.96
3_2_110	W-12	Appendix IV	Cobalt	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	0.0269	0.0290	0.0130	0.0360	0.00690	0.257	0.00593	-0.919	0.956
3_2_112	W-12	Appendix IV	Fluoride (App IV)	mg/l	9	2	22%	2021-01-13 to 2022-10-29	Nonparametric	Nonparametric	3.81	0.770	0.170	30.0	9.83	2.58	0.504	2.99	8.97
3_2_113	W-12	Appendix IV	Lead	mg/l	9	9	100%	2021-01-13 to 2022-10-29		Nonparametric	0.00347	0.000450	0.000180	0.0240	0.00775	2.23	0.000400	2.93	8.68
3_2_114	W-12	Appendix IV	Lithium	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Normal	Normal	2.22	2.30	0.720	2.80	0.640	0.288	0.444	-1.82	3.99
3_2_115	W-12	Appendix IV	Mercury	mg/l	8	8	100%	2021-01-13 to 2022-10-29		Nonparametric	0.000110	0.000120	0.0000610	0.000150	0.0000330	0.299	0.0000148	-0.814	-0.620
3_2_116	W-12	Appendix IV	Molybdenum	mg/l	9	4	44%	2021-01-13 to 2022-10-29		Nonparametric	0.0175	0.00460	0.00220	0.120	0.0385	2.19	0.00104	2.99	8.94
3_2_120	W-12	Appendix IV	Radium-226+228	pci/l	8	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	2.70	2.46	1.85	3.96	0.776	0.287	0.844	0.636	-1.03
3_2_122	W-12	Appendix IV	Selenium	mg/l	9	1	11%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	0.0337	0.0270	0.0150	0.0960	0.0253	0.752	0.0163	2.22	5.47
3_2_126	W-12	Appendix IV	Thallium	mg/l	9	1	11%	2021-01-13 to 2022-10-29	Gamma; Lognormal	Gamma	0.00627	0.00370	0.00330	0.0260	0.00742	1.18	0.000296	2.97	8.87
3_3_119	W-12	Supplemental	Radium-226	pci/l	8	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	0.727	0.744	0.536	0.848	0.0961	0.132	0.0652	-1.04	1.47
3_3_121	W-12	Supplemental	Radium-228	pci/l	8	1	12%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	2.03	1.79	1.15	3.17	0.670	0.330	0.556	0.634	-0.454
3_3_124	W-12	Supplemental	Temperature (field)	deg c	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	15.0	14.9	14.4	16.0	0.550	0.0367	0.593	0.840	-0.191
3_3_125	W-12	Supplemental	Temperature (lab)	deg c	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	21.4	21.6	18.0	22.7	1.46	0.0683	1.33	-1.69	3.58
3_3_128	W-12	Supplemental	Total Suspended Solids	mg/l	9	1	11%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	9.08	9.20	1.10	22.0	6.33	0.697	6.52	0.917	1.19
4_1_105	W-14	Appendix III	Boron	mg/l	7	0	0%	2022-04-01 to 2022-10-31	Nonparametric	Nonparametric	0.673	0.610	0.590	1.00	0.147	0.218	0.0296	2.48	6.28
4_1_107	W-14	Appendix III	Calcium	mg/l	7	0	0%	2022-04-01 to 2022-10-31	Nonparametric	Nonparametric	437	430	420	480	19.8	0.0452	0	2.18	5.22
4_1_108	W-14	Appendix III	Chloride (as Cl)	mg/l	7	0	0%	2022-04-01 to 2022-10-31	Nonparametric	Nonparametric	647	660	590	670	28.1	0.0434	0	-1.80	2.91
4_1_111	W-14	Appendix III	Fluoride	mg/l	7	0	0%	2022-04-01 to 2022-10-31	Normal	Nonparametric	21	30.0	0.290	40.0	19.3	0.920	14.8	-0.283	-2.69
4_1_117	W-14	Appendix III	pH (field)	su	7	0	0%	2022-04-01 to 2022-10-31	Nonparametric	Nonparametric	6.75	6.94	5.30	7.25	0.651	0.0964	0.0593	-2.44	6.29
4_1_118	W-14	Appendix III	pH (lab)	su	7	0	0%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	7.31	7.30	7.20	7.50	0.107	0.0146	0.148	0.772	0.263
4_1_123	W-14	Appendix III	Sulfate (as SO4)	mg/l	7	0	0%	2022-04-01 to 2022-10-31	Nonparametric	Nonparametric	19857	18000	17000	31000	4981	0.251	1481	2.50	6.41
4_1_127	W-14	Appendix III	Total Dissolved Solids	mg/l	7	0	0%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	25143	24000	23000	28000	1864	0.0742	1481	0.577	-1.33
4_2_101	W-14	Appendix IV	Antimony	mg/l	7	0	0%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	0.000563	0.000550	0.000420	0.000800	0.000124	0.220	0.000104	1.17	1.99
4_2_102	W-14	Appendix IV	Arsenic	mg/l	7	1	14%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	0.000430	0.000440	0.000330	0.000500	0.0000535	0.125	0.0000296	-0.985	1.74
4_2_103	W-14	Appendix IV	Barium	mg/l	7	1	14%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	0.0259	0.0160	0.0140	0.0880	0.0274	1.06	0.00148	2.63	6.95
4_2_104	W-14	Appendix IV	Beryllium	mg/l	7	3	43%	2022-04-01 to 2022-10-31		Nonparametric	0.000171	0.000130	0.0000800	0.000340	0.000111	0.650	0.0000741	0.858	-1.19
4_2_106	W-14	Appendix IV	Cadmium	mg/l	7	0	0%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	0.00117	0.00110	0.000970	0.00150	0.000166	0.142	0.000148	1.45	3.11
4_2_109	W-14	Appendix IV	Chromium, Total	mg/l	7	1	14%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	0.0167	0.00130	0.000680	0.110	0.0411	2.46	0.000593	2.65	7.0

(Table continues on next page)

^a Non-detects are excluded from goodness-of-fit tests.



Table 1: Summary Statistics, Non-Detects Included (*continued*)

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit ^a	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	MAD/0.675	Skewness	Kurtosis
4_2_110	W-14	Appendix IV	Cobalt	mg/l	7	0	0%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	0.0113	0.0110	0.0100	0.0130	0.000951	0.0843	0	0.863	1.24
4_2_112	W-14	Appendix IV	Fluoride (App IV)	mg/l	7	0	0%	2022-04-01 to 2022-10-31	Normal	Nonparametric	21	30.0	0.290	40.0	19.3	0.920	14.8	-0.283	-2.69
4_2_113	W-14	Appendix IV	Lead	mg/l	7	5	71%	2022-04-01 to 2022-10-31		Nonparametric	0.00362	0.000180	0.000180	0.0240	0.00899	2.48	0	2.65	7.0
4_2_114	W-14	Appendix IV	Lithium	mg/l	7	0	0%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	3.44	3.50	3.30	3.60	0.113	0.0329	0.148	-0.235	-1.23
4_2_115	W-14	Appendix IV	Mercury	mg/l	7	7	100%	2022-04-01 to 2022-10-31		Nonparametric	0.0000680	0.0000610	0.0000610	0.000110	0.0000185	0.272	0	2.65	7.00
4_2_116	W-14	Appendix IV	Molybdenum	mg/l	7	1	14%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	0.0316	0.0160	0.0150	0.120	0.0391	1.24	0.00148	2.63	6.91
4_2_120	W-14	Appendix IV	Radium-226+228	pci/l	7	0	0%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	3.62	3.64	1.94	5.62	1.52	0.420	2.21	0.305	-1.78
4_2_122	W-14	Appendix IV	Selenium	mg/l	7	0	0%	2022-04-01 to 2022-10-31		Nonparametric	1.26	1.30	1.20	1.30	0.0535	0.0425	0	-0.374	-2.80
4_2_126	W-14	Appendix IV	Thallium	mg/l	7	1	14%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	0.00561	0.00220	0.00200	0.0260	0.00899	1.60	0.000296	2.64	6.99
4_3_119	W-14	Supplemental	Radium-226	pci/l	7	0	0%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	1.45	1.33	1.01	2.09	0.357	0.245	0.430	0.835	0.632
4_3_121	W-14	Supplemental	Radium-228	pci/l	7	1	14%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	2.22	2.40	0.685	4.29	1.30	0.585	1.73	0.464	-0.874
4_3_124	W-14	Supplemental	Temperature (field)	deg c	7	0	0%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	17.3	17.7	15.3	19.2	1.53	0.0884	2.21	-0.114	-1.91
4_3_125	W-14	Supplemental	Temperature (lab)	deg c	7	0	0%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	20.5	20.6	18.1	21.9	1.38	0.0673	1.63	-0.811	0.0456
4_3_128	W-14	Supplemental	Total Suspended Solids	mg/l	7	3	43%	2022-04-01 to 2022-10-31		Nonparametric	3.73	2.80	1.10	8.80	3.31	0.888	2.52	0.982	-0.987
5_1_105	W-16	Appendix III	Boron	mg/l	7	0	0%	2022-04-01 to 2022-10-31	Nonparametric	Nonparametric	0.756	0.720	0.700	0.900	0.0732	0.0969	0.0148	1.66	2.06
5_1_107	W-16	Appendix III	Calcium	mg/l	7	0	0%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	451	450	410	490	29.7	0.0657	29.6	-0.0328	-1.57
5_1_108	W-16	Appendix III	Chloride (as Cl)	mg/l	7	0	0%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	247	250	230	270	15	0.0605	14.8	0.256	-0.968
5_1_111	W-16	Appendix III	Fluoride	mg/l	4	0	0%	2022-04-01 to 2022-10-31		Nonparametric	5.92	1.69	0.320	20.0	9.46	1.60	1.91	1.91	3.67
5_1_117	W-16	Appendix III	pH (field)	su	7	0	0%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	6.64	6.66	6.13	6.97	0.253	0.0382	0.0741	-1.32	3.50
5_1_118	W-16	Appendix III	pH (lab)	su	7	0	0%	2022-04-01 to 2022-10-31		Nonparametric	6.99	7.00	6.90	7.10	0.0900	0.0129	0.148	0.353	-1.82
5_1_123	W-16	Appendix III	Sulfate (as SO4)	mg/l	7	0	0%	2022-04-01 to 2022-10-31		Nonparametric	12714	13000	12000	13000	488	0.0384	0	-1.23	-0.840
5_1_127	W-16	Appendix III	Total Dissolved Solids	mg/l	6	0	0%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	18500	17500	16000	22000	2429	0.131	1481	0.754	-1.46
5_2_101	W-16	Appendix IV	Antimony	mg/l	4	2	50%	2022-04-01 to 2022-07-15		Nonparametric	0.000407	0.000400	0.000400	0.000430	0.0000150	0.0368	0	2.00	4.00
5_2_102	W-16	Appendix IV	Arsenic	mg/l	4	2	50%	2022-04-01 to 2022-07-15		Nonparametric	0.000423	0.000340	0.000330	0.000680	0.000172	0.407	0.0000148	1.98	3.94
5_2_103	W-16	Appendix IV	Barium	mg/l	4	1	25%	2022-04-01 to 2022-07-15		Nonparametric	0.0318	0.0135	0.0120	0.0880	0.0375	1.18	0.00148	2.0	3.99
5_2_104	W-16	Appendix IV	Beryllium	mg/l	4	3	75%	2022-04-01 to 2022-07-15		Nonparametric	0.00683	0.000110	0.0000800	0.0270	0.0135	1.97	0.0000444	2.0	4.0
5_2_106	W-16	Appendix IV	Cadmium	mg/l	4	1	25%	2022-04-01 to 2022-07-15		Nonparametric	0.00310	0.00240	0.00210	0.00550	0.00161	0.519	0.000296	1.94	3.80
5_2_109	W-16	Appendix IV	Chromium, Total	mg/l	4	4	100%	2022-04-01 to 2022-07-15		Nonparametric	0.0279	0.000500	0.000500	0.110	0.0548	1.96	0	2.00	4.00
5_2_110	W-16	Appendix IV	Cobalt	mg/l	7	1	14%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	0.0153	0.0160	0.0110	0.0190	0.00298	0.195	0.00444	-0.228	-1.60
5_2_112	W-16	Appendix IV	Fluoride (App IV)	mg/l	4	0	0%	2022-04-01 to 2022-10-31		Nonparametric	5.92	1.69	0.320	20.0	9.46	1.60	1.91	1.91	3.67
5_2_113	W-16	Appendix IV	Lead	mg/l	4	2	50%	2022-04-01 to 2022-07-15		Nonparametric	0.00619	0.000295	0.000180	0.0240	0.0119	1.92	0.000170	2.0	4.0
5_2_114	W-16	Appendix IV	Lithium	mg/l	4	0	0%	2022-04-01 to 2022-07-15		Nonparametric	2.35	2.35	2.30	2.40	0.0577	0.0246	0.0741	0.0000000000000231	-6.00
5_2_115	W-16	Appendix IV	Mercury	mg/l	4	4	100%	2022-04-01 to 2022-07-15		Nonparametric	0.0000733	0.0000610	0.0000610	0.000110	0.0000245	0.334	0	2.00	4.0
5_2_116	W-16	Appendix IV	Molybdenum	mg/l	4	1	25%	2022-04-01 to 2022-07-15		Nonparametric	0.0344	0.00720	0.00320	0.120	0.0572	1.66	0.00578	1.98	3.92
5_2_120	W-16	Appendix IV	Radium-226+228	pci/l	4	0	0%	2022-04-01 to 2022-07-15		Nonparametric	2.27	2.29	1.66	2.87	0.599	0.263	0.741	-0.0360	-5.02
5_2_122	W-16	Appendix IV	Selenium	mg/l	4	0	0%	2022-04-01 to 2022-07-15		Nonparametric	0.119	0.120	0.0980	0.140	0.0237	0.198	0.0296	-0.00617	-5.96
5_2_126	W-16	Appendix IV	Thallium	mg/l	4	1	25%	2022-04-01 to 2022-07-15		Nonparametric	0.0102	0.00495	0.00480	0.0260	0.0106	1.04	0.000148	2.0	4.0
5_3_119	W-16	Supplemental	Radium-226	pci/l	4	0	0%	2022-04-01 to 2022-07-15		Nonparametric	0.764	0.660	0.488	1.25	0.335	0.439	0.159	1.59	2.79
5_3_121	W-16	Supplemental	Radium-228	pci/l	4	1	25%	2022-04-01 to 2022-07-15		Nonparametric	1.59	1.62	0.943	2.17	0.625	0.393	0.741	-0.0951	-5.25
5_3_124	W-16	Supplemental	Temperature (field)	deg c	7	0	0%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	18.1	17.9	14.2	21.0	2.39	0.132	1.94	-0.340	-0.238
5_3_125	W-16	Supplemental	Temperature (lab)	deg c	7	0	0%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	19.9	19.9	18.2	21.5	1.19	0.0596	1.48	-0.0481	-0.979
5_3_128	W-16	Supplemental	Total Suspended Solids	mg/l	7	2	29%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	2.83	2.00	1.10	6.40	2.11	0.746	1.33	1.14	-0.347

(Table continues on next page)

^a Non-detects are excluded from goodness-of-fit tests.



ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit ^a	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	MAD/0.675	Skewness	Kurtosis
6_1_105	W-3B	Appendix III	Boron	mg/l	9	1	11%	2021-12-10 to 2022-10-27	Gamma; Lognormal; Normal	Normal	1.70	1.10	0.850	4.70	1.24	0.727	0.370	2.11	4.89
6_1_107	W-3B	Appendix III	Calcium	mg/l	9	0	0%	2021-12-10 to 2022-10-27	Gamma; Lognormal; Normal	Normal	380	430	210	480	107	0.282	74.1	-0.847	-0.977
6_1_108	W-3B	Appendix III	Chloride (as Cl)	mg/l	9	0	0%	2021-12-10 to 2022-10-27	Gamma; Lognormal; Normal	Normal	1084	1100	820	1500	201	0.186	148	0.782	1.72
6_1_111	W-3B	Appendix III	Fluoride	mg/l	9	5	56%	2021-12-10 to 2022-10-27		Nonparametric	37.5	1.70	0.170	100	44.6	1.19	2.27	0.382	-2.25
6_1_117	W-3B	Appendix III	pH (field)	su	9	0	0%	2021-12-10 to 2022-10-27	Gamma; Lognormal; Normal	Normal	6.43	6.40	6.22	6.75	0.161	0.0251	0.163	0.832	0.656
6_1_118	W-3B	Appendix III	pH (lab)	su	9	0	0%	2021-12-10 to 2022-10-27	Gamma; Lognormal; Normal	Normal	6.79	6.80	6.60	7.10	0.145	0.0214	0.148	1.19	2.03
6_1_123	W-3B	Appendix III	Sulfate (as SO4)	mg/l	9	0	0%	2021-12-10 to 2022-10-27	Nonparametric	Nonparametric	55222	50000	43000	91000	15263	0.276	1481	2.03	3.87
6_1_127	W-3B	Appendix III	Total Dissolved Solids	mg/l	9	1	11%	2021-12-10 to 2022-10-27	Gamma; Lognormal; Normal	Normal	58830	65000	470	73000	22250	0.378	4444	-2.81	8.19
6_2_101	W-3B	Appendix IV	Antimony	mg/l	8	4	50%	2021-12-10 to 2022-10-27		Nonparametric	0.00205	0.000475	0.000400	0.00690	0.00247	1.21	0.000104	1.35	0.783
6_2_102	W-3B	Appendix IV	Arsenic	mg/l	8	3	38%	2021-12-10 to 2022-10-27	Gamma; Lognormal; Normal	Normal	0.00142	0.000795	0.000630	0.00380	0.00124	0.877	0.0000667	1.56	0.792
6_2_103	W-3B	Appendix IV	Barium	mg/l	9	1	11%	2021-12-10 to 2022-10-27	Gamma; Lognormal; Normal	Normal	0.0230	0.0150	0.0130	0.0880	0.0244	1.06	0.00148	2.99	8.96
6_2_104	W-3B	Appendix IV	Beryllium	mg/l	9	6	67%	2021-12-10 to 2022-10-27		Nonparametric	0.00395	0.000290	0.0000800	0.0270	0.00873	2.21	0.000311	2.89	8.51
6_2_106	W-3B	Appendix IV	Cadmium	mg/l	9	0	0%	2021-12-10 to 2022-10-27	Nonparametric	Nonparametric	0.0179	0.0170	0.0150	0.0230	0.00247	0.138	0	1.44	1.52
6_2_109	W-3B	Appendix IV	Chromium, Total	mg/l	9	4	44%	2021-12-10 to 2022-10-27	Gamma; Lognormal; Normal	Normal	0.0145	0.000850	0.000540	0.110	0.0360	2.48	0.000415	2.94	8.72
6_2_110	W-3B	Appendix IV	Cobalt	mg/l	9	0	0%	2021-12-10 to 2022-10-27	Normal	Normal	0.103	0.110	0.00350	0.150	0.0423	0.411	0.0148	-1.76	4.19
6_2_112	W-3B	Appendix IV	Fluoride (App IV)	mg/l	9	5	56%	2021-12-10 to 2022-10-27		Nonparametric	37.5	1.70	0.170	100	44.6	1.19	2.27	0.382	-2.25
6_2_113	W-3B	Appendix IV	Lead	mg/l	9	4	44%	2021-12-10 to 2022-10-27	Gamma; Lognormal; Normal	Normal	0.00364	0.000790	0.000490	0.0240	0.00767	2.11	0.000326	2.95	8.76
6_2_114	W-3B	Appendix IV	Lithium	mg/l	9	0	0%	2021-12-10 to 2022-10-27	Gamma; Normal	Normal	3.11	3.10	2.50	3.40	0.262	0.0842	0.148	-1.71	3.92
6_2_115	W-3B	Appendix IV	Mercury	mg/l	9	9	100%	2021-12-10 to 2022-10-27		Nonparametric	0.0000894	0.0000610	0.0000610	0.000150	0.0000357	0.399	0	0.674	-1.31
6_2_116	W-3B	Appendix IV	Molybdenum	mg/l	9	3	33%	2021-12-10 to 2022-10-27	Nonparametric	Nonparametric	0.0179	0.00270	0.00170	0.120	0.0385	2.15	0.00148	2.94	8.74
6_2_120	W-3B	Appendix IV	Radium-226+228	pci/l	9	0	0%	2021-12-10 to 2022-10-27	Gamma; Lognormal; Normal	Normal	11.3	11.5	8.15	13.6	2.00	0.177	1.78	-0.637	-0.806
6_2_122	W-3B	Appendix IV	Selenium	mg/l	9	1	11%	2021-12-10 to 2022-10-27	Gamma; Lognormal; Normal	Normal	0.0188	0.00740	0.00470	0.0960	0.0292	1.55	0.00400	2.89	8.51
6_2_126	W-3B	Appendix IV	Thallium	mg/l	9	1	11%	2021-12-10 to 2022-10-27	Gamma; Lognormal; Normal	Normal	0.00550	0.00300	0.00260	0.0260	0.00769	1.40	0.000148	3.0	8.98
6_3_119	W-3B	Supplemental	Radium-226	pci/l	9	0	0%	2021-12-10 to 2022-10-27	Gamma; Lognormal; Normal	Normal	3.90	3.87	3.49	4.41	0.326	0.0835	0.504	0.210	-1.25
6_3_121	W-3B	Supplemental	Radium-228	pci/l	9	0	0%	2021-12-10 to 2022-10-27	Gamma; Lognormal; Normal	Normal	7.42	7.59	4.63	10.1	1.89	0.255	1.57	-0.261	-0.801
6_3_124	W-3B	Supplemental	Temperature (field)	deg c	9	0	0%	2021-12-10 to 2022-10-27	Gamma; Lognormal; Normal	Normal	15.4	16.1	10.3	19.4	3.25	0.212	2.79	-0.601	-0.874
6_3_125	W-3B	Supplemental	Temperature (lab)	deg c	9	0	0%	2021-12-10 to 2022-10-27	Gamma; Lognormal; Normal	Normal	21.1	20.8	18.0	23.1	1.54	0.0731	1.93	-0.863	0.966
6_3_128	W-3B	Supplemental	Total Suspended Solids	mg/l	9	0	0%	2021-12-10 to 2022-10-27	Gamma; Lognormal; Normal	Normal	10.6	8.00	4.00	27.0	7.27	0.685	4.15	1.70	2.88
7_1_105	W-5B	Appendix III	Boron	mg/l	12	1	8%	2021-01-14 to 2022-10-27	Nonparametric	Nonparametric	1.18	1.10	1.00	1.70	0.196	0.167	0.0741	2.07	4.58
7_1_107	W-5B	Appendix III	Calcium	mg/l	12	0	0%	2021-01-14 to 2022-10-27	Gamma; Lognormal; Normal	Normal	508	500	460	590	37.9	0.0745	37.0	0.878	0.396
7_1_108	W-5B	Appendix III	Chloride (as Cl)	mg/l	12	0	0%	2021-01-14 to 2022-10-27	Nonparametric	Nonparametric	102	100	97.0	110	5.10	0.0501	2.22	1.13	-0.492
7_1_111	W-5B	Appendix III	Fluoride	mg/l	12	1	8%	2021-01-14 to 2022-10-27	Nonparametric	Nonparametric	1.66	0.385	0.170	9.00	2.97	1.79	0.200	2.13	3.35
7_1_117	W-5B	Appendix III	pH (field)	su	12	0	0%	2021-01-14 to 2022-10-27	Nonparametric	Nonparametric	6.96	7.07	5.84	7.15	0.359	0.0516	0.0593	-3.26	11
7_1_118	W-5B	Appendix III	pH (lab)	su	12	0	0%	2021-01-14 to 2022-10-27	Gamma; Lognormal; Normal	Normal	7.33	7.35	7.10	7.50	0.114	0.0155	0.0741	-0.583	-0.138
7_1_123	W-5B	Appendix III	Sulfate (as SO4)	mg/l	12	0	0%	2021-01-14 to 2022-10-27	Gamma; Lognormal; Normal	Normal	3508	3550	3100	4100	278	0.0792	222	0.538	0.626
7_1_127	W-5B	Appendix III	Total Dissolved Solids	mg/l	12	0	0%	2021-01-14 to 2022-10-27	Gamma; Lognormal; Normal	Normal	5033	5150	4600	5300	293	0.0583	222	-0.497	-1.65
7_2_101	W-5B	Appendix IV	Antimony	mg/l	12	11	92%	2021-01-14 to 2022-10-27		Nonparametric	0.00177	0.000530	0.000400	0.00690	0.00241	1.37	0.000193	1.51	0.656
7_2_102	W-5B	Appendix IV	Arsenic	mg/l	12	8	67%	2021-01-14 to 2022-10-27		Nonparametric	0.00187	0.000555	0.000330	0.00750	0.00273	1.46	0.000333	1.78	1.75
7_2_103	W-5B	Appendix IV	Barium	mg/l	12	1	8%	2021-01-14 to 2022-10-27	Nonparametric	Nonparametric	0.0182	0.0180	0.0170	0.0220	0.00154	0.0846	0.00148	1.45	2.05
7_2_104	W-5B	Appendix IV	Beryllium	mg/l	11	9	82%	2021-01-14 to 2022-10-27		Nonparametric	0.00107	0.000310	0.0000800	0.00310	0.00125	1.17	0.000341	0.765	-1.45
7_2_106	W-5B	Appendix IV	Cadmium	mg/l	12	2	17%	2021-01-14 to 2022-10-27	Gamma; Lognormal; Normal	Normal	0.00115	0.000890	0.000550	0.00280	0.000653	0.567	0.000378	1.76	3.03
7_2_109	W-5B	Appendix IV	Chromium, Total	mg/l	12	11	92%	2021-01-14 to 2022-10-27		Nonparametric	0.00360	0.000980	0.000500	0.0110	0.00438	1.22	0.000711	1.12	-0.606

(Table continues on next page)

^a Non-detects are excluded from goodness-of-fit tests.



Table 1: Summary Statistics, Non-Detects Included (*continued*)

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit ^a	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	MAD/0.675	Skewness	Kurtosis
7_2_110	W-5B	Appendix IV	Cobalt	mg/l	12	0	0%	2021-01-14 to 2022-10-27	Gamma; Lognormal; Normal	Normal	0.00299	0.00300	0.00190	0.00400	0.000560	0.187	0.000444	-0.107	0.451
7_2_112	W-5B	Appendix IV	Fluoride (App IV)	mg/l	12	1	8%	2021-01-14 to 2022-10-27	Nonparametric	Nonparametric	1.66	0.385	0.170	9.00	2.97	1.79	0.200	2.13	3.35
7_2_113	W-5B	Appendix IV	Lead	mg/l	12	8	67%	2021-01-14 to 2022-10-27		Nonparametric	0.00104	0.000450	0.000180	0.00450	0.00136	1.30	0.000385	1.87	3.07
7_2_114	W-5B	Appendix IV	Lithium	mg/l	12	0	0%	2021-01-14 to 2022-10-27	Gamma; Lognormal; Normal	Normal	0.273	0.275	0.220	0.330	0.0333	0.122	0.0370	-0.0320	-0.844
7_2_115	W-5B	Appendix IV	Mercury	mg/l	11	11	100%	2021-01-14 to 2022-10-27		Nonparametric	0.000203	0.000110	0.0000610	0.00130	0.000365	1.80	0.0000726	3.26	10.7
7_2_116	W-5B	Appendix IV	Molybdenum	mg/l	12	4	33%	2021-01-14 to 2022-10-27	Nonparametric	Nonparametric	0.00558	0.00320	0.00150	0.0120	0.00446	0.801	0.00244	0.507	-1.75
7_2_120	W-5B	Appendix IV	Radium-226+228	pci/l	11	0	0%	2021-01-14 to 2022-10-27	Gamma; Lognormal	Gamma	2.22	1.88	1.54	5.35	1.10	0.493	0.400	2.74	8.09
7_2_122	W-5B	Appendix IV	Selenium	mg/l	12	5	42%	2021-01-14 to 2022-10-27	Gamma; Lognormal; Normal	Normal	0.00335	0.00115	0.000570	0.00960	0.00377	1.13	0.000859	1.11	-0.663
7_2_126	W-5B	Appendix IV	Thallium	mg/l	12	4	33%	2021-01-14 to 2022-10-27	Gamma; Lognormal; Normal	Normal	0.00121	0.000850	0.000610	0.00260	0.000737	0.607	0.000126	1.41	0.307
7_3_119	W-5B	Supplemental	Radium-226	pci/l	11	0	0%	2021-01-14 to 2022-10-27	Gamma; Lognormal; Normal	Normal	0.678	0.642	0.445	1.05	0.159	0.235	0.0578	1.16	2.45
7_3_121	W-5B	Supplemental	Radium-228	pci/l	11	0	0%	2021-01-14 to 2022-10-27	Lognormal	Lognormal	1.54	1.20	0.722	4.71	1.10	0.714	0.319	2.79	8.38
7_3_124	W-5B	Supplemental	Temperature (field)	deg c	12	0	0%	2021-01-14 to 2022-10-27	Gamma; Lognormal; Normal	Normal	16.8	16.2	14.7	20.6	1.99	0.118	1.70	1.04	-0.0197
7_3_125	W-5B	Supplemental	Temperature (lab)	deg c	12	0	0%	2021-01-14 to 2022-10-27	Gamma; Lognormal; Normal	Normal	20.6	20.4	17.8	23.6	1.56	0.0759	1.04	0.213	0.242
7_3_128	W-5B	Supplemental	Total Suspended Solids	mg/l	12	6	50%	2021-01-14 to 2022-10-27	Gamma; Lognormal; Normal	Nonparametric	1.62	1.35	1.10	2.80	0.631	0.390	0.370	0.803	-0.885
8_1_105	W-6B1	Appendix III	Boron	mg/l	9	1	11%	2021-12-09 to 2022-10-27	Nonparametric	Nonparametric	1.80	1.10	0.980	4.80	1.24	0.688	0.178	2.07	4.73
8_1_107	W-6B1	Appendix III	Calcium	mg/l	9	0	0%	2021-12-09 to 2022-10-27	Gamma; Lognormal; Normal	Normal	384	410	230	500	99.0	0.258	119	-0.291	-1.46
8_1_108	W-6B1	Appendix III	Chloride (as Cl)	mg/l	9	0	0%	2021-12-09 to 2022-10-27	Nonparametric	Nonparametric	1191	1300	120	1800	448	0.376	148	-1.77	5.11
8_1_111	W-6B1	Appendix III	Fluoride	mg/l	9	5	56%	2021-12-09 to 2022-10-27		Nonparametric	18.6	0.170	0.170	85.0	33.9	1.82	0	1.64	0.995
8_1_117	W-6B1	Appendix III	pH (field)	su	9	0	0%	2021-12-09 to 2022-10-27	Gamma; Lognormal; Normal	Normal	6.46	6.45	6.35	6.66	0.0974	0.0151	0.119	1.10	1.51
8_1_118	W-6B1	Appendix III	pH (lab)	su	9	0	0%	2021-12-09 to 2022-10-27	Gamma; Lognormal; Normal	Normal	6.88	6.80	6.70	7.10	0.139	0.0203	0.148	0.858	-0.304
8_1_123	W-6B1	Appendix III	Sulfate (as SO4)	mg/l	9	0	0%	2021-12-09 to 2022-10-27	Nonparametric	Nonparametric	53556	50000	46000	80000	10772	0.201	4444	2.27	5.34
8_1_127	W-6B1	Appendix III	Total Dissolved Solids	mg/l	9	0	0%	2021-12-09 to 2022-10-27	Gamma; Lognormal; Normal	Normal	65000	63000	55000	73000	5745	0.0884	5926	-0.137	-0.383
8_2_101	W-6B1	Appendix IV	Antimony	mg/l	9	4	44%	2021-12-09 to 2022-10-27	Nonparametric	Nonparametric	0.00205	0.000930	0.000400	0.00730	0.00240	1.17	0.000785	1.63	2.03
8_2_102	W-6B1	Appendix IV	Arsenic	mg/l	9	3	33%	2021-12-09 to 2022-10-27	Gamma; Lognormal; Normal	Normal	0.00233	0.00160	0.000330	0.00750	0.00224	0.962	0.00188	1.76	3.43
8_2_103	W-6B1	Appendix IV	Barium	mg/l	9	1	11%	2021-12-09 to 2022-10-27	Gamma; Lognormal; Normal	Normal	0.0263	0.0180	0.0150	0.0880	0.0233	0.885	0.00296	2.92	8.62
8_2_104	W-6B1	Appendix IV	Beryllium	mg/l	9	5	56%	2021-12-09 to 2022-10-27		Nonparametric	0.00397	0.000300	0.0000800	0.0270	0.00872	2.20	0.000326	2.90	8.52
8_2_106	W-6B1	Appendix IV	Cadmium	mg/l	9	0	0%	2021-12-09 to 2022-10-27	Lognormal	Lognormal	0.0153	0.0120	0.00850	0.0270	0.00794	0.520	0.00459	0.800	-1.58
8_2_109	W-6B1	Appendix IV	Chromium, Total	mg/l	9	5	56%	2021-12-09 to 2022-10-27		Nonparametric	0.0160	0.00220	0.000500	0.110	0.0355	2.23	0.00252	2.92	8.61
8_2_110	W-6B1	Appendix IV	Cobalt	mg/l	9	0	0%	2021-12-09 to 2022-10-27	Normal	Normal	0.0976	0.100	0.0130	0.140	0.0372	0.382	0.0296	-1.52	3.22
8_2_112	W-6B1	Appendix IV	Fluoride (App IV)	mg/l	9	5	56%	2021-12-09 to 2022-10-27		Nonparametric	18.6	0.170	0.170	85.0	33.9	1.82	0	1.64	0.995
8_2_113	W-6B1	Appendix IV	Lead	mg/l	9	4	44%	2021-12-09 to 2022-10-27	Gamma; Lognormal; Normal	Normal	0.00363	0.000840	0.000340	0.0240	0.00768	2.12	0.000652	2.94	8.74
8_2_114	W-6B1	Appendix IV	Lithium	mg/l	9	0	0%	2021-12-09 to 2022-10-27	Gamma; Lognormal; Normal	Normal	3.71	3.60	2.80	4.60	0.483	0.130	0.296	-0.0104	2.0
8_2_115	W-6B1	Appendix IV	Mercury	mg/l	9	9	100%	2021-12-09 to 2022-10-27		Nonparametric	0.0000894	0.0000610	0.0000610	0.000150	0.0000357	0.399	0	0.674	-1.31
8_2_116	W-6B1	Appendix IV	Molybdenum	mg/l	9	3	33%	2021-12-09 to 2022-10-27	Gamma; Lognormal; Normal	Normal	0.0193	0.00680	0.00330	0.120	0.0379	1.96	0.00341	2.97	8.87
8_2_120	W-6B1	Appendix IV	Radium-226+228	pci/l	9	0	0%	2021-12-09 to 2022-10-27	Gamma; Lognormal; Normal	Normal	9.75	9.84	6.99	13.1	2.22	0.227	2.90	0.212	-1.47
8_2_122	W-6B1	Appendix IV	Selenium	mg/l	9	2	22%	2021-12-09 to 2022-10-27	Gamma; Lognormal; Normal	Normal	0.0171	0.00620	0.00340	0.0960	0.0299	1.75	0.00415	2.89	8.48
8_2_126	W-6B1	Appendix IV	Thallium	mg/l	9	1	11%	2021-12-09 to 2022-10-27	Gamma; Lognormal; Normal	Normal	0.00578	0.00310	0.00190	0.0260	0.00765	1.32	0.00163	2.89	8.53
8_3_119	W-6B1	Supplemental	Radium-226	pci/l	9	0	0%	2021-12-09 to 2022-10-27	Gamma; Lognormal; Normal	Normal	2.99	2.94	1.84	3.89	0.627	0.210	0.607	-0.411	-0.0344
8_3_121	W-6B1	Supplemental	Radium-228	pci/l	9	0	0%	2021-12-09 to 2022-10-27	Gamma; Lognormal; Normal	Normal	6.76	6.90	3.43	10.5	2.29	0.339	2.76	0.0262	-0.739
8_3_124	W-6B1	Supplemental	Temperature (field)	deg c	9	0	0%	2021-12-09 to 2022-10-27	Gamma; Lognormal; Normal	Normal	16.9	16.6	13.4	20.6	2.17	0.128	2.37	-0.00658	0.0809
8_3_125	W-6B1	Supplemental	Temperature (lab)	deg c	9	0	0%	2021-12-09 to 2022-10-27	Gamma; Lognormal; Normal	Normal	20.9	20.6	18.8	23.6	1.54	0.0737	1.93	0.445	-0.463
8_3_128	W-6B1	Supplemental	Total Suspended Solids	mg/l	9	0	0%	2021-12-09 to 2022-10-27	Gamma; Lognormal; Normal	Normal	23.2	16.0	4.40	64.0	18.5	0.799	16.3	1.47	2.30

(Table continues on next page)

^a Non-detects are excluded from goodness-of-fit tests.



Table 1: Summary Statistics, Non-Detects Included (*continued*)

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit ^a	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	MAD/0.675	Skewness	Kurtosis
9_1_105	W-7	Appendix III	Boron	mg/l	17	2	12%	2020-08-27 to 2022-10-28	Gamma; Lognormal; Normal	Normal	2.77	2.60	0.840	6.30	1.33	0.482	1.33	0.929	1.87
9_1_107	W-7	Appendix III	Calcium	mg/l	17	0	0%	2020-08-27 to 2022-10-28	Nonparametric	Nonparametric	359	410	140	500	121	0.337	74.1	-0.774	-0.992
9_1_108	W-7	Appendix III	Chloride (as Cl)	mg/l	17	0	0%	2020-08-27 to 2022-10-28	Nonparametric	Nonparametric	749	740	630	1100	101	0.135	44.4	2.73	9.60
9_1_111	W-7	Appendix III	Fluoride	mg/l	17	7	41%	2020-08-27 to 2022-10-28	Normal	Normal	48.7	3.90	0.170	170	61.1	1.25	5.53	1.00	-0.217
9_1_117	W-7	Appendix III	pH (field)	su	17	0	0%	2020-08-27 to 2022-10-28	Gamma; Lognormal; Normal	Normal	6.57	6.55	6.35	7.00	0.145	0.0221	0.104	1.48	4.12
9_1_118	W-7	Appendix III	pH (lab)	su	17	0	0%	2020-08-27 to 2022-10-28	Nonparametric	Nonparametric	6.94	7.00	6.80	7.20	0.118	0.0169	0.148	0.370	-0.224
9_1_123	W-7	Appendix III	Sulfate (as SO4)	mg/l	17	0	0%	2020-08-27 to 2022-10-28	Gamma; Lognormal	Gamma	51118	47000	20000	86000	15744	0.308	8889	0.702	1.19
9_1_127	W-7	Appendix III	Total Dissolved Solids	mg/l	17	0	0%	2020-08-27 to 2022-10-28	Nonparametric	Nonparametric	70647	66000	33000	130000	25189	0.357	5926	1.39	2.82
9_2_101	W-7	Appendix IV	Antimony	mg/l	17	13	76%	2020-08-27 to 2022-10-28		Nonparametric	0.00271	0.000600	0.000400	0.00770	0.00278	1.03	0.000296	0.675	-1.44
9_2_102	W-7	Appendix IV	Arsenic	mg/l	17	2	12%	2020-08-27 to 2022-10-28	Normal	Normal	0.0111	0.0110	0.000560	0.0310	0.00853	0.771	0.00844	0.631	0.263
9_2_103	W-7	Appendix IV	Barium	mg/l	17	4	24%	2020-08-27 to 2022-10-28	Nonparametric	Nonparametric	0.0266	0.0170	0.0120	0.0880	0.0215	0.805	0.00741	2.18	4.20
9_2_104	W-7	Appendix IV	Beryllium	mg/l	16	14	88%	2020-08-27 to 2022-10-28		Nonparametric	0.00291	0.000615	0.0000890	0.0270	0.00654	2.25	0.000616	3.77	14.7
9_2_106	W-7	Appendix IV	Cadmium	mg/l	17	0	0%	2020-08-27 to 2022-10-28	Nonparametric	Nonparametric	0.00815	0.00600	0.00510	0.0390	0.00800	0.981	0.000889	4.03	16.5
9_2_109	W-7	Appendix IV	Chromium, Total	mg/l	17	9	53%	2020-08-27 to 2022-10-28	Gamma; Lognormal; Normal	Nonparametric	0.0117	0.00490	0.000890	0.110	0.0258	2.21	0.00504	3.86	15.4
9_2_110	W-7	Appendix IV	Cobalt	mg/l	17	0	0%	2020-08-27 to 2022-10-28	Nonparametric	Nonparametric	0.0207	0.0170	0.0140	0.0630	0.0114	0.551	0.00296	3.56	13.6
9_2_112	W-7	Appendix IV	Fluoride (App IV)	mg/l	17	7	41%	2020-08-27 to 2022-10-28	Normal	Nonparametric	48.7	3.90	0.170	170	61.1	1.25	5.53	1.00	-0.217
9_2_113	W-7	Appendix IV	Lead	mg/l	17	8	47%	2020-08-27 to 2022-10-28	Lognormal	Nonparametric	0.00536	0.00220	0.000580	0.0370	0.00983	1.83	0.00204	2.78	7.32
9_2_114	W-7	Appendix IV	Lithium	mg/l	17	0	0%	2020-08-27 to 2022-10-28	Gamma; Lognormal; Normal	Normal	3.97	3.90	1.90	5.60	0.999	0.252	0.741	-0.0851	-0.221
9_2_115	W-7	Appendix IV	Mercury	mg/l	16	10	62%	2020-08-27 to 2022-10-28		Nonparametric	0.000208	0.000130	0.0000610	0.00130	0.000295	1.42	0.0000296	3.85	15.1
9_2_116	W-7	Appendix IV	Molybdenum	mg/l	17	7	41%	2020-08-27 to 2022-10-28	Nonparametric	Nonparametric	0.0150	0.00560	0.00450	0.120	0.0276	1.84	0.00104	3.89	15.6
9_2_120	W-7	Appendix IV	Radium-226+228	pci/l	15	0	0%	2020-08-27 to 2022-10-28	Gamma; Lognormal; Normal	Normal	4.77	4.74	2.19	6.90	1.14	0.238	1.02	-0.246	1.16
9_2_122	W-7	Appendix IV	Selenium	mg/l	17	0	0%	2020-08-27 to 2022-10-28	Gamma; Lognormal; Normal	Normal	1.82	1.90	0.760	2.40	0.401	0.221	0.296	-1.00	1.63
9_2_126	W-7	Appendix IV	Thallium	mg/l	17	1	6%	2020-08-27 to 2022-10-28	Nonparametric	Nonparametric	0.00849	0.00480	0.00420	0.0380	0.00923	1.09	0.000444	2.74	7.07
9_3_119	W-7	Supplemental	Radium-226	pci/l	16	0	0%	2020-08-27 to 2022-10-28	Gamma; Lognormal; Normal	Normal	2.13	2.13	1.22	3.36	0.439	0.206	0.222	0.950	4.40
9_3_121	W-7	Supplemental	Radium-228	pci/l	16	1	6%	2020-08-27 to 2022-10-28	Gamma; Lognormal; Normal	Normal	2.72	2.52	1.33	4.64	0.942	0.347	0.800	0.597	0.0711
9_3_124	W-7	Supplemental	Temperature (field)	deg c	17	0	0%	2020-08-27 to 2022-10-28	Gamma; Lognormal; Normal	Normal	16.1	16.1	13.4	19.7	1.82	0.112	1.78	0.617	0.0472
9_3_125	W-7	Supplemental	Temperature (lab)	deg c	17	0	0%	2020-08-27 to 2022-10-28	Gamma; Lognormal; Normal	Normal	20.8	20.6	17.9	23.3	1.66	0.0797	1.93	-0.198	-0.887
9_3_128	W-7	Supplemental	Total Suspended Solids	mg/l	17	0	0%	2020-08-27 to 2022-10-28	Gamma; Lognormal	Gamma	46.7	29.0	6.00	120	40.4	0.865	32.9	0.720	-0.956

^a Non-detects are excluded from goodness-of-fit tests.



Table 2: Summary Statistics, Non-Detects Excluded

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	MAD/0.675	Skewness	Kurtosis
10_1_105	W-9	Appendix III	Boron	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Nonparametric	Nonparametric	1.99	1.80	1.70	2.60	0.352	0.177	0.148	1.49	0.532
10_1_107	W-9	Appendix III	Calcium	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	446	430	380	600	74.3	0.167	59.3	1.37	1.28
10_1_108	W-9	Appendix III	Chloride (as Cl)	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	368	370	280	460	47.6	0.130	14.8	0.177	2.37
10_1_111	W-9	Appendix III	Fluoride	mg/l	9	2	22%	2021-01-13 to 2022-10-29	Lognormal	Nonparametric	6.09	0.610	0.320	20.0	9.51	1.56	0.430	1.23	-0.842
10_1_117	W-9	Appendix III	pH (field)	su	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	6.96	6.99	6.85	7.14	0.0985	0.0141	0.133	0.466	-0.586
10_1_118	W-9	Appendix III	pH (lab)	su	9	0	0%	2021-01-13 to 2022-10-29	Lognormal; Normal	Normal	7.31	7.30	7.20	7.50	0.0928	0.0127	0	0.944	1.35
10_1_123	W-9	Appendix III	Sulfate (as SO4)	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	11556	12000	10000	13000	882	0.0763	1481	-0.214	0.144
10_1_127	W-9	Appendix III	Total Dissolved Solids	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	16778	17000	13000	19000	1856	0.111	1481	-1.09	0.963
10_2_101	W-9	Appendix IV	Antimony	mg/l	9	4	44%	2021-01-13 to 2022-10-29	Gamma; Lognormal	Gamma	0.00231	0.000920	0.000470	0.00760	0.00299	1.29	0.000667	2.12	4.55
10_2_102	W-9	Appendix IV	Arsenic	mg/l	9	4	44%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	0.000836	0.000830	0.000710	0.00100	0.000115	0.138	0.000119	0.526	-0.638
10_2_103	W-9	Appendix IV	Barium	mg/l	9	1	11%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	0.0189	0.0190	0.0140	0.0240	0.00356	0.189	0.00444	0.0604	-1.62
10_2_106	W-9	Appendix IV	Cadmium	mg/l	9	5	56%	2021-01-13 to 2022-10-29		Nonparametric	0.000828	0.000935	0.000340	0.00110	0.000360	0.435	0.000244	-1.08	-0.147
10_2_109	W-9	Appendix IV	Chromium, Total	mg/l	9	6	67%	2021-01-13 to 2022-10-29		Nonparametric	0.00199	0.00130	0.000870	0.00380	0.00158	0.795	0.000637	1.59	NA
10_2_110	W-9	Appendix IV	Cobalt	mg/l	9	1	11%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	0.00489	0.00330	0.000840	0.0160	0.00492	1.00	0.00316	1.97	4.34
10_2_112	W-9	Appendix IV	Fluoride (App IV)	mg/l	9	2	22%	2021-01-13 to 2022-10-29	Lognormal	Nonparametric	6.09	0.610	0.320	20.0	9.51	1.56	0.430	1.23	-0.842
10_2_113	W-9	Appendix IV	Lead	mg/l	9	7	78%	2021-01-13 to 2022-10-29		Nonparametric	0.000270	0.000270	0.000230	0.000310	0.0000566	0.210	0.0000593	NA	NA
10_2_114	W-9	Appendix IV	Lithium	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	1.11	1.20	0.870	1.30	0.142	0.127	0.148	-0.616	-0.777
10_2_116	W-9	Appendix IV	Molybdenum	mg/l	9	3	33%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	0.00588	0.00660	0.00310	0.00790	0.00219	0.372	0.00178	-0.529	-2.21
10_2_120	W-9	Appendix IV	Radium-226+228	pci/l	8	1	12%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	1.93	1.82	1.43	2.67	0.453	0.234	0.459	0.723	-0.557
10_2_122	W-9	Appendix IV	Selenium	mg/l	9	1	11%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	0.00572	0.00505	0.00310	0.00990	0.00259	0.453	0.00178	1.02	-0.479
10_2_126	W-9	Appendix IV	Thallium	mg/l	9	5	56%	2021-01-13 to 2022-10-29		Nonparametric	0.000430	0.000440	0.000220	0.000620	0.000187	0.434	0.000215	-0.171	-3.75
10_3_119	W-9	Supplemental	Radium-226	pci/l	8	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	0.788	0.739	0.436	1.09	0.254	0.322	0.377	0.0312	-1.68
10_3_121	W-9	Supplemental	Radium-228	pci/l	8	2	25%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	1.23	1.12	0.846	1.97	0.398	0.324	0.249	1.61	2.99
10_3_124	W-9	Supplemental	Temperature (field)	deg c	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	16.6	15.8	13.4	19.6	2.10	0.126	1.63	0.209	-0.942
10_3_125	W-9	Supplemental	Temperature (lab)	deg c	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	20.7	20.4	18.3	23.5	1.88	0.0912	2.07	0.246	-1.29
10_3_128	W-9	Supplemental	Total Suspended Solids	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	8.04	5.20	2.00	24.0	7.01	0.871	4.74	1.65	3.02
1_1_105	W-1	Appendix III	Boron	mg/l	18	0	0%	2020-03-05 to 2022-11-30	Gamma; Lognormal; Normal	Normal	4.66	4.45	3.00	8.10	1.26	0.270	1.33	1.22	2.14
1_1_107	W-1	Appendix III	Calcium	mg/l	18	0	0%	2020-03-05 to 2022-11-30	Nonparametric	Nonparametric	361	395	140	500	107	0.298	37.0	-1.22	0.419
1_1_108	W-1	Appendix III	Chloride (as Cl)	mg/l	18	0	0%	2020-03-05 to 2022-11-30	Gamma; Lognormal; Normal	Normal	756	765	620	990	82.1	0.109	51.9	1.15	3.15
1_1_111	W-1	Appendix III	Fluoride	mg/l	18	1	6%	2020-03-05 to 2022-11-30	Nonparametric	Nonparametric	24.4	18.0	2.70	96.0	26.0	1.07	22.4	1.32	2.05
1_1_117	W-1	Appendix III	pH (field)	su	12	0	0%	2020-10-15 to 2022-11-30	Gamma; Lognormal; Normal	Normal	7.19	7.17	7.09	7.37	0.0915	0.0127	0.111	0.700	-0.599
1_1_118	W-1	Appendix III	pH (lab)	su	18	0	0%	2020-03-05 to 2022-11-30	Nonparametric	Nonparametric	7.42	7.40	7.30	7.60	0.0808	0.0109	0	1.05	1.33
1_1_123	W-1	Appendix III	Sulfate (as SO4)	mg/l	18	0	0%	2020-03-05 to 2022-11-30	Normal	Normal	26889	27000	12000	36000	5487	0.204	4444	-0.702	2.32
1_1_127	W-1	Appendix III	Total Dissolved Solids	mg/l	18	0	0%	2020-03-05 to 2022-11-30	Gamma; Lognormal; Normal	Normal	42111	38500	9000	87000	19393	0.461	8148	0.701	0.826
1_2_101	W-1	Appendix IV	Antimony	mg/l	18	13	72%	2020-03-05 to 2022-11-30	Nonparametric	Nonparametric	0.000790	0.000710	0.000660	0.00120	0.000231	0.292	0.0000741	2.16	4.71
1_2_102	W-1	Appendix IV	Arsenic	mg/l	18	3	17%	2020-03-05 to 2022-11-30	Normal	Normal	0.00841	0.00940	0.000770	0.0170	0.00451	0.536	0.00326	-0.317	0.109
1_2_103	W-1	Appendix IV	Barium	mg/l	18	3	17%	2020-03-05 to 2022-11-30	Lognormal	Lognormal	0.0303	0.0210	0.0130	0.0920	0.0234	0.771	0.0104	1.70	2.42
1_2_104	W-1	Appendix IV	Beryllium	mg/l	17	15	88%	2020-03-05 to 2022-11-30		Nonparametric	0.000370	0.000370	0.000330	0.000410	0.0000566	0.153	0.0000593	NA	NA
1_2_106	W-1	Appendix IV	Cadmium	mg/l	18	9	50%	2020-03-05 to 2022-11-30	Gamma; Lognormal; Normal	Nonparametric	0.000443	0.000410	0.000310	0.000600	0.0000996	0.225	0.0000741	0.519	-0.897
1_2_109	W-1	Appendix IV	Chromium, Total	mg/l	18	8	44%	2020-03-05 to 2022-11-30	Gamma; Lognormal	Gamma	0.00594	0.00340	0.00100	0.0200	0.00600	1.01	0.00244	1.70	2.62
1_2_110	W-1	Appendix IV	Cobalt	mg/l	18	7	39%	2020-03-05 to 2022-11-30	Gamma; Lognormal; Normal	Normal	0.00193	0.00180	0.000390	0.00360	0.000993	0.515	0.000889	0.509	-0.416
1_2_112	W-1	Appendix IV	Fluoride (App IV)	mg/l	18	1	6%	2020-03-05 to 2022-11-30	Nonparametric	Nonparametric	24.4	18.0	2.70	96.0	26.0	1.07	22.4	1.32	2.05
1_2_113	W-1	Appendix IV	Lead	mg/l	18	9	50%	2020-03-05 to 2022-11-30	Gamma; Lognormal	Nonparametric	0.00201	0.00140	0.000300	0.00640	0.00190	0.945	0.000622	1.87	3.56

(Table continues on next page)



ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	MAD/0.675	Skewness	Kurtosis
1_2_114	W-1	Appendix IV	Lithium	mg/l	18	0	0%	2020-03-05 to 2022-11-30	Gamma; Lognormal; Normal	Normal	2.13	2.15	1.70	2.50	0.227	0.107	0.222	-0.523	-0.106
1_2_116	W-1	Appendix IV	Molybdenum	mg/l	18	1	6%	2020-03-05 to 2022-11-30	Gamma; Lognormal; Normal	Normal	0.0206	0.0190	0.0140	0.0290	0.00469	0.228	0.00444	0.578	-0.781
1_2_120	W-1	Appendix IV	Radium-226+228	pci/l	18	0	0%	2020-03-24 to 2022-11-30	Gamma; Lognormal	Gamma	2.20	2.0	0.899	4.82	1.06	0.482	0.644	1.66	2.68
1_2_122	W-1	Appendix IV	Selenium	mg/l	18	0	0%	2020-03-05 to 2022-11-30	Gamma; Lognormal	Gamma	0.881	0.805	0.570	1.60	0.254	0.289	0.141	1.67	2.92
1_2_126	W-1	Appendix IV	Thallium	mg/l	18	11	61%	2020-03-05 to 2022-11-30	Lognormal	Nonparametric	0.000626	0.000360	0.000210	0.00190	0.000600	0.959	0.0000444	2.08	4.29
1_3_119	W-1	Supplemental	Radium-226	pci/l	18	1	6%	2020-03-24 to 2022-11-30	Gamma; Lognormal	Gamma	0.691	0.587	0.336	2.15	0.432	0.625	0.215	2.66	8.41
1_3_121	W-1	Supplemental	Radium-228	pci/l	18	2	11%	2020-03-24 to 2022-11-30	Gamma; Lognormal; Normal	Normal	1.67	1.33	0.587	4.48	0.942	0.565	0.496	1.90	4.62
1_3_124	W-1	Supplemental	Temperature (field)	deg c	12	0	0%	2020-10-15 to 2022-11-30	Nonparametric	Nonparametric	29.8	16.2	11.0	184	48.7	1.64	1.78	3.45	12
1_3_125	W-1	Supplemental	Temperature (lab)	deg c	18	0	0%	2020-03-05 to 2022-11-30	Gamma; Lognormal; Normal	Normal	21.4	21.4	19.1	24.5	1.36	0.0637	1.41	0.381	0.0474
1_3_128	W-1	Supplemental	Total Suspended Solids	mg/l	18	0	0%	2020-03-05 to 2022-11-30	Gamma; Lognormal	Gamma	47.1	24.0	2.40	270	64.7	1.38	29.9	2.71	8.45
2_1_105	W-11	Appendix III	Boron	mg/l	9	1	11%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	1.04	0.845	0.560	1.90	0.498	0.477	0.363	1.05	-0.318
2_1_107	W-11	Appendix III	Calcium	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Normal	Normal	424	420	4.10	720	192	0.454	88.9	-1.03	3.07
2_1_108	W-11	Appendix III	Chloride (as Cl)	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Nonparametric	Nonparametric	263	310	2.90	360	125	0.476	29.6	-1.63	1.48
2_1_111	W-11	Appendix III	Fluoride	mg/l	9	1	11%	2021-01-13 to 2022-10-29	Gamma; Lognormal	Gamma	5.91	0.750	0.350	25.0	9.59	1.62	0.585	1.62	1.28
2_1_117	W-11	Appendix III	pH (field)	su	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	6.81	6.83	6.69	6.95	0.0851	0.0125	0.104	0.154	-0.884
2_1_118	W-11	Appendix III	pH (lab)	su	9	0	0%	2021-01-13 to 2022-10-29		Nonparametric	7.21	7.20	7.10	7.30	0.0782	0.0108	0.148	-0.216	-1.04
2_1_123	W-11	Appendix III	Sulfate (as SO4)	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Nonparametric	Nonparametric	28000	14000	13000	140000	42006	1.50	1481	3.0	8.99
2_1_127	W-11	Appendix III	Total Dissolved Solids	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Lognormal; Normal	Normal	21222	20000	18000	24000	2048	0.0965	2963	-0.0462	-1.43
2_2_101	W-11	Appendix IV	Antimony	mg/l	9	7	78%	2021-01-13 to 2022-10-29		Nonparametric	0.000915	0.000915	0.000430	0.00140	0.000686	0.750	0.000719	NA	NA
2_2_102	W-11	Appendix IV	Arsenic	mg/l	9	3	33%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Gamma	0.00911	0.00791	0.000430	0.0190	0.00948	1.04	0.0111	0.0904	-3.10
2_2_103	W-11	Appendix IV	Barium	mg/l	9	1	11%	2021-01-13 to 2022-10-29	Nonparametric	Nonparametric	0.0430	0.0145	0.0120	0.240	0.0796	1.85	0.00296	2.82	7.98
2_2_104	W-11	Appendix IV	Beryllium	mg/l	8	6	75%	2021-01-13 to 2022-10-29		Nonparametric	0.000140	0.000140	0.000120	0.000160	0.0000283	0.202	0.0000296	NA	NA
2_2_106	W-11	Appendix IV	Cadmium	mg/l	9	2	22%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	0.00139	0.00140	0.00110	0.00190	0.000285	0.206	0.000296	0.863	0.569
2_2_109	W-11	Appendix IV	Chromium, Total	mg/l	9	5	56%	2021-01-13 to 2022-10-29		Nonparametric	0.00147	0.00140	0.00100	0.00210	0.000486	0.329	0.000444	0.688	-0.946
2_2_110	W-11	Appendix IV	Cobalt	mg/l	9	1	11%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	0.0165	0.0170	0.00730	0.0230	0.00538	0.325	0.00519	-0.817	-0.227
2_2_112	W-11	Appendix IV	Fluoride (App IV)	mg/l	9	1	11%	2021-01-13 to 2022-10-29	Gamma; Lognormal	Gamma	5.91	0.750	0.350	25.0	9.59	1.62	0.585	1.62	1.28
2_2_113	W-11	Appendix IV	Lead	mg/l	9	7	78%	2021-01-13 to 2022-10-29		Nonparametric	0.000680	0.000680	0.000370	0.000990	0.000438	0.645	0.000459	NA	NA
2_2_114	W-11	Appendix IV	Lithium	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Normal	Normal	3.24	3.70	0.0560	4.50	1.30	0.400	0.444	-2.18	5.47
2_2_116	W-11	Appendix IV	Molybdenum	mg/l	9	5	56%	2021-01-13 to 2022-10-29		Nonparametric	0.00413	0.00420	0.00370	0.00440	0.000310	0.0750	0.000222	-1.14	0.758
2_2_120	W-11	Appendix IV	Radium-226+228	pci/l	8	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal	Gamma	4.13	3.62	2.17	6.59	1.57	0.381	0.393	0.945	-0.221
2_2_122	W-11	Appendix IV	Selenium	mg/l	9	1	11%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	2.70	2.60	2.30	3.20	0.330	0.122	0.370	0.511	-1.26
2_2_126	W-11	Appendix IV	Thallium	mg/l	9	2	22%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Nonparametric	0.00393	0.00390	0.00340	0.00470	0.000454	0.115	0.000444	0.730	-0.167
2_3_119	W-11	Supplemental	Radium-226	pci/l	8	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	1.41	1.52	0.972	1.72	0.280	0.199	0.207	-0.706	-1.21
2_3_121	W-11	Supplemental	Radium-228	pci/l	8	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal	Gamma	2.72	2.07	1.20	4.98	1.44	0.529	0.600	1.10	-0.368
2_3_124	W-11	Supplemental	Temperature (field)	deg c	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	15.1	15.0	11.6	18.2	1.89	0.125	1.19	-0.203	0.892
2_3_125	W-11	Supplemental	Temperature (lab)	deg c	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	21.4	21.0	19.6	22.7	1.18	0.0551	2.07	-0.167	-1.72
2_3_128	W-11	Supplemental	Total Suspended Solids	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	12.1	7.20	2.00	39.0	11.5	0.949	4.15	1.89	3.85
3_1_105	W-12	Appendix III	Boron	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	1.05	0.980	0.640	1.90	0.376	0.358	0.178	1.49	3.05
3_1_107	W-12	Appendix III	Calcium	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Normal	Normal	360	390	56.0	570	160	0.444	59.3	-0.928	0.576
3_1_108	W-12	Appendix III	Chloride (as Cl)	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	901	880	840	1000	55.1	0.0611	29.6	0.938	-0.517
3_1_111	W-12	Appendix III	Fluoride	mg/l	9	2	22%	2021-01-13 to 2022-10-29	Nonparametric	Nonparametric	4.85	0.840	0.180	30.0	11.1	2.29	0.104	2.64	6.99
3_1_117	W-12	Appendix III	pH (field)	su	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	6.74	6.71	6.65	6.91	0.0817	0.0121	0.0296	1.17	0.873
3_1_118	W-12	Appendix III	pH (lab)	su	9	0	0%	2021-01-13 to 2022-10-29		Nonparametric	7.14	7.10	7.10	7.20	0.0527	0.00738	0	0.271	-2.57

(Table continues on next page)



Table 2: Summary Statistics, Non-Detects Excluded (continued)

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	MAD/0.675	Skewness	Kurtosis
3_1_123	W-12	Appendix III	Sulfate (as SO4)	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	16889	17000	16000	19000	1054	0.0624	1481	1.09	0.611
3_1_127	W-12	Appendix III	Total Dissolved Solids	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	25111	25000	23000	27000	1453	0.0579	1481	-0.243	-0.616
3_2_101	W-12	Appendix IV	Antimony	mg/l	9	3	33%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	0.000662	0.000660	0.000590	0.000720	0.0000538	0.0813	0.0000741	-0.0913	-1.84
3_2_102	W-12	Appendix IV	Arsenic	mg/l	9	8	89%	2021-01-13 to 2022-10-29		Nonparametric	0.000350	0.000350	0.000350	0.000350	NA	NA	0	NA	NA
3_2_103	W-12	Appendix IV	Barium	mg/l	9	1	11%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	0.0151	0.0145	0.0130	0.0190	0.00196	0.130	0.000741	1.29	1.22
3_2_104	W-12	Appendix IV	Beryllium	mg/l	8	6	75%	2021-01-13 to 2022-10-29		Nonparametric	0.000175	0.000175	0.000100	0.000250	0.000106	0.606	0.000111	NA	NA
3_2_106	W-12	Appendix IV	Cadmium	mg/l	9	2	22%	2021-01-13 to 2022-10-29	Gamma; Normal	Normal	0.00118	0.00130	0.000540	0.00140	0.000301	0.255	0.000148	-2.00	4.34
3_2_109	W-12	Appendix IV	Chromium, Total	mg/l	9	5	56%	2021-01-13 to 2022-10-29		Nonparametric	0.00130	0.00114	0.000910	0.00200	0.000498	0.384	0.000289	1.38	1.45
3_2_110	W-12	Appendix IV	Cobalt	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	0.0269	0.0290	0.0130	0.0360	0.00690	0.257	0.00593	-0.919	0.956
3_2_112	W-12	Appendix IV	Fluoride (App IV)	mg/l	9	2	22%	2021-01-13 to 2022-10-29	Nonparametric	Nonparametric	4.85	0.840	0.180	30.0	11.1	2.29	0.104	2.64	6.99
3_2_114	W-12	Appendix IV	Lithium	mg/l	9	0	0%	2021-01-13 to 2022-10-29	Normal	Normal	2.22	2.30	0.720	2.80	0.640	0.288	0.444	-1.82	3.99
3_2_116	W-12	Appendix IV	Molybdenum	mg/l	9	4	44%	2021-01-13 to 2022-10-29		Nonparametric	0.00424	0.00420	0.00390	0.00460	0.000351	0.0827	0.000444	0.141	-3.02
3_2_120	W-12	Appendix IV	Radium-226+228	pci/l	8	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	2.70	2.46	1.85	3.96	0.776	0.287	0.844	0.636	-1.03
3_2_122	W-12	Appendix IV	Selenium	mg/l	9	1	11%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	0.0259	0.0245	0.0150	0.0430	0.0104	0.403	0.0119	0.644	-0.906
3_2_126	W-12	Appendix IV	Thallium	mg/l	9	1	11%	2021-01-13 to 2022-10-29	Gamma; Lognormal	Gamma	0.00380	0.00365	0.00330	0.00510	0.000561	0.148	0.000296	2.15	5.33
3_3_119	W-12	Supplemental	Radium-226	pci/l	8	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	0.727	0.744	0.536	0.848	0.0961	0.132	0.0652	-1.04	1.47
3_3_121	W-12	Supplemental	Radium-228	pci/l	8	1	12%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	2.10	1.89	1.15	3.17	0.699	0.333	0.681	0.367	-0.739
3_3_124	W-12	Supplemental	Temperature (field)	deg c	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	15.0	14.9	14.4	16.0	0.550	0.0367	0.593	0.840	-0.191
3_3_125	W-12	Supplemental	Temperature (lab)	deg c	9	0	0%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	21.4	21.6	18.0	22.7	1.46	0.0683	1.33	-1.69	3.58
3_3_128	W-12	Supplemental	Total Suspended Solids	mg/l	9	1	11%	2021-01-13 to 2022-10-29	Gamma; Lognormal; Normal	Normal	10.1	9.40	2.80	22.0	5.96	0.591	5.04	1.08	1.66
4_1_105	W-14	Appendix III	Boron	mg/l	7	0	0%	2022-04-01 to 2022-10-31	Nonparametric	Nonparametric	0.673	0.610	0.590	1.00	0.147	0.218	0.0296	2.48	6.28
4_1_107	W-14	Appendix III	Calcium	mg/l	7	0	0%	2022-04-01 to 2022-10-31	Nonparametric	Nonparametric	437	430	420	480	19.8	0.0452	0	2.18	5.22
4_1_108	W-14	Appendix III	Chloride (as Cl)	mg/l	7	0	0%	2022-04-01 to 2022-10-31	Nonparametric	Nonparametric	647	660	590	670	28.1	0.0434	0	-1.80	2.91
4_1_111	W-14	Appendix III	Fluoride	mg/l	7	0	0%	2022-04-01 to 2022-10-31	Normal	Nonparametric	21	30.0	0.290	40.0	19.3	0.920	14.8	-0.283	-2.69
4_1_117	W-14	Appendix III	pH (field)	su	7	0	0%	2022-04-01 to 2022-10-31	Nonparametric	Nonparametric	6.75	6.94	5.30	7.25	0.651	0.0964	0.0593	-2.44	6.29
4_1_118	W-14	Appendix III	pH (lab)	su	7	0	0%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	7.31	7.30	7.20	7.50	0.107	0.0146	0.148	0.772	0.263
4_1_123	W-14	Appendix III	Sulfate (as SO4)	mg/l	7	0	0%	2022-04-01 to 2022-10-31	Nonparametric	Nonparametric	19857	18000	17000	31000	4981	0.251	1481	2.50	6.41
4_1_127	W-14	Appendix III	Total Dissolved Solids	mg/l	7	0	0%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	25143	24000	23000	28000	1864	0.0742	1481	0.577	-1.33
4_2_101	W-14	Appendix IV	Antimony	mg/l	7	0	0%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	0.000563	0.000550	0.000420	0.000800	0.000124	0.220	0.000104	1.17	1.99
4_2_102	W-14	Appendix IV	Arsenic	mg/l	7	1	14%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	0.000447	0.000445	0.000400	0.000500	0.0000333	0.0745	0.0000222	0.388	1.15
4_2_103	W-14	Appendix IV	Barium	mg/l	7	1	14%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	0.0155	0.0155	0.0140	0.0170	0.00138	0.0889	0.00222	0.00000000000000275	-2.30
4_2_104	W-14	Appendix IV	Beryllium	mg/l	7	3	43%	2022-04-01 to 2022-10-31		Nonparametric	0.000240	0.000245	0.000130	0.000340	0.000101	0.421	0.000119	-0.132	-4.42
4_2_106	W-14	Appendix IV	Cadmium	mg/l	7	0	0%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	0.00117	0.00110	0.000970	0.00150	0.000166	0.142	0.000148	1.45	3.11
4_2_109	W-14	Appendix IV	Chromium, Total	mg/l	7	1	14%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	0.00119	0.00130	0.000680	0.00170	0.000395	0.333	0.000370	-0.336	-1.26
4_2_110	W-14	Appendix IV	Cobalt	mg/l	7	0	0%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	0.0113	0.0110	0.0100	0.0130	0.000951	0.0843	0	0.863	1.24
4_2_112	W-14	Appendix IV	Fluoride (App IV)	mg/l	7	0	0%	2022-04-01 to 2022-10-31	Normal	Nonparametric	21	30.0	0.290	40.0	19.3	0.920	14.8	-0.283	-2.69
4_2_113	W-14	Appendix IV	Lead	mg/l	7	5	71%	2022-04-01 to 2022-10-31		Nonparametric	0.000315	0.000315	0.000250	0.000380	0.0000919	0.292	0.0000963	NA	NA
4_2_114	W-14	Appendix IV	Lithium	mg/l	7	0	0%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	3.44	3.50	3.30	3.60	0.113	0.0329	0.148	-0.235	-1.23
4_2_116	W-14	Appendix IV	Molybdenum	mg/l	7	1	14%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	0.0168	0.0160	0.0150	0.0220	0.00264	0.157	0.00148	2.03	4.37
4_2_120	W-14	Appendix IV	Radium-226+228	pci/l	7	0	0%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	3.62	3.64	1.94	5.62	1.52	0.420	2.21	0.305	-1.78
4_2_122	W-14	Appendix IV	Selenium	mg/l	7	0	0%	2022-04-01 to 2022-10-31		Nonparametric	1.26	1.30	1.20	1.30	0.0535	0.0425	0	-0.374	-2.80
4_2_126	W-14	Appendix IV	Thallium	mg/l	7	1	14%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	0.00222	0.00215	0.00200	0.00250	0.000194	0.0876	0.000148	0.638	-1.24
4_3_119	W-14	Supplemental	Radium-226	pci/l	7	0	0%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	1.45	1.33	1.01	2.09	0.357	0.245	0.430	0.835	0.632

(Table continues on next page)



Table 2: Summary Statistics, Non-Detects Excluded (*continued*)

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	MAD/0.675	Skewness	Kurtosis
4_3_121	W-14	Supplemental	Radium-228	pci/l	7	1	14%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	2.39	2.44	0.685	4.29	1.34	0.562	1.64	0.106	-0.906
4_3_124	W-14	Supplemental	Temperature (field)	deg c	7	0	0%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	17.3	17.7	15.3	19.2	1.53	0.0884	2.21	-0.114	-1.91
4_3_125	W-14	Supplemental	Temperature (lab)	deg c	7	0	0%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	20.5	20.6	18.1	21.9	1.38	0.0673	1.63	-0.811	0.0456
4_3_128	W-14	Supplemental	Total Suspended Solids	mg/l	7	3	43%	2022-04-01 to 2022-10-31		Nonparametric	5.70	5.60	2.80	8.80	3.14	0.551	3.85	0.0419	-5.60
5_1_105	W-16	Appendix III	Boron	mg/l	7	0	0%	2022-04-01 to 2022-10-31	Nonparametric	Nonparametric	0.756	0.720	0.700	0.900	0.0732	0.0969	0.0148	1.66	2.06
5_1_107	W-16	Appendix III	Calcium	mg/l	7	0	0%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	451	450	410	490	29.7	0.0657	29.6	-0.0328	-1.57
5_1_108	W-16	Appendix III	Chloride (as Cl)	mg/l	7	0	0%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	247	250	230	270	15	0.0605	14.8	0.256	-0.968
5_1_111	W-16	Appendix III	Fluoride	mg/l	4	0	0%	2022-04-01 to 2022-10-31		Nonparametric	5.92	1.69	0.320	20.0	9.46	1.60	1.91	1.91	3.67
5_1_117	W-16	Appendix III	pH (field)	su	7	0	0%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	6.64	6.66	6.13	6.97	0.253	0.0382	0.0741	-1.32	3.50
5_1_118	W-16	Appendix III	pH (lab)	su	7	0	0%	2022-04-01 to 2022-10-31		Nonparametric	6.99	7.00	6.90	7.10	0.0900	0.0129	0.148	0.353	-1.82
5_1_123	W-16	Appendix III	Sulfate (as SO4)	mg/l	7	0	0%	2022-04-01 to 2022-10-31		Nonparametric	12714	13000	12000	13000	488	0.0384	0	-1.23	-0.840
5_1_127	W-16	Appendix III	Total Dissolved Solids	mg/l	6	0	0%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	18500	17500	16000	22000	2429	0.131	1481	0.754	-1.46
5_2_101	W-16	Appendix IV	Antimony	mg/l	4	2	50%	2022-04-01 to 2022-07-15		Nonparametric	0.000415	0.000415	0.000400	0.000430	0.0000212	0.0511	0.0000222	NA	NA
5_2_102	W-16	Appendix IV	Arsenic	mg/l	4	2	50%	2022-04-01 to 2022-07-15		Nonparametric	0.000515	0.000515	0.000350	0.000680	0.000233	0.453	0.000244	NA	NA
5_2_103	W-16	Appendix IV	Barium	mg/l	4	1	25%	2022-04-01 to 2022-07-15		Nonparametric	0.0130	0.0130	0.0120	0.0140	0.00100	0.0769	0.00148	0.00000000000000807	NA
5_2_104	W-16	Appendix IV	Beryllium	mg/l	4	3	75%	2022-04-01 to 2022-07-15		Nonparametric	0.000140	0.000140	0.000140	0.000140	NA	NA	0	NA	NA
5_2_106	W-16	Appendix IV	Cadmium	mg/l	4	1	25%	2022-04-01 to 2022-07-15		Nonparametric	0.00230	0.00230	0.00210	0.00250	0.000200	0.0870	0.000296	0	NA
5_2_110	W-16	Appendix IV	Cobalt	mg/l	7	1	14%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	0.0147	0.0145	0.0110	0.0180	0.00273	0.186	0.00296	-0.0948	-1.82
5_2_112	W-16	Appendix IV	Fluoride (App IV)	mg/l	4	0	0%	2022-04-01 to 2022-10-31		Nonparametric	5.92	1.69	0.320	20.0	9.46	1.60	1.91	1.91	3.67
5_2_113	W-16	Appendix IV	Lead	mg/l	4	2	50%	2022-04-01 to 2022-07-15		Nonparametric	0.000295	0.000295	0.000180	0.000410	0.000163	0.551	0.000170	NA	NA
5_2_114	W-16	Appendix IV	Lithium	mg/l	4	0	0%	2022-04-01 to 2022-07-15		Nonparametric	2.35	2.35	2.30	2.40	0.0577	0.0246	0.0741	0.00000000000000231	-6.00
5_2_116	W-16	Appendix IV	Molybdenum	mg/l	4	1	25%	2022-04-01 to 2022-07-15		Nonparametric	0.00587	0.00340	0.00320	0.0110	0.00445	0.758	0.000296	1.73	NA
5_2_120	W-16	Appendix IV	Radium-226+228	pci/l	4	0	0%	2022-04-01 to 2022-07-15		Nonparametric	2.27	2.29	1.66	2.87	0.599	0.263	0.741	-0.0360	-5.02
5_2_122	W-16	Appendix IV	Selenium	mg/l	4	0	0%	2022-04-01 to 2022-07-15		Nonparametric	0.119	0.120	0.0980	0.140	0.0237	0.198	0.0296	-0.00617	-5.96
5_2_126	W-16	Appendix IV	Thallium	mg/l	4	1	25%	2022-04-01 to 2022-07-15		Nonparametric	0.00490	0.00490	0.00480	0.00500	0.000100	0.0204	0.000148	0	NA
5_3_119	W-16	Supplemental	Radium-226	pci/l	4	0	0%	2022-04-01 to 2022-07-15		Nonparametric	0.764	0.660	0.488	1.25	0.335	0.439	0.159	1.59	2.79
5_3_121	W-16	Supplemental	Radium-228	pci/l	4	1	25%	2022-04-01 to 2022-07-15		Nonparametric	1.81	2.08	1.17	2.17	0.553	0.306	0.133	-1.68	NA
5_3_124	W-16	Supplemental	Temperature (field)	deg c	7	0	0%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	18.1	17.9	14.2	21.0	2.39	0.132	1.94	-0.340	-0.238
5_3_125	W-16	Supplemental	Temperature (lab)	deg c	7	0	0%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	19.9	19.9	18.2	21.5	1.19	0.0596	1.48	-0.0481	-0.979
5_3_128	W-16	Supplemental	Total Suspended Solids	mg/l	7	2	29%	2022-04-01 to 2022-10-31	Gamma; Lognormal; Normal	Nonparametric	3.52	2.40	1.60	6.40	2.14	0.609	1.19	0.704	-2.23
6_1_105	W-3B	Appendix III	Boron	mg/l	9	1	11%	2021-12-10 to 2022-10-27	Gamma; Lognormal; Normal	Normal	1.64	1.03	0.850	4.70	1.31	0.797	0.244	2.30	5.56
6_1_107	W-3B	Appendix III	Calcium	mg/l	9	0	0%	2021-12-10 to 2022-10-27	Gamma; Lognormal; Normal	Normal	380	430	210	480	107	0.282	74.1	-0.847	-0.977
6_1_108	W-3B	Appendix III	Chloride (as Cl)	mg/l	9	0	0%	2021-12-10 to 2022-10-27	Gamma; Lognormal; Normal	Normal	1084	1100	820	1500	201	0.186	148	0.782	1.72
6_1_111	W-3B	Appendix III	Fluoride	mg/l	9	5	56%	2021-12-10 to 2022-10-27		Nonparametric	83.8	83.0	69.0	100	12.7	0.152	11.1	0.349	1.45
6_1_117	W-3B	Appendix III	pH (field)	su	9	0	0%	2021-12-10 to 2022-10-27	Gamma; Lognormal; Normal	Normal	6.43	6.40	6.22	6.75	0.161	0.0251	0.163	0.832	0.656
6_1_118	W-3B	Appendix III	pH (lab)	su	9	0	0%	2021-12-10 to 2022-10-27	Gamma; Lognormal; Normal	Normal	6.79	6.80	6.60	7.10	0.145	0.0214	0.148	1.19	2.03
6_1_123	W-3B	Appendix III	Sulfate (as SO4)	mg/l	9	0	0%	2021-12-10 to 2022-10-27	Nonparametric	Nonparametric	55222	50000	43000	91000	15263	0.276	1481	2.03	3.87
6_1_127	W-3B	Appendix III	Total Dissolved Solids	mg/l	9	1	11%	2021-12-10 to 2022-10-27	Gamma; Lognormal; Normal	Normal	66125	65000	60000	73000	4291	0.0649	3704	0.421	-0.512
6_2_101	W-3B	Appendix IV	Antimony	mg/l	8	4	50%	2021-12-10 to 2022-10-27		Nonparametric	0.000447	0.000435	0.000410	0.000510	0.0000435	0.0972	0.0000222	1.50	2.65
6_2_102	W-3B	Appendix IV	Arsenic	mg/l	8	3	38%	2021-12-10 to 2022-10-27	Gamma; Lognormal; Normal	Normal	0.000758	0.000770	0.000630	0.000820	0.0000779	0.103	0.0000741	-1.43	2.11
6_2_103	W-3B	Appendix IV	Barium	mg/l	9	1	11%	2021-12-10 to 2022-10-27	Gamma; Lognormal; Normal	Normal	0.0149	0.0150	0.0130	0.0160	0.000991	0.0666	0.000741	-0.862	0.840
6_2_104	W-3B	Appendix IV	Beryllium	mg/l	9	6	67%	2021-12-10 to 2022-10-27		Nonparametric	0.000223	0.000260	0.000120	0.000290	0.0000907	0.406	0.0000444	-1.52	NA
6_2_106	W-3B	Appendix IV	Cadmium	mg/l	9	0	0%	2021-12-10 to 2022-10-27	Nonparametric	Nonparametric	0.0179	0.0170	0.0150	0.0230	0.00247	0.138	0	1.44	1.52

(Table continues on next page)



Table 2: Summary Statistics, Non-Detects Excluded *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	MAD/0.675	Skewness	Kurtosis
6_2_109	W-3B	Appendix IV	Chromium, Total	mg/l	9	4	44%	2021-12-10 to 2022-10-27	Gamma; Lognormal; Normal	Normal	0.000664	0.000590	0.000540	0.000850	0.000137	0.207	0.0000741	0.720	-2.15
6_2_110	W-3B	Appendix IV	Cobalt	mg/l	9	0	0%	2021-12-10 to 2022-10-27	Normal	Normal	0.103	0.110	0.00350	0.150	0.0423	0.411	0.0148	-1.76	4.19
6_2_112	W-3B	Appendix IV	Fluoride (App IV)	mg/l	9	5	56%	2021-12-10 to 2022-10-27		Nonparametric	83.8	83.0	69.0	100	12.7	0.152	11.1	0.349	1.45
6_2_113	W-3B	Appendix IV	Lead	mg/l	9	4	44%	2021-12-10 to 2022-10-27	Gamma; Lognormal; Normal	Normal	0.000640	0.000660	0.000490	0.000790	0.000115	0.180	0.000133	-0.0577	-0.518
6_2_114	W-3B	Appendix IV	Lithium	mg/l	9	0	0%	2021-12-10 to 2022-10-27	Gamma; Normal	Normal	3.11	3.10	2.50	3.40	0.262	0.0842	0.148	-1.71	3.92
6_2_116	W-3B	Appendix IV	Molybdenum	mg/l	9	3	33%	2021-12-10 to 2022-10-27	Nonparametric	Nonparametric	0.00328	0.00240	0.00170	0.00880	0.00274	0.833	0.000741	2.32	5.50
6_2_120	W-3B	Appendix IV	Radium-226+228	pci/l	9	0	0%	2021-12-10 to 2022-10-27	Gamma; Lognormal; Normal	Normal	11.3	11.5	8.15	13.6	2.00	0.177	1.78	-0.637	-0.806
6_2_122	W-3B	Appendix IV	Selenium	mg/l	9	1	11%	2021-12-10 to 2022-10-27	Gamma; Lognormal; Normal	Normal	0.00918	0.00700	0.00470	0.0160	0.00431	0.469	0.00237	0.867	-0.987
6_2_126	W-3B	Appendix IV	Thallium	mg/l	9	1	11%	2021-12-10 to 2022-10-27	Gamma; Lognormal; Normal	Normal	0.00294	0.00295	0.00260	0.00320	0.000207	0.0703	0.000222	-0.541	-0.699
6_3_119	W-3B	Supplemental	Radium-226	pci/l	9	0	0%	2021-12-10 to 2022-10-27	Gamma; Lognormal; Normal	Normal	3.90	3.87	3.49	4.41	0.326	0.0835	0.504	0.210	-1.25
6_3_121	W-3B	Supplemental	Radium-228	pci/l	9	0	0%	2021-12-10 to 2022-10-27	Gamma; Lognormal; Normal	Normal	7.42	7.59	4.63	10.1	1.89	0.255	1.57	-0.261	-0.801
6_3_124	W-3B	Supplemental	Temperature (field)	deg c	9	0	0%	2021-12-10 to 2022-10-27	Gamma; Lognormal; Normal	Normal	15.4	16.1	10.3	19.4	3.25	0.212	2.79	-0.601	-0.874
6_3_125	W-3B	Supplemental	Temperature (lab)	deg c	9	0	0%	2021-12-10 to 2022-10-27	Gamma; Lognormal; Normal	Normal	21.1	20.8	18.0	23.1	1.54	0.0731	1.93	-0.863	0.966
6_3_128	W-3B	Supplemental	Total Suspended Solids	mg/l	9	0	0%	2021-12-10 to 2022-10-27	Gamma; Lognormal; Normal	Normal	10.6	8.00	4.00	27.0	7.27	0.685	4.15	1.70	2.88
7_1_105	W-5B	Appendix III	Boron	mg/l	12	1	8%	2021-01-14 to 2022-10-27	Nonparametric	Nonparametric	1.13	1.10	1.00	1.40	0.110	0.0979	0	1.53	3.39
7_1_107	W-5B	Appendix III	Calcium	mg/l	12	0	0%	2021-01-14 to 2022-10-27	Gamma; Lognormal; Normal	Normal	508	500	460	590	37.9	0.0745	37.0	0.878	0.396
7_1_108	W-5B	Appendix III	Chloride (as Cl)	mg/l	12	0	0%	2021-01-14 to 2022-10-27	Nonparametric	Nonparametric	102	100	97.0	110	5.10	0.0501	2.22	1.13	-0.492
7_1_111	W-5B	Appendix III	Fluoride	mg/l	12	1	8%	2021-01-14 to 2022-10-27	Nonparametric	Nonparametric	1.80	0.390	0.180	9.00	3.07	1.71	0.119	2.0	2.74
7_1_117	W-5B	Appendix III	pH (field)	su	12	0	0%	2021-01-14 to 2022-10-27	Nonparametric	Nonparametric	6.96	7.07	5.84	7.15	0.359	0.0516	0.0593	-3.26	11
7_1_118	W-5B	Appendix III	pH (lab)	su	12	0	0%	2021-01-14 to 2022-10-27	Gamma; Lognormal; Normal	Normal	7.33	7.35	7.10	7.50	0.114	0.0155	0.0741	-0.583	-0.138
7_1_123	W-5B	Appendix III	Sulfate (as SO4)	mg/l	12	0	0%	2021-01-14 to 2022-10-27	Gamma; Lognormal; Normal	Normal	3508	3550	3100	4100	278	0.0792	222	0.538	0.626
7_1_127	W-5B	Appendix III	Total Dissolved Solids	mg/l	12	0	0%	2021-01-14 to 2022-10-27	Gamma; Lognormal; Normal	Normal	5033	5150	4600	5300	293	0.0583	222	-0.497	-1.65
7_2_101	W-5B	Appendix IV	Antimony	mg/l	12	11	92%	2021-01-14 to 2022-10-27		Nonparametric	0.000490	0.000490	0.000490	0.000490	NA	NA	0	NA	NA
7_2_102	W-5B	Appendix IV	Arsenic	mg/l	12	8	67%	2021-01-14 to 2022-10-27		Nonparametric	0.000485	0.000360	0.000350	0.000870	0.000257	0.529	0.00000741	2.0	3.99
7_2_103	W-5B	Appendix IV	Barium	mg/l	12	1	8%	2021-01-14 to 2022-10-27	Nonparametric	Nonparametric	0.0179	0.0180	0.0170	0.0200	0.00104	0.0583	0.00148	0.856	-0.260
7_2_104	W-5B	Appendix IV	Beryllium	mg/l	11	9	82%	2021-01-14 to 2022-10-27		Nonparametric	0.000112	0.000112	0.0000940	0.000130	0.0000255	0.227	0.0000267	NA	NA
7_2_106	W-5B	Appendix IV	Cadmium	mg/l	12	2	17%	2021-01-14 to 2022-10-27	Gamma; Lognormal; Normal	Normal	0.00113	0.000890	0.000610	0.00280	0.000633	0.561	0.000326	2.40	6.43
7_2_109	W-5B	Appendix IV	Chromium, Total	mg/l	12	11	92%	2021-01-14 to 2022-10-27		Nonparametric	0.000550	0.000550	0.000550	0.000550	NA	NA	0	NA	NA
7_2_110	W-5B	Appendix IV	Cobalt	mg/l	12	0	0%	2021-01-14 to 2022-10-27	Gamma; Lognormal; Normal	Normal	0.00299	0.00300	0.00190	0.00400	0.000560	0.187	0.000444	-0.107	0.451
7_2_112	W-5B	Appendix IV	Fluoride (App IV)	mg/l	12	1	8%	2021-01-14 to 2022-10-27	Nonparametric	Nonparametric	1.80	0.390	0.180	9.00	3.07	1.71	0.119	2.0	2.74
7_2_113	W-5B	Appendix IV	Lead	mg/l	12	8	67%	2021-01-14 to 2022-10-27		Nonparametric	0.000218	0.000215	0.000180	0.000260	0.0000350	0.161	0.0000370	0.321	-1.60
7_2_114	W-5B	Appendix IV	Lithium	mg/l	12	0	0%	2021-01-14 to 2022-10-27	Gamma; Lognormal; Normal	Normal	0.273	0.275	0.220	0.330	0.0333	0.122	0.0370	-0.0320	-0.844
7_2_116	W-5B	Appendix IV	Molybdenum	mg/l	12	4	33%	2021-01-14 to 2022-10-27	Nonparametric	Nonparametric	0.00285	0.00180	0.00150	0.00800	0.00225	0.788	0.000370	2.19	4.75
7_2_120	W-5B	Appendix IV	Radium-226+228	pci/l	11	0	0%	2021-01-14 to 2022-10-27	Gamma; Lognormal	Gamma	2.22	1.88	1.54	5.35	1.10	0.493	0.400	2.74	8.09
7_2_122	W-5B	Appendix IV	Selenium	mg/l	12	5	42%	2021-01-14 to 2022-10-27	Gamma; Lognormal; Normal	Normal	0.00147	0.00110	0.000570	0.00420	0.00131	0.890	0.000785	1.93	3.80
7_2_126	W-5B	Appendix IV	Thallium	mg/l	12	4	33%	2021-01-14 to 2022-10-27	Gamma; Lognormal; Normal	Normal	0.000794	0.000820	0.000610	0.000870	0.0000838	0.106	0.0000667	-1.74	3.43
7_3_119	W-5B	Supplemental	Radium-226	pci/l	11	0	0%	2021-01-14 to 2022-10-27	Gamma; Lognormal; Normal	Normal	0.678	0.642	0.445	1.05	0.159	0.235	0.0578	1.16	2.45
7_3_121	W-5B	Supplemental	Radium-228	pci/l	11	0	0%	2021-01-14 to 2022-10-27	Lognormal	Lognormal	1.54	1.20	0.722	4.71	1.10	0.714	0.319	2.79	8.38
7_3_124	W-5B	Supplemental	Temperature (field)	deg c	12	0	0%	2021-01-14 to 2022-10-27	Gamma; Lognormal; Normal	Normal	16.8	16.2	14.7	20.6	1.99	0.118	1.70	1.04	-0.0197
7_3_125	W-5B	Supplemental	Temperature (lab)	deg c	12	0	0%	2021-01-14 to 2022-10-27	Gamma; Lognormal; Normal	Normal	20.6	20.4	17.8	23.6	1.56	0.0759	1.04	0.213	0.242
7_3_128	W-5B	Supplemental	Total Suspended Solids	mg/l	12	6	50%	2021-01-14 to 2022-10-27	Gamma; Lognormal; Normal	Nonparametric	2.13	2.20	1.60	2.80	0.484	0.227	0.593	0.0751	-1.55
8_1_105	W-6B1	Appendix III	Boron	mg/l	9	1	11%	2021-12-09 to 2022-10-27	Nonparametric	Nonparametric	1.75	1.10	0.980	4.80	1.32	0.751	0.178	2.20	5.05
8_1_107	W-6B1	Appendix III	Calcium	mg/l	9	0	0%	2021-12-09 to 2022-10-27	Gamma; Lognormal; Normal	Normal	384	410	230	500	99.0	0.258	119	-0.291	-1.46

(Table continues on next page)



Table 2: Summary Statistics, Non-Detects Excluded (*continued*)

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	MAD/0.675	Skewness	Kurtosis
8_1_108	W-6B1	Appendix III	Chloride (as Cl)	mg/l	9	0	0%	2021-12-09 to 2022-10-27	Nonparametric	Nonparametric	1191	1300	120	1800	448	0.376	148	-1.77	5.11
8_1_111	W-6B1	Appendix III	Fluoride	mg/l	9	5	56%	2021-12-09 to 2022-10-27		Nonparametric	41.7	39.6	2.50	85.0	42.4	1.02	50.7	0.0779	-5.38
8_1_117	W-6B1	Appendix III	pH (field)	su	9	0	0%	2021-12-09 to 2022-10-27	Gamma; Lognormal; Normal	Normal	6.46	6.45	6.35	6.66	0.0974	0.0151	0.119	1.10	1.51
8_1_118	W-6B1	Appendix III	pH (lab)	su	9	0	0%	2021-12-09 to 2022-10-27	Gamma; Lognormal; Normal	Normal	6.88	6.80	6.70	7.10	0.139	0.0203	0.148	0.858	-0.304
8_1_123	W-6B1	Appendix III	Sulfate (as SO4)	mg/l	9	0	0%	2021-12-09 to 2022-10-27	Nonparametric	Nonparametric	53556	50000	46000	80000	10772	0.201	4444	2.27	5.34
8_1_127	W-6B1	Appendix III	Total Dissolved Solids	mg/l	9	0	0%	2021-12-09 to 2022-10-27	Gamma; Lognormal; Normal	Normal	65000	63000	55000	73000	5745	0.0884	5926	-0.137	-0.383
8_2_101	W-6B1	Appendix IV	Antimony	mg/l	9	4	44%	2021-12-09 to 2022-10-27	Nonparametric	Nonparametric	0.00206	0.000930	0.000530	0.00730	0.00294	1.42	0.000548	2.21	4.90
8_2_102	W-6B1	Appendix IV	Arsenic	mg/l	9	3	33%	2021-12-09 to 2022-10-27	Gamma; Lognormal; Normal	Normal	0.00155	0.00150	0.000330	0.00300	0.000860	0.553	0.000296	0.547	2.21
8_2_103	W-6B1	Appendix IV	Barium	mg/l	9	1	11%	2021-12-09 to 2022-10-27	Gamma; Lognormal; Normal	Normal	0.0186	0.0180	0.0150	0.0240	0.00302	0.162	0.00222	0.852	0.00768
8_2_104	W-6B1	Appendix IV	Beryllium	mg/l	9	5	56%	2021-12-09 to 2022-10-27		Nonparametric	0.000238	0.000280	0.0000910	0.000300	0.0000983	0.413	0.0000148	-1.94	3.83
8_2_106	W-6B1	Appendix IV	Cadmium	mg/l	9	0	0%	2021-12-09 to 2022-10-27	Lognormal	Lognormal	0.0153	0.0120	0.00850	0.0270	0.00794	0.520	0.00459	0.800	-1.58
8_2_109	W-6B1	Appendix IV	Chromium, Total	mg/l	9	5	56%	2021-12-09 to 2022-10-27		Nonparametric	0.00144	0.00135	0.000850	0.00220	0.000574	0.399	0.000481	0.803	0.681
8_2_110	W-6B1	Appendix IV	Cobalt	mg/l	9	0	0%	2021-12-09 to 2022-10-27	Normal	Normal	0.0976	0.100	0.0130	0.140	0.0372	0.382	0.0296	-1.52	3.22
8_2_112	W-6B1	Appendix IV	Fluoride (App IV)	mg/l	9	5	56%	2021-12-09 to 2022-10-27		Nonparametric	41.7	39.6	2.50	85.0	42.4	1.02	50.7	0.0779	-5.38
8_2_113	W-6B1	Appendix IV	Lead	mg/l	9	4	44%	2021-12-09 to 2022-10-27	Gamma; Lognormal; Normal	Normal	0.000618	0.000490	0.000340	0.00120	0.000347	0.562	0.000222	1.63	2.62
8_2_114	W-6B1	Appendix IV	Lithium	mg/l	9	0	0%	2021-12-09 to 2022-10-27	Gamma; Lognormal; Normal	Normal	3.71	3.60	2.80	4.60	0.483	0.130	0.296	-0.0104	2.0
8_2_116	W-6B1	Appendix IV	Molybdenum	mg/l	9	3	33%	2021-12-09 to 2022-10-27	Gamma; Lognormal; Normal	Normal	0.00547	0.00580	0.00330	0.00770	0.00184	0.337	0.00215	-0.213	-2.01
8_2_120	W-6B1	Appendix IV	Radium-226+228	pci/l	9	0	0%	2021-12-09 to 2022-10-27	Gamma; Lognormal; Normal	Normal	9.75	9.84	6.99	13.1	2.22	0.227	2.90	0.212	-1.47
8_2_122	W-6B1	Appendix IV	Selenium	mg/l	9	2	22%	2021-12-09 to 2022-10-27	Gamma; Lognormal; Normal	Normal	0.00760	0.00620	0.00340	0.0160	0.00476	0.627	0.00415	1.08	0.0920
8_2_126	W-6B1	Appendix IV	Thallium	mg/l	9	1	11%	2021-12-09 to 2022-10-27	Gamma; Lognormal; Normal	Normal	0.00325	0.00290	0.00190	0.00500	0.00111	0.343	0.00119	0.478	-1.34
8_3_119	W-6B1	Supplemental	Radium-226	pci/l	9	0	0%	2021-12-09 to 2022-10-27	Gamma; Lognormal; Normal	Normal	2.99	2.94	1.84	3.89	0.627	0.210	0.607	-0.411	-0.0344
8_3_121	W-6B1	Supplemental	Radium-228	pci/l	9	0	0%	2021-12-09 to 2022-10-27	Gamma; Lognormal; Normal	Normal	6.76	6.90	3.43	10.5	2.29	0.339	2.76	0.0262	-0.739
8_3_124	W-6B1	Supplemental	Temperature (field)	deg c	9	0	0%	2021-12-09 to 2022-10-27	Gamma; Lognormal; Normal	Normal	16.9	16.6	13.4	20.6	2.17	0.128	2.37	-0.00658	0.0809
8_3_125	W-6B1	Supplemental	Temperature (lab)	deg c	9	0	0%	2021-12-09 to 2022-10-27	Gamma; Lognormal; Normal	Normal	20.9	20.6	18.8	23.6	1.54	0.0737	1.93	0.445	-0.463
8_3_128	W-6B1	Supplemental	Total Suspended Solids	mg/l	9	0	0%	2021-12-09 to 2022-10-27	Gamma; Lognormal; Normal	Normal	23.2	16.0	4.40	64.0	18.5	0.799	16.3	1.47	2.30
9_1_105	W-7	Appendix III	Boron	mg/l	17	2	12%	2020-08-27 to 2022-10-28	Gamma; Lognormal; Normal	Normal	2.88	2.90	0.840	6.30	1.38	0.481	1.04	0.737	1.57
9_1_107	W-7	Appendix III	Calcium	mg/l	17	0	0%	2020-08-27 to 2022-10-28	Nonparametric	Nonparametric	359	410	140	500	121	0.337	74.1	-0.774	-0.992
9_1_108	W-7	Appendix III	Chloride (as Cl)	mg/l	17	0	0%	2020-08-27 to 2022-10-28	Nonparametric	Nonparametric	749	740	630	1100	101	0.135	44.4	2.73	9.60
9_1_111	W-7	Appendix III	Fluoride	mg/l	17	7	41%	2020-08-27 to 2022-10-28	Normal	Normal	65.4	71.0	0.740	170	56.2	0.859	65.2	0.505	-0.246
9_1_117	W-7	Appendix III	pH (field)	su	17	0	0%	2020-08-27 to 2022-10-28	Gamma; Lognormal; Normal	Normal	6.57	6.55	6.35	7.00	0.145	0.0221	0.104	1.48	4.12
9_1_118	W-7	Appendix III	pH (lab)	su	17	0	0%	2020-08-27 to 2022-10-28	Nonparametric	Nonparametric	6.94	7.00	6.80	7.20	0.118	0.0169	0.148	0.370	-0.224
9_1_123	W-7	Appendix III	Sulfate (as SO4)	mg/l	17	0	0%	2020-08-27 to 2022-10-28	Gamma; Lognormal	Gamma	51118	47000	20000	86000	15744	0.308	8889	0.702	1.19
9_1_127	W-7	Appendix III	Total Dissolved Solids	mg/l	17	0	0%	2020-08-27 to 2022-10-28	Nonparametric	Nonparametric	70647	66000	33000	130000	25189	0.357	5926	1.39	2.82
9_2_101	W-7	Appendix IV	Antimony	mg/l	17	13	76%	2020-08-27 to 2022-10-28		Nonparametric	0.000513	0.000510	0.000430	0.000600	0.0000850	0.166	0.000104	0.0590	-5.13
9_2_102	W-7	Appendix IV	Arsenic	mg/l	17	2	12%	2020-08-27 to 2022-10-28	Normal	Normal	0.0121	0.0110	0.000560	0.0310	0.00849	0.699	0.00741	0.481	0.333
9_2_103	W-7	Appendix IV	Barium	mg/l	17	4	24%	2020-08-27 to 2022-10-28	Nonparametric	Nonparametric	0.0230	0.0160	0.0120	0.0710	0.0167	0.728	0.00296	2.33	5.65
9_2_104	W-7	Appendix IV	Beryllium	mg/l	16	14	88%	2020-08-27 to 2022-10-28		Nonparametric	0.000274	0.000274	0.0000890	0.000460	0.000262	0.956	0.000275	NA	NA
9_2_106	W-7	Appendix IV	Cadmium	mg/l	17	0	0%	2020-08-27 to 2022-10-28	Nonparametric	Nonparametric	0.00815	0.00600	0.00510	0.0390	0.00800	0.981	0.000889	4.03	16.5
9_2_109	W-7	Appendix IV	Chromium, Total	mg/l	17	9	53%	2020-08-27 to 2022-10-28	Gamma; Lognormal; Normal	Nonparametric	0.00521	0.00245	0.000890	0.0210	0.00673	1.29	0.00208	2.31	5.66
9_2_110	W-7	Appendix IV	Cobalt	mg/l	17	0	0%	2020-08-27 to 2022-10-28	Nonparametric	Nonparametric	0.0207	0.0170	0.0140	0.0630	0.0114	0.551	0.00296	3.56	13.6
9_2_112	W-7	Appendix IV	Fluoride (App IV)	mg/l	17	7	41%	2020-08-27 to 2022-10-28	Normal	Nonparametric	65.4	71.0	0.740	170	56.2	0.859	65.2	0.505	-0.246
9_2_113	W-7	Appendix IV	Lead	mg/l	17	8	47%	2020-08-27 to 2022-10-28	Lognormal	Nonparametric	0.00517	0.000840	0.000580	0.0370	0.0120	2.31	0.000385	2.98	8.91
9_2_114	W-7	Appendix IV	Lithium	mg/l	17	0	0%	2020-08-27 to 2022-10-28	Gamma; Lognormal; Normal	Normal	3.97	3.90	1.90	5.60	0.999	0.252	0.741	-0.0851	-0.221

(Table continues on next page)



Table 2: Summary Statistics, Non-Detects Excluded (continued)

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Date Range	Distributions Fit	Recommended Distribution	Mean	Median	Minimum	Maximum	SD	CV	MAD/0.675	Skewness	Kurtosis
9_2_115	W-7	Appendix IV	Mercury	mg/l	16	10	62%	2020-08-27 to 2022-10-28		Nonparametric	0.000168	0.000160	0.000130	0.000240	0.0000458	0.272	0.0000444	0.686	-0.948
9_2_116	W-7	Appendix IV	Molybdenum	mg/l	17	7	41%	2020-08-27 to 2022-10-28	Nonparametric	Nonparametric	0.00716	0.00525	0.00450	0.0250	0.00628	0.877	0.000444	3.14	9.92
9_2_120	W-7	Appendix IV	Radium-226+228	pci/l	15	0	0%	2020-08-27 to 2022-10-28	Gamma; Lognormal; Normal	Normal	4.77	4.74	2.19	6.90	1.14	0.238	1.02	-0.246	1.16
9_2_122	W-7	Appendix IV	Selenium	mg/l	17	0	0%	2020-08-27 to 2022-10-28	Gamma; Lognormal; Normal	Normal	1.82	1.90	0.760	2.40	0.401	0.221	0.296	-1.00	1.63
9_2_126	W-7	Appendix IV	Thallium	mg/l	17	1	6%	2020-08-27 to 2022-10-28	Nonparametric	Nonparametric	0.00739	0.00480	0.00420	0.0380	0.00832	1.12	0.000444	3.77	14.6
9_3_119	W-7	Supplemental	Radium-226	pci/l	16	0	0%	2020-08-27 to 2022-10-28	Gamma; Lognormal; Normal	Normal	2.13	2.13	1.22	3.36	0.439	0.206	0.222	0.950	4.40
9_3_121	W-7	Supplemental	Radium-228	pci/l	16	1	6%	2020-08-27 to 2022-10-28	Gamma; Lognormal; Normal	Normal	2.81	2.60	1.43	4.64	0.897	0.319	0.696	0.696	0.197
9_3_124	W-7	Supplemental	Temperature (field)	deg c	17	0	0%	2020-08-27 to 2022-10-28	Gamma; Lognormal; Normal	Normal	16.1	16.1	13.4	19.7	1.82	0.112	1.78	0.617	0.0472
9_3_125	W-7	Supplemental	Temperature (lab)	deg c	17	0	0%	2020-08-27 to 2022-10-28	Gamma; Lognormal; Normal	Normal	20.8	20.6	17.9	23.3	1.66	0.0797	1.93	-0.198	-0.887
9_3_128	W-7	Supplemental	Total Suspended Solids	mg/l	17	0	0%	2020-08-27 to 2022-10-28	Gamma; Lognormal	Gamma	46.7	29.0	6.00	120	40.4	0.865	32.9	0.720	-0.956

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Normal				Lognormal				Gamma				Log-SD (NDs excl.)	ProUCL Distributions Fit	Recommended Distribution
								S-W		Lilliefors		S-W		Lilliefors		K-S		A-D				
								Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value			
10_1_105	W-9	Appendix III	Boron	mg/l	9	0	0%	0.678	0.001	0.378	0.001	0.704	0.002	0.359	0.001	0.371	< 0.01	1.430	< 0.01	0.162	Nonparametric	Nonparametric
10_1_107	W-9	Appendix III	Calcium	mg/l	9	0	0%	0.841	0.060	0.254	0.098	0.873	0.131	0.224	0.217	0.231	>= 0.10	0.554	>= 0.10	0.156	Gamma; Lognormal; Normal	Normal
10_1_108	W-9	Appendix III	Chloride (as Cl)	mg/l	9	0	0%	0.907	0.298	0.259	0.083	0.902	0.263	0.237	0.155	0.242	>= 0.10	0.560	>= 0.10	0.131	Gamma; Lognormal; Normal	Normal
10_1_111	W-9	Appendix III	Fluoride	mg/l	9	2	22%	0.617	0.000	0.421	0.000	0.741	0.010	0.301	0.055	0.377	0.01 <= p < 0.05	1.128	< 0.01	1.855	Lognormal	Nonparametric
10_1_117	W-9	Appendix III	pH (field)	su	9	0	0%	0.915	0.350	0.181	0.540	0.915	0.354	0.180	0.546	0.192	>= 0.10	0.409	>= 0.10	0.014	Gamma; Lognormal; Normal	Normal
10_1_118	W-9	Appendix III	pH (lab)	su	9	0	0%	0.846	0.068	0.325	0.007	0.848	0.071	0.323	0.007	0.327	< 0.01	0.769	0.01 <= p < 0.05	0.013	Lognormal; Normal	Normal
10_1_123	W-9	Appendix III	Sulfate (as SO4)	mg/l	9	0	0%	0.913	0.338	0.248	0.113	0.909	0.307	0.255	0.094	0.265	0.05 <= p < 0.10	0.565	>= 0.10	0.077	Gamma; Lognormal; Normal	Normal
10_1_127	W-9	Appendix III	Total Dissolved Solids	mg/l	9	0	0%	0.906	0.288	0.214	0.273	0.879	0.154	0.231	0.179	0.231	>= 0.10	0.523	>= 0.10	0.117	Gamma; Lognormal; Normal	Normal
10_2_101	W-9	Appendix IV	Antimony	mg/l	9	4	44%	0.683	0.006	0.381	0.017	0.901	0.417	0.246	0.409	0.290	>= 0.10	0.562	>= 0.10	1.061	Gamma; Lognormal	Gamma
10_2_102	W-9	Appendix IV	Arsenic	mg/l	9	4	44%	0.966	0.850	0.172	0.896	0.974	0.901	0.171	0.901	0.195	>= 0.10	0.202	>= 0.10	0.136	Gamma; Lognormal; Normal	Normal
10_2_103	W-9	Appendix IV	Barium	mg/l	9	1	11%	0.922	0.442	0.225	0.275	0.921	0.442	0.239	0.196	0.250	>= 0.10	0.437	>= 0.10	0.192	Gamma; Lognormal; Normal	Normal
10_2_104	W-9	Appendix IV	Beryllium	mg/l	8	8	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
10_2_106	W-9	Appendix IV	Cadmium	mg/l	9	5	56%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.554		Nonparametric
10_2_109	W-9	Appendix IV	Chromium, Total	mg/l	9	6	67%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.762		Nonparametric
10_2_110	W-9	Appendix IV	Cobalt	mg/l	9	1	11%	0.779	0.017	0.255	0.132	0.986	0.988	0.121	0.980	0.168	>= 0.10	0.258	>= 0.10	0.935	Gamma; Lognormal; Normal	Normal
10_2_112	W-9	Appendix IV	Fluoride (App IV)	mg/l	9	2	22%	0.617	0.000	0.421	0.000	0.741	0.010	0.301	0.055	0.377	0.01 <= p < 0.05	1.128	< 0.01	1.855	Lognormal	Nonparametric
10_2_113	W-9	Appendix IV	Lead	mg/l	9	7	78%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.211		Nonparametric
10_2_114	W-9	Appendix IV	Lithium	mg/l	9	0	0%	0.899	0.249	0.283	0.037	0.887	0.188	0.286	0.032	0.302	0.01 <= p < 0.05	0.621	0.05 <= p < 0.10	0.133	Gamma; Lognormal; Normal	Normal
10_2_115	W-9	Appendix IV	Mercury	mg/l	8	8	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
10_2_116	W-9	Appendix IV	Molybdenum	mg/l	9	3	33%	0.828	0.104	0.270	0.185	0.811	0.073	0.269	0.191	0.291	>= 0.10	0.618	0.05 <= p < 0.10	0.425	Gamma; Lognormal; Normal	Normal
10_2_120	W-9	Appendix IV	Radium-226+228	pci/l	8	1	12%	0.923	0.489	0.209	0.467	0.946	0.693	0.170	0.786	0.181	>= 0.10	0.287	>= 0.10	0.228	Gamma; Lognormal; Normal	Normal
10_2_122	W-9	Appendix IV	Selenium	mg/l	9	1	11%	0.834	0.066	0.285	0.056	0.911	0.358	0.211	0.369	0.236	>= 0.10	0.482	>= 0.10	0.423	Gamma; Lognormal; Normal	Normal
10_2_126	W-9	Appendix IV	Thallium	mg/l	9	5	56%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.479		Nonparametric
10_3_119	W-9	Supplemental	Radium-226	pci/l	8	0	0%	0.905	0.321	0.215	0.338	0.918	0.415	0.206	0.404	0.226	>= 0.10	0.357	>= 0.10	0.340	Gamma; Lognormal; Normal	Normal
10_3_121	W-9	Supplemental	Radium-228	pci/l	8	2	25%	0.859	0.184	0.241	0.339	0.936	0.627	0.191	0.705	0.211	>= 0.10	0.349	>= 0.10	0.292	Gamma; Lognormal; Normal	Normal
10_3_124	W-9	Supplemental	Temperature (field)	deg c	9	0	0%	0.920	0.395	0.212	0.288	0.927	0.451	0.195	0.415	0.209	>= 0.10	0.407	>= 0.10	0.126	Gamma; Lognormal; Normal	Normal
10_3_125	W-9	Supplemental	Temperature (lab)	deg c	9	0	0%	0.944	0.626	0.115	0.980	0.947	0.654	0.113	0.985	0.126	>= 0.10	0.239	>= 0.10	0.091	Gamma; Lognormal; Normal	Normal
10_3_128	W-9	Supplemental	Total Suspended Solids	mg/l	9	0	0%	0.820	0.034	0.213	0.281	0.955	0.746	0.165	0.685	0.166	>= 0.10	0.320	>= 0.10	0.830	Gamma; Lognormal; Normal	Normal
1_1_105	W-1	Appendix III	Boron	mg/l	18	0	0%	0.914	0.102	0.140	0.467	0.972	0.840	0.106	0.859	0.109	>= 0.10	0.259	>= 0.10	0.253	Gamma; Lognormal; Normal	Normal
1_1_107	W-1	Appendix III	Calcium	mg/l	18	0	0%	0.817	0.003	0.274	0.001	0.729	0.000	0.336	0.000	0.320	< 0.01	2.042	< 0.01	0.393	Nonparametric	Nonparametric
1_1_108	W-1	Appendix III	Chloride (as Cl)	mg/l	18	0	0%	0.907	0.077	0.183	0.114	0.940	0.284	0.165	0.222	0.169	>= 0.10	0.519	>= 0.10	0.105	Gamma; Lognormal; Normal	Normal
1_1_111	W-1	Appendix III	Fluoride	mg/l	18	1	6%	0.800	0.002	0.262	0.003	0.794	0.002	0.297	0.000	0.302	< 0.01	1.421	< 0.01	1.358	Nonparametric	Nonparametric
1_1_117	W-1	Appendix III	pH (field)	su	12	0	0%	0.898	0.149	0.192	0.257	0.899	0.154	0.192	0.256	0.201	>= 0.10	0.542	>= 0.10	0.013	Gamma; Lognormal; Normal	Normal
1_1_118	W-1	Appendix III	pH (lab)	su	18	0	0%	0.757	0.000	0.386	0.000	0.759	0.000	0.385	0.000	0.388	< 0.01	2.321	< 0.01	0.011	Nonparametric	Nonparametric
1_1_123	W-1	Appendix III	Sulfate (as SO4)	mg/l	18	0	0%	0.914	0.100	0.188	0.092	0.809	0.002	0.244	0.006	0.220	0.01 <= p < 0.05	0.799	0.01 <= p < 0.05	0.240	Normal	Normal
1_1_127	W-1	Appendix III	Total Dissolved Solids	mg/l	18	0	0%	0.928	0.179	0.219	0.023	0.901	0.059	0.227	0.015	0.192	0.05 <= p < 0.10	0.614	>= 0.10	0.537	Gamma; Lognormal; Normal	Normal
1_2_101	W-1	Appendix IV	Antimony	mg/l	18	13	72%	0.654	0.003	0.419	0.004	0.685	0.007	0.401	0.009	0.421	< 0.01	0.938	< 0.01	0.253	Nonparametric	Nonparametric
1_2_102	W-1	Appendix IV	Arsenic	mg/l	18	3	17%	0.930	0.268	0.185	0.178	0.752	0.001	0.344	0.000	0.304	< 0.01	1.362	< 0.01	0.946	Normal	Normal
1_2_103	W-1	Appendix IV	Barium	mg/l	18	3	17%	0.757	0.001	0.255	0.010	0.860	0.024	0.214	0.064	0.228	0.01 <= p < 0.05	1.034	< 0.01	0.639	Lognormal	Lognormal

(Table continues on next page)

Note: p-values above 0.05 suggest a fit to the tested distribution; a distribution passes its GOF test when at least one of the two p-values is above 0.05.

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Normal				Lognormal				Gamma				Log-SD (NDs excl.)	ProUCL Distributions Fit	Recommended Distribution
								S-W		Lilliefors		S-W		Lilliefors		K-S		A-D				
								Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value			
1_2_104	W-1	Appendix IV	Beryllium	mg/l	17	15	88%	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.153		Nonparametric	
1_2_106	W-1	Appendix IV	Cadmium	mg/l	18	9	50%	0.935	0.532	0.187	0.488	0.958	0.776	0.156	0.766	0.173	>= 0.10	0.269	>= 0.10	0.222	Gamma; Lognormal; Normal	Nonparametric
1_2_109	W-1	Appendix IV	Chromium, Total	mg/l	18	8	44%	0.775	0.007	0.320	0.004	0.952	0.692	0.186	0.425	0.246	>= 0.10	0.492	>= 0.10	0.936	Gamma; Lognormal	Gamma
1_2_110	W-1	Appendix IV	Cobalt	mg/l	18	7	39%	0.928	0.386	0.238	0.082	0.902	0.198	0.162	0.578	0.167	>= 0.10	0.337	>= 0.10	0.621	Gamma; Lognormal; Normal	Normal
1_2_112	W-1	Appendix IV	Fluoride (App IV)	mg/l	18	1	6%	0.800	0.002	0.262	0.003	0.794	0.002	0.297	0.000	0.302	< 0.01	1.421	< 0.01	1.358	Nonparametric	Nonparametric
1_2_113	W-1	Appendix IV	Lead	mg/l	18	9	50%	0.784	0.014	0.321	0.008	0.973	0.922	0.172	0.622	0.223	>= 0.10	0.326	>= 0.10	0.905	Gamma; Lognormal	Nonparametric
1_2_114	W-1	Appendix IV	Lithium	mg/l	18	0	0%	0.939	0.278	0.174	0.162	0.918	0.119	0.195	0.068	0.186	>= 0.10	0.570	>= 0.10	0.111	Gamma; Lognormal; Normal	Normal
1_2_115	W-1	Appendix IV	Mercury	mg/l	17	17	100%	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric	
1_2_116	W-1	Appendix IV	Molybdenum	mg/l	18	1	6%	0.916	0.127	0.171	0.207	0.944	0.375	0.142	0.478	0.152	>= 0.10	0.461	>= 0.10	0.223	Gamma; Lognormal; Normal	Normal
1_2_120	W-1	Appendix IV	Radium-226+228	pci/l	18	0	0%	0.809	0.002	0.211	0.034	0.948	0.395	0.127	0.622	0.148	>= 0.10	0.615	>= 0.10	0.426	Gamma; Lognormal	Gamma
1_2_122	W-1	Appendix IV	Selenium	mg/l	18	0	0%	0.836	0.005	0.226	0.016	0.923	0.148	0.168	0.198	0.183	>= 0.10	0.773	0.01 <= p < 0.05	0.255	Gamma; Lognormal	Gamma
1_2_126	W-1	Appendix IV	Thallium	mg/l	18	11	61%	0.687	0.003	0.385	0.002	0.837	0.093	0.356	0.008	0.388	< 0.01	0.845	0.01 <= p < 0.05	0.745	Lognormal	Nonparametric
1_3_119	W-1	Supplemental	Radium-226	pci/l	18	1	6%	0.704	0.000	0.238	0.011	0.918	0.137	0.149	0.404	0.182	>= 0.10	0.724	0.05 <= p < 0.10	0.468	Gamma; Lognormal	Gamma
1_3_121	W-1	Supplemental	Radium-228	pci/l	18	2	11%	0.821	0.005	0.187	0.142	0.970	0.842	0.124	0.730	0.154	>= 0.10	0.421	>= 0.10	0.492	Gamma; Lognormal; Normal	Normal
1_3_124	W-1	Supplemental	Temperature (field)	deg c	12	0	0%	0.363	0.000	0.511	0.000	0.495	0.000	0.445	0.000	0.498	< 0.01	3.293	< 0.01	0.725	Nonparametric	Nonparametric
1_3_125	W-1	Supplemental	Temperature (lab)	deg c	18	0	0%	0.969	0.774	0.135	0.522	0.974	0.871	0.128	0.602	0.135	>= 0.10	0.264	>= 0.10	0.063	Gamma; Lognormal; Normal	Normal
1_3_128	W-1	Supplemental	Total Suspended Solids	mg/l	18	0	0%	0.672	0.000	0.291	0.000	0.960	0.604	0.126	0.634	0.141	>= 0.10	0.334	>= 0.10	1.363	Gamma; Lognormal	Gamma
2_1_105	W-11	Appendix III	Boron	mg/l	9	1	11%	0.849	0.093	0.254	0.134	0.918	0.413	0.197	0.481	0.225	>= 0.10	0.443	>= 0.10	0.444	Gamma; Lognormal; Normal	Normal
2_1_107	W-11	Appendix III	Calcium	mg/l	9	0	0%	0.897	0.235	0.259	0.083	0.523	0.000	0.456	0.000	0.436	< 0.01	1.697	< 0.01	1.591	Normal	Normal
2_1_108	W-11	Appendix III	Chloride (as Cl)	mg/l	9	0	0%	0.732	0.003	0.362	0.001	0.546	0.000	0.414	0.000	0.437	< 0.01	1.790	< 0.01	1.574	Nonparametric	Nonparametric
2_1_111	W-11	Appendix III	Fluoride	mg/l	9	1	11%	0.661	0.001	0.381	0.001	0.803	0.031	0.272	0.082	0.278	>= 0.10	0.939	0.01 <= p < 0.05	1.769	Gamma; Lognormal	Gamma
2_1_117	W-11	Appendix III	pH (field)	su	9	0	0%	0.967	0.871	0.170	0.634	0.968	0.873	0.170	0.642	0.182	>= 0.10	0.228	>= 0.10	0.012	Gamma; Lognormal; Normal	Normal
2_1_118	W-11	Appendix III	pH (lab)	su	9	0	0%	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.011		Nonparametric	
2_1_123	W-11	Appendix III	Sulfate (as SO4)	mg/l	9	0	0%	0.405	0.000	0.510	0.000	0.449	0.000	0.484	0.000	0.518	< 0.01	2.691	< 0.01	0.770	Nonparametric	Nonparametric
2_1_127	W-11	Appendix III	Total Dissolved Solids	mg/l	9	0	0%	0.864	0.106	0.280	0.040	0.865	0.108	0.270	0.057	0.286	0.01 <= p < 0.05	0.773	0.01 <= p < 0.05	0.097	Lognormal; Normal	Normal
2_2_101	W-11	Appendix IV	Antimony	mg/l	9	7	78%	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.835		Nonparametric	
2_2_102	W-11	Appendix IV	Arsenic	mg/l	9	3	33%	0.753	0.021	0.309	0.075	0.757	0.023	0.295	0.104	0.300	>= 0.10	0.818	0.01 <= p < 0.05	1.927	Gamma; Lognormal; Normal	Gamma
2_2_103	W-11	Appendix IV	Barium	mg/l	9	1	11%	0.446	0.000	0.493	0.000	0.566	0.000	0.411	0.000	0.477	< 0.01	2.029	< 0.01	1.001	Nonparametric	Nonparametric
2_2_104	W-11	Appendix IV	Beryllium	mg/l	8	6	75%	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.203		Nonparametric	
2_2_106	W-11	Appendix IV	Cadmium	mg/l	9	2	22%	0.897	0.314	0.202	0.528	0.914	0.427	0.171	0.776	0.185	>= 0.10	0.358	>= 0.10	0.199	Gamma; Lognormal; Normal	Normal
2_2_109	W-11	Appendix IV	Chromium, Total	mg/l	9	5	56%	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.326		Nonparametric	
2_2_110	W-11	Appendix IV	Cobalt	mg/l	9	1	11%	0.901	0.296	0.284	0.056	0.835	0.068	0.337	0.008	0.327	0.01 <= p < 0.05	0.626	0.05 <= p < 0.10	0.396	Gamma; Lognormal; Normal	Normal
2_2_112	W-11	Appendix IV	Fluoride (App IV)	mg/l	9	1	11%	0.661	0.001	0.381	0.001	0.803	0.031	0.272	0.082	0.278	>= 0.10	0.939	0.01 <= p < 0.05	1.769	Gamma; Lognormal	Gamma
2_2_113	W-11	Appendix IV	Lead	mg/l	9	7	78%	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.696		Nonparametric	
2_2_114	W-11	Appendix IV	Lithium	mg/l	9	0	0%	0.753	0.006	0.266	0.067	0.486	0.000	0.439	0.000	0.411	< 0.01	2.034	< 0.01	1.395	Normal	Normal
2_2_115	W-11	Appendix IV	Mercury	mg/l	8	8	100%	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric	
2_2_116	W-11	Appendix IV	Molybdenum	mg/l	9	5	56%	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.077		Nonparametric	
2_2_120	W-11	Appendix IV	Radium-226+228	pci/l	8	0	0%	0.821	0.048	0.328	0.011	0.883	0.200	0.270	0.090	0.293	0.05 <= p < 0.10	0.652	0.05 <= p < 0.10	0.366	Gamma; Lognormal	Gamma
2_2_122	W-11	Appendix IV	Selenium	mg/l	9	1	11%	0.920	0.427	0.244	0.172	0.931	0.524	0.228	0.255	0.239	>= 0.10	0.343	>= 0.10	0.120	Gamma; Lognormal; Normal	Normal

(Table continues on next page)

Note: p-values above 0.05 suggest a fit to the tested distribution; a distribution passes its GOF test when at least one of the two p-values is above 0.05.

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Normal		Lognormal		Gamma				Log-SD (NDs excl.)	ProUCL Distributions Fit	Recommended Distribution				
								S-W		Lilliefors		S-W		Lilliefors					K-S		A-D	
								Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value				Stat.	p-Value	Stat.	p-Value
2_2_126	W-11	Appendix IV	Thallium	mg/l	9	2	22%	0.943	0.662	0.194	0.589	0.955	0.774	0.194	0.590	0.208	>= 0.10	0.252	>= 0.10	0.113	Gamma; Lognormal; Normal	Nonparametric
2_3_119	W-11	Supplemental	Radium-226	pci/l	8	0	0%	0.880	0.190	0.256	0.127	0.858	0.115	0.276	0.072	0.280	0.05 <= p < 0.10	0.593	>= 0.10	0.214	Gamma; Lognormal; Normal	Normal
2_3_121	W-11	Supplemental	Radium-228	pci/l	8	0	0%	0.791	0.023	0.292	0.043	0.885	0.211	0.244	0.173	0.273	0.05 <= p < 0.10	0.656	0.05 <= p < 0.10	0.493	Gamma; Lognormal	Gamma
2_3_124	W-11	Supplemental	Temperature (field)	deg c	9	0	0%	0.966	0.857	0.164	0.689	0.951	0.703	0.178	0.566	0.162	>= 0.10	0.294	>= 0.10	0.129	Gamma; Lognormal; Normal	Normal
2_3_125	W-11	Supplemental	Temperature (lab)	deg c	9	0	0%	0.885	0.179	0.254	0.097	0.887	0.188	0.254	0.097	0.269	0.05 <= p < 0.10	0.544	>= 0.10	0.055	Gamma; Lognormal; Normal	Normal
2_3_128	W-11	Supplemental	Total Suspended Solids	mg/l	9	0	0%	0.786	0.014	0.266	0.066	0.981	0.967	0.134	0.913	0.190	>= 0.10	0.317	>= 0.10	0.881	Gamma; Lognormal; Normal	Normal
3_1_105	W-12	Appendix III	Boron	mg/l	9	0	0%	0.859	0.093	0.227	0.198	0.934	0.518	0.168	0.659	0.189	>= 0.10	0.403	>= 0.10	0.328	Gamma; Lognormal; Normal	Normal
3_1_107	W-12	Appendix III	Calcium	mg/l	9	0	0%	0.906	0.290	0.254	0.098	0.746	0.005	0.353	0.002	0.334	< 0.01	0.895	0.01 <= p < 0.05	0.728	Normal	Normal
3_1_108	W-12	Appendix III	Chloride (as Cl)	mg/l	9	0	0%	0.862	0.100	0.316	0.010	0.870	0.122	0.310	0.013	0.319	0.01 <= p < 0.05	0.665	0.05 <= p < 0.10	0.060	Gamma; Lognormal; Normal	Normal
3_1_111	W-12	Appendix III	Fluoride	mg/l	9	2	22%	0.475	0.000	0.497	0.000	0.757	0.015	0.398	0.001	0.485	< 0.01	1.434	< 0.01	1.600	Nonparametric	Nonparametric
3_1_117	W-12	Appendix III	pH (field)	su	9	0	0%	0.891	0.205	0.237	0.154	0.894	0.218	0.235	0.161	0.240	>= 0.10	0.513	>= 0.10	0.012	Gamma; Lognormal; Normal	Normal
3_1_118	W-12	Appendix III	pH (lab)	su	9	0	0%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.007		Nonparametric
3_1_123	W-12	Appendix III	Sulfate (as SO4)	mg/l	9	0	0%	0.825	0.039	0.245	0.124	0.831	0.045	0.249	0.110	0.258	0.05 <= p < 0.10	0.707	0.05 <= p < 0.10	0.061	Gamma; Lognormal; Normal	Normal
3_1_127	W-12	Appendix III	Total Dissolved Solids	mg/l	9	0	0%	0.878	0.148	0.247	0.116	0.873	0.133	0.258	0.086	0.253	>= 0.10	0.581	>= 0.10	0.058	Gamma; Lognormal; Normal	Normal
3_2_101	W-12	Appendix IV	Antimony	mg/l	9	3	33%	0.916	0.478	0.194	0.681	0.919	0.499	0.190	0.710	0.214	>= 0.10	0.323	>= 0.10	0.082	Gamma; Lognormal; Normal	Normal
3_2_102	W-12	Appendix IV	Arsenic	mg/l	9	8	89%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
3_2_103	W-12	Appendix IV	Barium	mg/l	9	1	11%	0.861	0.123	0.275	0.075	0.887	0.218	0.255	0.132	0.261	>= 0.10	0.533	>= 0.10	0.123	Gamma; Lognormal; Normal	Normal
3_2_104	W-12	Appendix IV	Beryllium	mg/l	8	6	75%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.648		Nonparametric
3_2_106	W-12	Appendix IV	Cadmium	mg/l	9	2	22%	0.758	0.015	0.256	0.179	0.675	0.002	0.325	0.025	0.300	0.05 <= p < 0.10	0.997	< 0.01	0.337	Gamma; Normal	Normal
3_2_109	W-12	Appendix IV	Chromium, Total	mg/l	9	5	56%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.357		Nonparametric
3_2_110	W-12	Appendix IV	Cobalt	mg/l	9	0	0%	0.927	0.450	0.231	0.182	0.846	0.067	0.266	0.065	0.262	0.05 <= p < 0.10	0.547	>= 0.10	0.306	Gamma; Lognormal; Normal	Normal
3_2_112	W-12	Appendix IV	Fluoride (App IV)	mg/l	9	2	22%	0.475	0.000	0.497	0.000	0.757	0.015	0.398	0.001	0.485	< 0.01	1.434	< 0.01	1.600	Nonparametric	Nonparametric
3_2_113	W-12	Appendix IV	Lead	mg/l	9	9	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
3_2_114	W-12	Appendix IV	Lithium	mg/l	9	0	0%	0.799	0.020	0.252	0.102	0.663	0.001	0.345	0.003	0.314	0.01 <= p < 0.05	1.095	< 0.01	0.420	Normal	Normal
3_2_115	W-12	Appendix IV	Mercury	mg/l	8	8	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
3_2_116	W-12	Appendix IV	Molybdenum	mg/l	9	4	44%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.083		Nonparametric
3_2_120	W-12	Appendix IV	Radium-226+228	pci/l	8	0	0%	0.917	0.407	0.203	0.425	0.940	0.615	0.159	0.800	0.178	>= 0.10	0.300	>= 0.10	0.280	Gamma; Lognormal; Normal	Normal
3_2_122	W-12	Appendix IV	Selenium	mg/l	9	1	11%	0.908	0.340	0.178	0.644	0.928	0.496	0.185	0.580	0.200	>= 0.10	0.320	>= 0.10	0.399	Gamma; Lognormal; Normal	Normal
3_2_126	W-12	Appendix IV	Thallium	mg/l	9	1	11%	0.754	0.009	0.304	0.028	0.805	0.032	0.274	0.079	0.282	0.05 <= p < 0.10	0.753	0.01 <= p < 0.05	0.134	Gamma; Lognormal	Gamma
3_3_119	W-12	Supplemental	Radium-226	pci/l	8	0	0%	0.932	0.534	0.167	0.738	0.894	0.256	0.173	0.681	0.189	>= 0.10	0.399	>= 0.10	0.142	Gamma; Lognormal; Normal	Normal
3_3_121	W-12	Supplemental	Radium-228	pci/l	8	1	12%	0.964	0.853	0.187	0.646	0.971	0.907	0.154	0.885	0.159	>= 0.10	0.208	>= 0.10	0.344	Gamma; Lognormal; Normal	Normal
3_3_124	W-12	Supplemental	Temperature (field)	deg c	9	0	0%	0.903	0.271	0.206	0.333	0.908	0.304	0.199	0.386	0.197	>= 0.10	0.405	>= 0.10	0.036	Gamma; Lognormal; Normal	Normal
3_3_125	W-12	Supplemental	Temperature (lab)	deg c	9	0	0%	0.824	0.038	0.210	0.302	0.800	0.020	0.227	0.200	0.206	>= 0.10	0.683	0.05 <= p < 0.10	0.072	Gamma; Lognormal; Normal	Normal
3_3_128	W-12	Supplemental	Total Suspended Solids	mg/l	9	1	11%	0.932	0.532	0.188	0.552	0.977	0.949	0.170	0.712	0.136	>= 0.10	0.164	>= 0.10	0.636	Gamma; Lognormal; Normal	Normal
4_1_105	W-14	Appendix III	Boron	mg/l	7	0	0%	0.606	0.000	0.365	0.005	0.643	0.001	0.331	0.020	0.342	0.01 <= p < 0.05	1.286	< 0.01	0.187	Nonparametric	Nonparametric
4_1_107	W-14	Appendix III	Calcium	mg/l	7	0	0%	0.697	0.003	0.355	0.008	0.709	0.005	0.354	0.008	0.362	< 0.01	1.080	< 0.01	0.044	Nonparametric	Nonparametric
4_1_108	W-14	Appendix III	Chloride (as Cl)	mg/l	7	0	0%	0.732	0.008	0.391	0.002	0.725	0.007	0.391	0.002	0.407	< 0.01	1.053	< 0.01	0.045	Nonparametric	Nonparametric
4_1_111	W-14	Appendix III	Fluoride	mg/l	7	0	0%	0.760	0.016	0.276	0.110	0.752	0.013	0.332	0.019	0.340	0.01 <= p < 0.05	0.955	0.01 <= p < 0.05	2.354	Normal	Nonparametric
4_1_117	W-14	Appendix III	pH (field)	su	7	0	0%	0.618	0.000	0.448	0.000	0.597	0.000	0.456	0.000	0.466	< 0.01	1.537	< 0.01	0.106	Nonparametric	Nonparametric

(Table continues on next page)

Note: p-values above 0.05 suggest a fit to the tested distribution; a distribution passes its GOF test when at least one of the two p-values is above 0.05.

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Normal				Lognormal				Gamma				Log-SD (NDs excl.)	ProUCL Distributions Fit	Recommended Distribution
								S-W		Lilliefors		S-W		Lilliefors		K-S		A-D				
								Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value			
4_1_118	W-14	Appendix III	pH (lab)	su	7	0	0%	0.894	0.294	0.267	0.136	0.895	0.302	0.265	0.143	0.270	>= 0.10	0.440	>= 0.10	0.015	Gamma; Lognormal; Normal	Nonparametric
4_1_123	W-14	Appendix III	Sulfate (as SO4)	mg/l	7	0	0%	0.603	0.000	0.425	0.000	0.648	0.001	0.400	0.001	0.414	< 0.01	1.274	< 0.01	0.211	Nonparametric	Nonparametric
4_1_127	W-14	Appendix III	Total Dissolved Solids	mg/l	7	0	0%	0.889	0.271	0.301	0.054	0.894	0.293	0.298	0.059	0.313	0.01 <= p < 0.05	0.497	>= 0.10	0.073	Gamma; Lognormal; Normal	Nonparametric
4_2_101	W-14	Appendix IV	Antimony	mg/l	7	0	0%	0.914	0.421	0.224	0.361	0.957	0.791	0.187	0.646	0.199	>= 0.10	0.280	>= 0.10	0.209	Gamma; Lognormal; Normal	Nonparametric
4_2_102	W-14	Appendix IV	Arsenic	mg/l	7	1	14%	0.979	0.946	0.178	0.800	0.984	0.970	0.168	0.861	0.157	>= 0.10	0.195	>= 0.10	0.074	Gamma; Lognormal; Normal	Nonparametric
4_2_103	W-14	Appendix IV	Barium	mg/l	7	1	14%	0.861	0.191	0.195	0.674	0.860	0.190	0.198	0.648	0.219	>= 0.10	0.454	>= 0.10	0.089	Gamma; Lognormal; Normal	Nonparametric
4_2_104	W-14	Appendix IV	Beryllium	mg/l	7	3	43%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.456		Nonparametric
4_2_106	W-14	Appendix IV	Cadmium	mg/l	7	0	0%	0.849	0.120	0.279	0.102	0.885	0.249	0.252	0.195	0.256	>= 0.10	0.530	>= 0.10	0.135	Gamma; Lognormal; Normal	Nonparametric
4_2_109	W-14	Appendix IV	Chromium, Total	mg/l	7	1	14%	0.899	0.365	0.278	0.155	0.862	0.196	0.317	0.059	0.318	0.05 <= p < 0.10	0.517	>= 0.10	0.368	Gamma; Lognormal; Normal	Nonparametric
4_2_110	W-14	Appendix IV	Cobalt	mg/l	7	0	0%	0.869	0.183	0.332	0.019	0.880	0.226	0.322	0.027	0.333	0.01 <= p < 0.05	0.612	0.05 <= p < 0.10	0.083	Gamma; Lognormal; Normal	Nonparametric
4_2_112	W-14	Appendix IV	Fluoride (App IV)	mg/l	7	0	0%	0.760	0.016	0.276	0.110	0.752	0.013	0.332	0.019	0.340	0.01 <= p < 0.05	0.955	0.01 <= p < 0.05	2.354	Normal	Nonparametric
4_2_113	W-14	Appendix IV	Lead	mg/l	7	5	71%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.296		Nonparametric
4_2_114	W-14	Appendix IV	Lithium	mg/l	7	0	0%	0.887	0.262	0.264	0.146	0.885	0.248	0.267	0.136	0.281	>= 0.10	0.503	>= 0.10	0.033	Gamma; Lognormal; Normal	Nonparametric
4_2_115	W-14	Appendix IV	Mercury	mg/l	7	7	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
4_2_116	W-14	Appendix IV	Molybdenum	mg/l	7	1	14%	0.736	0.014	0.308	0.078	0.769	0.030	0.281	0.145	0.287	>= 0.10	0.715	0.01 <= p < 0.05	0.144	Gamma; Lognormal; Normal	Nonparametric
4_2_120	W-14	Appendix IV	Radium-226+228	pci/l	7	0	0%	0.894	0.296	0.206	0.492	0.905	0.363	0.188	0.640	0.213	>= 0.10	0.371	>= 0.10	0.436	Gamma; Lognormal; Normal	Nonparametric
4_2_122	W-14	Appendix IV	Selenium	mg/l	7	0	0%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.043		Nonparametric
4_2_126	W-14	Appendix IV	Thallium	mg/l	7	1	14%	0.912	0.452	0.226	0.437	0.920	0.509	0.223	0.463	0.240	>= 0.10	0.361	>= 0.10	0.086	Gamma; Lognormal; Normal	Nonparametric
4_3_119	W-14	Supplemental	Radium-226	pci/l	7	0	0%	0.932	0.570	0.206	0.491	0.962	0.837	0.177	0.731	0.196	>= 0.10	0.286	>= 0.10	0.238	Gamma; Lognormal; Normal	Nonparametric
4_3_121	W-14	Supplemental	Radium-228	pci/l	7	1	14%	0.963	0.839	0.170	0.849	0.922	0.522	0.267	0.198	0.246	>= 0.10	0.288	>= 0.10	0.691	Gamma; Lognormal; Normal	Nonparametric
4_3_124	W-14	Supplemental	Temperature (field)	deg c	7	0	0%	0.920	0.471	0.197	0.562	0.919	0.459	0.192	0.609	0.212	>= 0.10	0.358	>= 0.10	0.089	Gamma; Lognormal; Normal	Nonparametric
4_3_125	W-14	Supplemental	Temperature (lab)	deg c	7	0	0%	0.893	0.289	0.230	0.316	0.886	0.253	0.227	0.339	0.250	>= 0.10	0.436	>= 0.10	0.069	Gamma; Lognormal; Normal	Nonparametric
4_3_128	W-14	Supplemental	Total Suspended Solids	mg/l	7	3	43%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.599		Nonparametric
5_1_105	W-16	Appendix III	Boron	mg/l	7	0	0%	0.760	0.016	0.352	0.009	0.774	0.022	0.346	0.012	0.358	< 0.01	0.860	0.01 <= p < 0.05	0.092	Nonparametric	Nonparametric
5_1_107	W-16	Appendix III	Calcium	mg/l	7	0	0%	0.944	0.677	0.193	0.595	0.944	0.675	0.189	0.627	0.209	>= 0.10	0.293	>= 0.10	0.066	Gamma; Lognormal; Normal	Nonparametric
5_1_108	W-16	Appendix III	Chloride (as Cl)	mg/l	7	0	0%	0.935	0.591	0.160	0.850	0.934	0.586	0.164	0.824	0.180	>= 0.10	0.285	>= 0.10	0.060	Gamma; Lognormal; Normal	Nonparametric
5_1_111	W-16	Appendix III	Fluoride	mg/l	4	0	0%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		1.893		Nonparametric
5_1_117	W-16	Appendix III	pH (field)	su	7	0	0%	0.852	0.127	0.314	0.035	0.840	0.099	0.322	0.027	0.316	0.01 <= p < 0.05	0.651	0.05 <= p < 0.10	0.039	Gamma; Lognormal; Normal	Nonparametric
5_1_118	W-16	Appendix III	pH (lab)	su	7	0	0%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.013		Nonparametric
5_1_123	W-16	Appendix III	Sulfate (as SO4)	mg/l	7	0	0%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.039		Nonparametric
5_1_127	W-16	Appendix III	Total Dissolved Solids	mg/l	6	0	0%	0.871	0.230	0.248	0.293	0.884	0.288	0.230	0.409	0.244	>= 0.10	0.462	>= 0.10	0.128	Gamma; Lognormal; Normal	Nonparametric
5_2_101	W-16	Appendix IV	Antimony	mg/l	4	2	50%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.051		Nonparametric
5_2_102	W-16	Appendix IV	Arsenic	mg/l	4	2	50%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.470		Nonparametric
5_2_103	W-16	Appendix IV	Barium	mg/l	4	1	25%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.077		Nonparametric
5_2_104	W-16	Appendix IV	Beryllium	mg/l	4	3	75%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
5_2_106	W-16	Appendix IV	Cadmium	mg/l	4	1	25%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.087		Nonparametric
5_2_109	W-16	Appendix IV	Chromium, Total	mg/l	4	4	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
5_2_110	W-16	Appendix IV	Cobalt	mg/l	7	1	14%	0.929	0.570	0.229	0.416	0.926	0.547	0.210	0.555	0.238	>= 0.10	0.358	>= 0.10	0.191	Gamma; Lognormal; Normal	Nonparametric
5_2_112	W-16	Appendix IV	Fluoride (App IV)	mg/l	4	0	0%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		1.893		Nonparametric

(Table continues on next page)

Note: p-values above 0.05 suggest a fit to the tested distribution; a distribution passes its GOF test when at least one of the two p-values is above 0.05.

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Normal				Lognormal				Gamma				Log-SD (NDs excl.)	ProUCL Distributions Fit	Recommended Distribution
								S-W		Lilliefors		S-W		Lilliefors		K-S		A-D				
								Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value			
5_2_113	W-16	Appendix IV	Lead	mg/l	4	2	50%	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.582		Nonparametric	
5_2_114	W-16	Appendix IV	Lithium	mg/l	4	0	0%	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.025		Nonparametric	
5_2_115	W-16	Appendix IV	Mercury	mg/l	4	4	100%	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric	
5_2_116	W-16	Appendix IV	Molybdenum	mg/l	4	1	25%	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.696		Nonparametric	
5_2_120	W-16	Appendix IV	Radium-226+228	pci/l	4	0	0%	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.270		Nonparametric	
5_2_122	W-16	Appendix IV	Selenium	mg/l	4	0	0%	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.200		Nonparametric	
5_2_126	W-16	Appendix IV	Thallium	mg/l	4	1	25%	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.020		Nonparametric	
5_3_119	W-16	Supplemental	Radium-226	pci/l	4	0	0%	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.400		Nonparametric	
5_3_121	W-16	Supplemental	Radium-228	pci/l	4	1	25%	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.345		Nonparametric	
5_3_124	W-16	Supplemental	Temperature (field)	deg c	7	0	0%	0.954	0.768	0.155	0.881	0.945	0.686	0.144	0.932	0.166	>= 0.10	0.236	>= 0.10	0.136	Gamma; Lognormal; Normal	Nonparametric
5_3_125	W-16	Supplemental	Temperature (lab)	deg c	7	0	0%	0.972	0.910	0.144	0.933	0.972	0.912	0.141	0.942	0.161	>= 0.10	0.179	>= 0.10	0.060	Gamma; Lognormal; Normal	Nonparametric
5_3_128	W-16	Supplemental	Total Suspended Solids	mg/l	7	2	29%	0.855	0.210	0.299	0.148	0.893	0.374	0.249	0.389	0.288	>= 0.10	0.436	>= 0.10	0.609	Gamma; Lognormal; Normal	Nonparametric
6_1_105	W-3B	Appendix III	Boron	mg/l	9	1	11%	0.668	0.001	0.285	0.054	0.806	0.033	0.265	0.100	0.290	0.05 <= p < 0.10	0.865	0.01 <= p < 0.05	0.593	Gamma; Lognormal; Normal	Normal
6_1_107	W-3B	Appendix III	Calcium	mg/l	9	0	0%	0.838	0.055	0.235	0.162	0.801	0.021	0.250	0.107	0.257	0.05 <= p < 0.10	0.788	0.01 <= p < 0.05	0.328	Gamma; Lognormal; Normal	Normal
6_1_108	W-3B	Appendix III	Chloride (as Cl)	mg/l	9	0	0%	0.890	0.200	0.247	0.117	0.909	0.307	0.230	0.184	0.222	>= 0.10	0.508	>= 0.10	0.182	Gamma; Lognormal; Normal	Normal
6_1_111	W-3B	Appendix III	Fluoride	mg/l	9	5	56%	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.152		Nonparametric	
6_1_117	W-3B	Appendix III	pH (field)	su	9	0	0%	0.954	0.731	0.169	0.643	0.958	0.782	0.165	0.683	0.166	>= 0.10	0.235	>= 0.10	0.025	Gamma; Lognormal; Normal	Normal
6_1_118	W-3B	Appendix III	pH (lab)	su	9	0	0%	0.894	0.218	0.247	0.116	0.899	0.248	0.243	0.130	0.243	>= 0.10	0.494	>= 0.10	0.021	Gamma; Lognormal; Normal	Normal
6_1_123	W-3B	Appendix III	Sulfate (as SO4)	mg/l	9	0	0%	0.696	0.001	0.412	0.000	0.750	0.005	0.397	0.000	0.411	< 0.01	1.236	< 0.01	0.236	Nonparametric	Nonparametric
6_1_127	W-3B	Appendix III	Total Dissolved Solids	mg/l	9	1	11%	0.955	0.766	0.228	0.252	0.961	0.821	0.219	0.311	0.228	>= 0.10	0.268	>= 0.10	0.064	Gamma; Lognormal; Normal	Normal
6_2_101	W-3B	Appendix IV	Antimony	mg/l	8	4	50%	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.094		Nonparametric	
6_2_102	W-3B	Appendix IV	Arsenic	mg/l	8	3	38%	0.844	0.177	0.259	0.328	0.826	0.131	0.278	0.232	0.266	>= 0.10	0.523	>= 0.10	0.108	Gamma; Lognormal; Normal	Normal
6_2_103	W-3B	Appendix IV	Barium	mg/l	9	1	11%	0.872	0.156	0.300	0.032	0.862	0.125	0.310	0.022	0.311	0.01 <= p < 0.05	0.607	>= 0.10	0.068	Gamma; Lognormal; Normal	Normal
6_2_104	W-3B	Appendix IV	Beryllium	mg/l	9	6	67%	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.481		Nonparametric	
6_2_106	W-3B	Appendix IV	Cadmium	mg/l	9	0	0%	0.738	0.004	0.418	0.000	0.760	0.007	0.408	0.000	0.412	< 0.01	1.282	< 0.01	0.130	Nonparametric	Nonparametric
6_2_109	W-3B	Appendix IV	Chromium, Total	mg/l	9	4	44%	0.856	0.216	0.305	0.131	0.866	0.252	0.294	0.168	0.319	>= 0.10	0.485	>= 0.10	0.201	Gamma; Lognormal; Normal	Normal
6_2_110	W-3B	Appendix IV	Cobalt	mg/l	9	0	0%	0.825	0.039	0.250	0.108	0.531	0.000	0.413	0.000	0.374	< 0.01	1.692	< 0.01	1.173	Normal	Normal
6_2_112	W-3B	Appendix IV	Fluoride (App IV)	mg/l	9	5	56%	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.152		Nonparametric	
6_2_113	W-3B	Appendix IV	Lead	mg/l	9	4	44%	0.988	0.971	0.169	0.909	0.981	0.937	0.195	0.770	0.197	>= 0.10	0.199	>= 0.10	0.184	Gamma; Lognormal; Normal	Normal
6_2_114	W-3B	Appendix IV	Lithium	mg/l	9	0	0%	0.833	0.048	0.261	0.078	0.799	0.020	0.277	0.045	0.270	0.05 <= p < 0.10	0.740	0.01 <= p < 0.05	0.090	Gamma; Normal	Normal
6_2_115	W-3B	Appendix IV	Mercury	mg/l	9	9	100%	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric	
6_2_116	W-3B	Appendix IV	Molybdenum	mg/l	9	3	33%	0.637	0.001	0.418	0.002	0.773	0.033	0.335	0.034	0.376	0.01 <= p < 0.05	0.865	0.01 <= p < 0.05	0.611	Nonparametric	Nonparametric
6_2_120	W-3B	Appendix IV	Radium-226+228	pci/l	9	0	0%	0.904	0.274	0.167	0.661	0.876	0.144	0.192	0.438	0.191	>= 0.10	0.515	>= 0.10	0.189	Gamma; Lognormal; Normal	Normal
6_2_122	W-3B	Appendix IV	Selenium	mg/l	9	1	11%	0.845	0.084	0.285	0.055	0.901	0.297	0.235	0.216	0.263	>= 0.10	0.538	>= 0.10	0.447	Gamma; Lognormal; Normal	Normal
6_2_126	W-3B	Appendix IV	Thallium	mg/l	9	1	11%	0.941	0.622	0.178	0.642	0.933	0.544	0.191	0.529	0.181	>= 0.10	0.329	>= 0.10	0.072	Gamma; Lognormal; Normal	Normal
6_3_119	W-3B	Supplemental	Radium-226	pci/l	9	0	0%	0.937	0.553	0.162	0.713	0.938	0.564	0.163	0.704	0.176	>= 0.10	0.301	>= 0.10	0.083	Gamma; Lognormal; Normal	Normal
6_3_121	W-3B	Supplemental	Radium-228	pci/l	9	0	0%	0.948	0.672	0.140	0.877	0.915	0.350	0.153	0.789	0.161	>= 0.10	0.329	>= 0.10	0.275	Gamma; Lognormal; Normal	Normal
6_3_124	W-3B	Supplemental	Temperature (field)	deg c	9	0	0%	0.908	0.303	0.159	0.738	0.874	0.135	0.193	0.430	0.177	>= 0.10	0.505	>= 0.10	0.230	Gamma; Lognormal; Normal	Normal
6_3_125	W-3B	Supplemental	Temperature (lab)	deg c	9	0	0%	0.923	0.415	0.179	0.558	0.907	0.294	0.179	0.556	0.195	>= 0.10	0.411	>= 0.10	0.075	Gamma; Lognormal; Normal	Normal

(Table continues on next page)

Note: p-values above 0.05 suggest a fit to the tested distribution; a distribution passes its GOF test when at least one of the two p-values is above 0.05.

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Normal				Lognormal				Gamma				Log-SD (NDs excl.)	ProUCL Distributions Fit	Recommended Distribution
								S-W		Lilliefors		S-W		Lilliefors		K-S		A-D				
								Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value			
6_3_128	W-3B	Supplemental	Total Suspended Solids	mg/l	9	0	0%	0.818	0.033	0.256	0.092	0.960	0.803	0.142	0.868	0.177	>= 0.10	0.355	>= 0.10	0.599	Gamma; Lognormal; Normal	Normal
7_1_105	W-5B	Appendix III	Boron	mg/l	12	1	8%	0.804	0.011	0.325	0.002	0.830	0.023	0.314	0.003	0.322	< 0.01	0.955	0.01 <= p < 0.05	0.093	Nonparametric	Nonparametric
7_1_107	W-5B	Appendix III	Calcium	mg/l	12	0	0%	0.938	0.478	0.170	0.436	0.951	0.658	0.160	0.540	0.165	>= 0.10	0.292	>= 0.10	0.073	Gamma; Lognormal; Normal	Normal
7_1_108	W-5B	Appendix III	Chloride (as Cl)	mg/l	12	0	0%	0.726	0.002	0.384	0.000	0.734	0.002	0.380	0.000	0.385	< 0.01	1.566	< 0.01	0.049	Nonparametric	Nonparametric
7_1_111	W-5B	Appendix III	Fluoride	mg/l	12	1	8%	0.575	0.000	0.397	0.000	0.781	0.005	0.334	0.001	0.389	< 0.01	1.653	< 0.01	1.336	Nonparametric	Nonparametric
7_1_117	W-5B	Appendix III	pH (field)	su	12	0	0%	0.491	0.000	0.360	0.000	0.477	0.000	0.374	0.000	0.364	< 0.01	2.731	< 0.01	0.056	Nonparametric	Nonparametric
7_1_118	W-5B	Appendix III	pH (lab)	su	12	0	0%	0.912	0.228	0.245	0.045	0.911	0.217	0.245	0.044	0.255	0.01 <= p < 0.05	0.628	0.05 <= p < 0.10	0.016	Gamma; Lognormal; Normal	Normal
7_1_123	W-5B	Appendix III	Sulfate (as SO4)	mg/l	12	0	0%	0.941	0.516	0.204	0.182	0.950	0.630	0.191	0.265	0.190	>= 0.10	0.354	>= 0.10	0.078	Gamma; Lognormal; Normal	Normal
7_1_127	W-5B	Appendix III	Total Dissolved Solids	mg/l	12	0	0%	0.811	0.013	0.235	0.066	0.810	0.012	0.233	0.072	0.246	0.05 <= p < 0.10	1.009	< 0.01	0.059	Gamma; Lognormal; Normal	Normal
7_2_101	W-5B	Appendix IV	Antimony	mg/l	12	11	92%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
7_2_102	W-5B	Appendix IV	Arsenic	mg/l	12	8	67%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.446		Nonparametric
7_2_103	W-5B	Appendix IV	Barium	mg/l	12	1	8%	0.829	0.023	0.263	0.033	0.832	0.025	0.266	0.029	0.273	0.01 <= p < 0.05	0.833	0.01 <= p < 0.05	0.057	Nonparametric	Nonparametric
7_2_104	W-5B	Appendix IV	Beryllium	mg/l	11	9	82%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.229		Nonparametric
7_2_106	W-5B	Appendix IV	Cadmium	mg/l	12	2	17%	0.710	0.001	0.255	0.064	0.881	0.132	0.216	0.208	0.236	>= 0.10	0.718	0.05 <= p < 0.10	0.434	Gamma; Lognormal; Normal	Normal
7_2_109	W-5B	Appendix IV	Chromium, Total	mg/l	12	11	92%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
7_2_110	W-5B	Appendix IV	Cobalt	mg/l	12	0	0%	0.985	0.997	0.135	0.793	0.961	0.801	0.165	0.487	0.147	>= 0.10	0.207	>= 0.10	0.197	Gamma; Lognormal; Normal	Normal
7_2_112	W-5B	Appendix IV	Fluoride (App IV)	mg/l	12	1	8%	0.575	0.000	0.397	0.000	0.781	0.005	0.334	0.001	0.389	< 0.01	1.653	< 0.01	1.336	Nonparametric	Nonparametric
7_2_113	W-5B	Appendix IV	Lead	mg/l	12	8	67%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.161		Nonparametric
7_2_114	W-5B	Appendix IV	Lithium	mg/l	12	0	0%	0.965	0.846	0.129	0.843	0.961	0.802	0.131	0.826	0.142	>= 0.10	0.269	>= 0.10	0.124	Gamma; Lognormal; Normal	Normal
7_2_115	W-5B	Appendix IV	Mercury	mg/l	11	11	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
7_2_116	W-5B	Appendix IV	Molybdenum	mg/l	12	4	33%	0.661	0.001	0.347	0.005	0.772	0.014	0.306	0.027	0.323	0.01 <= p < 0.05	1.041	< 0.01	0.586	Nonparametric	Nonparametric
7_2_120	W-5B	Appendix IV	Radium-226+228	pci/l	11	0	0%	0.629	0.000	0.268	0.027	0.774	0.004	0.208	0.205	0.226	>= 0.10	1.121	< 0.01	0.361	Gamma; Lognormal	Gamma
7_2_122	W-5B	Appendix IV	Selenium	mg/l	12	5	42%	0.751	0.013	0.296	0.065	0.886	0.255	0.205	0.498	0.230	>= 0.10	0.512	>= 0.10	0.743	Gamma; Lognormal; Normal	Normal
7_2_126	W-5B	Appendix IV	Thallium	mg/l	12	4	33%	0.823	0.050	0.248	0.157	0.787	0.021	0.255	0.132	0.267	>= 0.10	0.728	0.01 <= p < 0.05	0.115	Gamma; Lognormal; Normal	Normal
7_3_119	W-5B	Supplemental	Radium-226	pci/l	11	0	0%	0.907	0.227	0.219	0.150	0.955	0.703	0.177	0.438	0.189	>= 0.10	0.387	>= 0.10	0.224	Gamma; Lognormal; Normal	Normal
7_3_121	W-5B	Supplemental	Radium-228	pci/l	11	0	0%	0.625	0.000	0.331	0.001	0.851	0.043	0.225	0.125	0.266	0.01 <= p < 0.05	1.005	< 0.01	0.494	Lognormal	Lognormal
7_3_124	W-5B	Supplemental	Temperature (field)	deg c	12	0	0%	0.865	0.056	0.236	0.063	0.888	0.110	0.219	0.117	0.227	>= 0.10	0.610	>= 0.10	0.113	Gamma; Lognormal; Normal	Normal
7_3_125	W-5B	Supplemental	Temperature (lab)	deg c	12	0	0%	0.978	0.972	0.153	0.609	0.979	0.982	0.143	0.716	0.152	>= 0.10	0.221	>= 0.10	0.076	Gamma; Lognormal; Normal	Normal
7_3_128	W-5B	Supplemental	Total Suspended Solids	mg/l	12	6	50%	0.907	0.415	0.209	0.566	0.893	0.336	0.227	0.431	0.240	>= 0.10	0.398	>= 0.10	0.232	Gamma; Lognormal; Normal	Nonparametric
8_1_105	W-6B1	Appendix III	Boron	mg/l	9	1	11%	0.672	0.001	0.315	0.019	0.776	0.016	0.322	0.014	0.338	0.01 <= p < 0.05	0.951	0.01 <= p < 0.05	0.572	Nonparametric	Nonparametric
8_1_107	W-6B1	Appendix III	Calcium	mg/l	9	0	0%	0.917	0.365	0.166	0.673	0.906	0.291	0.192	0.439	0.189	>= 0.10	0.405	>= 0.10	0.276	Gamma; Lognormal; Normal	Normal
8_1_108	W-6B1	Appendix III	Chloride (as Cl)	mg/l	9	0	0%	0.775	0.011	0.308	0.014	0.549	0.000	0.433	0.000	0.410	< 0.01	1.711	< 0.01	0.809	Nonparametric	Nonparametric
8_1_111	W-6B1	Appendix III	Fluoride	mg/l	9	5	56%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		1.713		Nonparametric
8_1_117	W-6B1	Appendix III	pH (field)	su	9	0	0%	0.901	0.255	0.179	0.559	0.904	0.275	0.176	0.586	0.171	>= 0.10	0.390	>= 0.10	0.015	Gamma; Lognormal; Normal	Normal
8_1_118	W-6B1	Appendix III	pH (lab)	su	9	0	0%	0.843	0.062	0.267	0.064	0.846	0.068	0.266	0.065	0.277	0.05 <= p < 0.10	0.751	0.01 <= p < 0.05	0.020	Gamma; Lognormal; Normal	Normal
8_1_123	W-6B1	Appendix III	Sulfate (as SO4)	mg/l	9	0	0%	0.696	0.001	0.298	0.020	0.747	0.005	0.287	0.031	0.298	0.01 <= p < 0.05	1.070	< 0.01	0.175	Nonparametric	Nonparametric
8_1_127	W-6B1	Appendix III	Total Dissolved Solids	mg/l	9	0	0%	0.934	0.519	0.192	0.444	0.930	0.480	0.201	0.367	0.191	>= 0.10	0.381	>= 0.10	0.089	Gamma; Lognormal; Normal	Normal
8_2_101	W-6B1	Appendix IV	Antimony	mg/l	9	4	44%	0.615	0.001	0.443	0.002	0.769	0.044	0.355	0.038	0.416	0.01 <= p < 0.05	0.855	0.01 <= p < 0.05	1.072	Nonparametric	Nonparametric
8_2_102	W-6B1	Appendix IV	Arsenic	mg/l	9	3	33%	0.921	0.516	0.266	0.201	0.840	0.132	0.332	0.038	0.292	>= 0.10	0.471	>= 0.10	0.735	Gamma; Lognormal; Normal	Normal

(Table continues on next page)

Note: p-values above 0.05 suggest a fit to the tested distribution; a distribution passes its GOF test when at least one of the two p-values is above 0.05.

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Normal				Lognormal				Gamma				Log-SD (NDs excl.)	ProUCL Distributions Fit	Recommended Distribution
								S-W		Lilliefors		S-W		Lilliefors		K-S		A-D				
								Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value			
8_2_103	W-6B1	Appendix IV	Barium	mg/l	9	1	11%	0.927	0.486	0.207	0.398	0.951	0.725	0.184	0.592	0.194	>= 0.10	0.286	>= 0.10	0.157	Gamma; Lognormal; Normal	Normal
8_2_104	W-6B1	Appendix IV	Beryllium	mg/l	9	5	56%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.574		Nonparametric
8_2_106	W-6B1	Appendix IV	Cadmium	mg/l	9	0	0%	0.762	0.008	0.326	0.006	0.805	0.023	0.271	0.055	0.300	0.01 <= p < 0.05	0.940	0.01 <= p < 0.05	0.489	Lognormal	Lognormal
8_2_109	W-6B1	Appendix IV	Chromium, Total	mg/l	9	5	56%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.399		Nonparametric
8_2_110	W-6B1	Appendix IV	Cobalt	mg/l	9	0	0%	0.877	0.145	0.218	0.247	0.635	0.000	0.347	0.003	0.305	0.01 <= p < 0.05	1.128	< 0.01	0.724	Normal	Normal
8_2_112	W-6B1	Appendix IV	Fluoride (App IV)	mg/l	9	5	56%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		1.713		Nonparametric
8_2_113	W-6B1	Appendix IV	Lead	mg/l	9	4	44%	0.835	0.153	0.252	0.372	0.931	0.606	0.199	0.739	0.232	>= 0.10	0.355	>= 0.10	0.497	Gamma; Lognormal; Normal	Normal
8_2_114	W-6B1	Appendix IV	Lithium	mg/l	9	0	0%	0.922	0.411	0.220	0.238	0.908	0.305	0.240	0.140	0.224	>= 0.10	0.494	>= 0.10	0.133	Gamma; Lognormal; Normal	Normal
8_2_115	W-6B1	Appendix IV	Mercury	mg/l	9	9	100%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		NA		Nonparametric
8_2_116	W-6B1	Appendix IV	Molybdenum	mg/l	9	3	33%	0.901	0.383	0.213	0.537	0.872	0.235	0.232	0.395	0.246	>= 0.10	0.434	>= 0.10	0.364	Gamma; Lognormal; Normal	Normal
8_2_120	W-6B1	Appendix IV	Radium-226+228	pci/l	9	0	0%	0.940	0.580	0.158	0.748	0.941	0.593	0.134	0.911	0.154	>= 0.10	0.281	>= 0.10	0.229	Gamma; Lognormal; Normal	Normal
8_2_122	W-6B1	Appendix IV	Selenium	mg/l	9	2	22%	0.869	0.184	0.214	0.428	0.925	0.512	0.144	0.931	0.171	>= 0.10	0.331	>= 0.10	0.602	Gamma; Lognormal; Normal	Normal
8_2_126	W-6B1	Appendix IV	Thallium	mg/l	9	1	11%	0.922	0.444	0.189	0.543	0.947	0.677	0.190	0.534	0.203	>= 0.10	0.325	>= 0.10	0.343	Gamma; Lognormal; Normal	Normal
8_3_119	W-6B1	Supplemental	Radium-226	pci/l	9	0	0%	0.963	0.831	0.160	0.726	0.928	0.461	0.183	0.523	0.178	>= 0.10	0.294	>= 0.10	0.226	Gamma; Lognormal; Normal	Normal
8_3_121	W-6B1	Supplemental	Radium-228	pci/l	9	0	0%	0.962	0.824	0.168	0.656	0.939	0.571	0.212	0.287	0.194	>= 0.10	0.315	>= 0.10	0.368	Gamma; Lognormal; Normal	Normal
8_3_124	W-6B1	Supplemental	Temperature (field)	deg c	9	0	0%	0.975	0.930	0.149	0.820	0.969	0.887	0.170	0.641	0.156	>= 0.10	0.230	>= 0.10	0.130	Gamma; Lognormal; Normal	Normal
8_3_125	W-6B1	Supplemental	Temperature (lab)	deg c	9	0	0%	0.967	0.870	0.158	0.745	0.973	0.917	0.153	0.788	0.165	>= 0.10	0.197	>= 0.10	0.073	Gamma; Lognormal; Normal	Normal
8_3_128	W-6B1	Supplemental	Total Suspended Solids	mg/l	9	0	0%	0.864	0.107	0.206	0.328	0.985	0.985	0.146	0.836	0.150	>= 0.10	0.204	>= 0.10	0.815	Gamma; Lognormal; Normal	Normal
9_1_105	W-7	Appendix III	Boron	mg/l	17	2	12%	0.942	0.402	0.126	0.754	0.924	0.221	0.132	0.684	0.118	>= 0.10	0.358	>= 0.10	0.550	Gamma; Lognormal; Normal	Normal
9_1_107	W-7	Appendix III	Calcium	mg/l	17	0	0%	0.850	0.011	0.221	0.026	0.805	0.002	0.255	0.005	0.251	< 0.01	1.385	< 0.01	0.418	Nonparametric	Nonparametric
9_1_108	W-7	Appendix III	Chloride (as Cl)	mg/l	17	0	0%	0.712	0.000	0.264	0.003	0.792	0.002	0.229	0.019	0.236	0.01 <= p < 0.05	1.197	< 0.01	0.120	Nonparametric	Nonparametric
9_1_111	W-7	Appendix III	Fluoride	mg/l	17	7	41%	0.918	0.341	0.170	0.567	0.791	0.011	0.300	0.011	0.283	0.01 <= p < 0.05	0.789	0.01 <= p < 0.05	2.035	Normal	Normal
9_1_117	W-7	Appendix III	pH (field)	su	17	0	0%	0.891	0.048	0.134	0.572	0.901	0.070	0.129	0.633	0.128	>= 0.10	0.527	>= 0.10	0.022	Gamma; Lognormal; Normal	Normal
9_1_118	W-7	Appendix III	pH (lab)	su	17	0	0%	0.875	0.026	0.221	0.027	0.875	0.027	0.223	0.024	0.228	0.01 <= p < 0.05	0.956	0.01 <= p < 0.05	0.017	Nonparametric	Nonparametric
9_1_123	W-7	Appendix III	Sulfate (as SO4)	mg/l	17	0	0%	0.888	0.044	0.226	0.021	0.879	0.031	0.192	0.094	0.188	>= 0.10	0.842	0.01 <= p < 0.05	0.324	Gamma; Lognormal	Gamma
9_1_127	W-7	Appendix III	Total Dissolved Solids	mg/l	17	0	0%	0.747	0.000	0.314	0.000	0.805	0.002	0.277	0.001	0.267	< 0.01	1.716	< 0.01	0.343	Nonparametric	Nonparametric
9_2_101	W-7	Appendix IV	Antimony	mg/l	17	13	76%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.167		Nonparametric
9_2_102	W-7	Appendix IV	Arsenic	mg/l	17	2	12%	0.953	0.566	0.107	0.917	0.781	0.002	0.288	0.002	0.236	0.01 <= p < 0.05	0.924	0.01 <= p < 0.05	1.314	Normal	Normal
9_2_103	W-7	Appendix IV	Barium	mg/l	17	4	24%	0.663	0.000	0.332	0.000	0.800	0.007	0.298	0.002	0.322	< 0.01	1.378	< 0.01	0.531	Nonparametric	Nonparametric
9_2_104	W-7	Appendix IV	Beryllium	mg/l	16	14	88%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		1.161		Nonparametric
9_2_106	W-7	Appendix IV	Cadmium	mg/l	17	0	0%	0.360	0.000	0.429	0.000	0.537	0.000	0.286	0.001	0.345	< 0.01	3.549	< 0.01	0.469	Nonparametric	Nonparametric
9_2_109	W-7	Appendix IV	Chromium, Total	mg/l	17	9	53%	0.683	0.001	0.276	0.074	0.939	0.605	0.187	0.563	0.218	>= 0.10	0.484	>= 0.10	1.060	Gamma; Lognormal; Normal	Nonparametric
9_2_110	W-7	Appendix IV	Cobalt	mg/l	17	0	0%	0.513	0.000	0.289	0.001	0.700	0.000	0.220	0.028	0.248	< 0.01	2.115	< 0.01	0.353	Nonparametric	Nonparametric
9_2_112	W-7	Appendix IV	Fluoride (App IV)	mg/l	17	7	41%	0.918	0.341	0.170	0.567	0.791	0.011	0.300	0.011	0.283	0.01 <= p < 0.05	0.789	0.01 <= p < 0.05	2.035	Normal	Nonparametric
9_2_113	W-7	Appendix IV	Lead	mg/l	17	8	47%	0.437	0.000	0.477	0.000	0.725	0.003	0.243	0.129	0.383	< 0.01	1.737	< 0.01	1.297	Lognormal	Nonparametric
9_2_114	W-7	Appendix IV	Lithium	mg/l	17	0	0%	0.970	0.820	0.135	0.560	0.938	0.297	0.152	0.375	0.130	>= 0.10	0.265	>= 0.10	0.274	Gamma; Lognormal; Normal	Normal
9_2_115	W-7	Appendix IV	Mercury	mg/l	16	10	62%	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA		0.265		Nonparametric
9_2_116	W-7	Appendix IV	Molybdenum	mg/l	17	7	41%	0.418	0.000	0.492	0.000	0.496	0.000	0.447	0.000	0.477	< 0.01	2.617	< 0.01	0.503	Nonparametric	Nonparametric
9_2_120	W-7	Appendix IV	Radium-226+228	pci/l	15	0	0%	0.972	0.884	0.142	0.576	0.900	0.095	0.148	0.509	0.126	>= 0.10	0.364	>= 0.10	0.270	Gamma; Lognormal; Normal	Normal

(Table continues on next page)

Note: p-values above 0.05 suggest a fit to the tested distribution; a distribution passes its GOF test when at least one of the two p-values is above 0.05.

Table 3: Goodness-of-Fit Tests, Non-Detects Excluded (continued)

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Normal				Lognormal				Gamma				Log-SD (NDs excl.)	ProUCL Distributions Fit	Recommended Distribution
								S-W		Lilliefors		S-W		Lilliefors		K-S		A-D				
								Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value	Stat.	p-Value			
9_2_122	W-7	Appendix IV	Selenium	mg/l	17	0	0%	0.926	0.184	0.148	0.411	0.817	0.003	0.157	0.323	0.158	>= 0.10	0.702	0.05 <= p < 0.10	0.269	Gamma; Lognormal; Normal	Normal
9_2_126	W-7	Appendix IV	Thallium	mg/l	17	1	6%	0.390	0.000	0.427	0.000	0.557	0.000	0.335	0.000	0.381	< 0.01	3.419	< 0.01	0.547	Nonparametric	Nonparametric
9_3_119	W-7	Supplemental	Radium-226	pci/l	16	0	0%	0.878	0.036	0.188	0.135	0.894	0.064	0.170	0.248	0.168	>= 0.10	0.693	0.05 <= p < 0.10	0.206	Gamma; Lognormal; Normal	Normal
9_3_121	W-7	Supplemental	Radium-228	pci/l	16	1	6%	0.944	0.436	0.169	0.297	0.975	0.928	0.121	0.804	0.130	>= 0.10	0.236	>= 0.10	0.319	Gamma; Lognormal; Normal	Normal
9_3_124	W-7	Supplemental	Temperature (field)	deg c	17	0	0%	0.950	0.453	0.106	0.879	0.967	0.757	0.086	0.984	0.091	>= 0.10	0.221	>= 0.10	0.110	Gamma; Lognormal; Normal	Normal
9_3_125	W-7	Supplemental	Temperature (lab)	deg c	17	0	0%	0.960	0.633	0.100	0.924	0.956	0.563	0.114	0.802	0.106	>= 0.10	0.269	>= 0.10	0.081	Gamma; Lognormal; Normal	Normal
9_3_128	W-7	Supplemental	Total Suspended Solids	mg/l	17	0	0%	0.853	0.012	0.248	0.007	0.921	0.156	0.155	0.345	0.151	>= 0.10	0.568	>= 0.10	1.030	Gamma; Lognormal	Gamma

Note: p-values above 0.05 suggest a fit to the tested distribution; a distribution passes its GOF test when at least one of the two p-values is above 0.05.



Table 4: Autocorrelation Tests, Non-Detects Excluded

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Autocorrelation	Box-Ljung p-value	Sig.
10_1_105	W-9	Appendix III	Boron	mg/l	9	0	0%	0.367	0.196	
10_1_107	W-9	Appendix III	Calcium	mg/l	9	0	0%	0.090	0.753	
10_1_108	W-9	Appendix III	Chloride (as Cl)	mg/l	9	0	0%	-0.393	0.167	
10_1_111	W-9	Appendix III	Fluoride	mg/l	9	2	22%	0.238	0.441	
10_1_117	W-9	Appendix III	pH (field)	su	9	0	0%	-0.180	0.526	
10_1_118	W-9	Appendix III	pH (lab)	su	9	0	0%	-0.163	0.566	
10_1_123	W-9	Appendix III	Sulfate (as SO4)	mg/l	9	0	0%	-0.157	0.581	
10_1_127	W-9	Appendix III	Total Dissolved Solids	mg/l	9	0	0%	-0.086	0.761	
10_2_101	W-9	Appendix IV	Antimony	mg/l	9	4	44%	-0.234	0.488	
10_2_102	W-9	Appendix IV	Arsenic	mg/l	9	4	44%	0.252	0.455	
10_2_103	W-9	Appendix IV	Barium	mg/l	9	1	11%	-0.166	0.574	
10_2_106	W-9	Appendix IV	Cadmium	mg/l	9	5	56%	-0.078	0.824	
10_2_109	W-9	Appendix IV	Chromium, Total	mg/l	9	6	67%	-0.251	0.493	
10_2_110	W-9	Appendix IV	Cobalt	mg/l	9	1	11%	0.246	0.405	
10_2_112	W-9	Appendix IV	Fluoride (App IV)	mg/l	9	2	22%	0.238	0.441	
10_2_113	W-9	Appendix IV	Lead	mg/l	9	7	78%	-0.500	0.157	
10_2_114	W-9	Appendix IV	Lithium	mg/l	9	0	0%	0.514	0.071	
10_2_116	W-9	Appendix IV	Molybdenum	mg/l	9	3	33%	0.229	0.478	
10_2_120	W-9	Appendix IV	Radium-226+228	pci/l	8	1	12%	0.169	0.584	
10_2_122	W-9	Appendix IV	Selenium	mg/l	9	1	11%	-0.458	0.121	
10_2_126	W-9	Appendix IV	Thallium	mg/l	9	5	56%	0.037	0.916	
10_3_119	W-9	Supplemental	Radium-226	pci/l	8	0	0%	0.044	0.882	
10_3_121	W-9	Supplemental	Radium-228	pci/l	8	2	25%	0.220	0.495	
10_3_124	W-9	Supplemental	Temperature (field)	deg c	9	0	0%	0.042	0.883	
10_3_125	W-9	Supplemental	Temperature (lab)	deg c	9	0	0%	-0.205	0.470	
10_3_128	W-9	Supplemental	Total Suspended Solids	mg/l	9	0	0%	0.184	0.517	
1_1_105	W-1	Appendix III	Boron	mg/l	18	0	0%	0.326	0.134	
1_1_107	W-1	Appendix III	Calcium	mg/l	18	0	0%	0.371	0.088	
1_1_108	W-1	Appendix III	Chloride (as Cl)	mg/l	18	0	0%	0.402	0.064	
1_1_111	W-1	Appendix III	Fluoride	mg/l	18	1	6%	0.243	0.275	
1_1_117	W-1	Appendix III	pH (field)	su	12	0	0%	0.131	0.609	
1_1_118	W-1	Appendix III	pH (lab)	su	18	0	0%	-0.064	0.767	
1_1_123	W-1	Appendix III	Sulfate (as SO4)	mg/l	18	0	0%	-0.086	0.693	
1_1_127	W-1	Appendix III	Total Dissolved Solids	mg/l	18	0	0%	0.409	0.060	
1_2_101	W-1	Appendix IV	Antimony	mg/l	18	13	72%	0.017	0.960	
1_2_102	W-1	Appendix IV	Arsenic	mg/l	18	3	17%	0.439	0.061	
1_2_103	W-1	Appendix IV	Barium	mg/l	18	3	17%	0.684	0.004	**
1_2_104	W-1	Appendix IV	Beryllium	mg/l	17	15	88%	-0.500	0.157	
1_2_106	W-1	Appendix IV	Cadmium	mg/l	18	9	50%	-0.393	0.167	
1_2_109	W-1	Appendix IV	Chromium, Total	mg/l	18	8	44%	0.563	0.040	*
1_2_110	W-1	Appendix IV	Cobalt	mg/l	18	7	39%	0.590	0.026	*
1_2_112	W-1	Appendix IV	Fluoride (App IV)	mg/l	18	1	6%	0.243	0.275	

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05



Table 4: Autocorrelation Tests, Non-Detects Excluded *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Autocorrelation	Box-Ljung p-value	Sig.
1_2_113	W-1	Appendix IV	Lead	mg/l	18	9	50%	0.383	0.178	
1_2_114	W-1	Appendix IV	Lithium	mg/l	18	0	0%	0.167	0.442	
1_2_116	W-1	Appendix IV	Molybdenum	mg/l	18	1	6%	0.608	0.006	**
1_2_120	W-1	Appendix IV	Radium-226+228	pci/l	18	0	0%	0.013	0.953	
1_2_122	W-1	Appendix IV	Selenium	mg/l	18	0	0%	0.585	0.007	**
1_2_126	W-1	Appendix IV	Thallium	mg/l	18	11	61%	-0.376	0.223	
1_3_119	W-1	Supplemental	Radium-226	pci/l	18	1	6%	-0.136	0.542	
1_3_121	W-1	Supplemental	Radium-228	pci/l	18	2	11%	0.061	0.788	
1_3_124	W-1	Supplemental	Temperature (field)	deg c	12	0	0%	-0.101	0.694	
1_3_125	W-1	Supplemental	Temperature (lab)	deg c	18	0	0%	0.003	0.990	
1_3_128	W-1	Supplemental	Total Suspended Solids	mg/l	18	0	0%	0.387	0.075	
2_1_105	W-11	Appendix III	Boron	mg/l	9	1	11%	0.488	0.099	
2_1_107	W-11	Appendix III	Calcium	mg/l	9	0	0%	0.327	0.250	
2_1_108	W-11	Appendix III	Chloride (as Cl)	mg/l	9	0	0%	-0.327	0.251	
2_1_111	W-11	Appendix III	Fluoride	mg/l	9	1	11%	-0.348	0.240	
2_1_117	W-11	Appendix III	pH (field)	su	9	0	0%	-0.048	0.866	
2_1_118	W-11	Appendix III	pH (lab)	su	9	0	0%	-0.048	0.866	
2_1_123	W-11	Appendix III	Sulfate (as SO4)	mg/l	9	0	0%	-0.148	0.603	
2_1_127	W-11	Appendix III	Total Dissolved Solids	mg/l	9	0	0%	0.108	0.705	
2_2_101	W-11	Appendix IV	Antimony	mg/l	9	7	78%	-0.500	0.157	
2_2_102	W-11	Appendix IV	Arsenic	mg/l	9	3	33%	0.561	0.082	
2_2_103	W-11	Appendix IV	Barium	mg/l	9	1	11%	-0.183	0.536	
2_2_104	W-11	Appendix IV	Beryllium	mg/l	8	6	75%	-0.500	0.157	
2_2_106	W-11	Appendix IV	Cadmium	mg/l	9	2	22%	0.476	0.123	
2_2_109	W-11	Appendix IV	Chromium, Total	mg/l	9	5	56%	-0.284	0.423	
2_2_110	W-11	Appendix IV	Cobalt	mg/l	9	1	11%	0.428	0.148	
2_2_112	W-11	Appendix IV	Fluoride (App IV)	mg/l	9	1	11%	-0.348	0.240	
2_2_113	W-11	Appendix IV	Lead	mg/l	9	7	78%	-0.500	0.157	
2_2_114	W-11	Appendix IV	Lithium	mg/l	9	0	0%	0.248	0.384	
2_2_116	W-11	Appendix IV	Molybdenum	mg/l	9	5	56%	0.189	0.593	
2_2_120	W-11	Appendix IV	Radium-226+228	pci/l	8	0	0%	-0.430	0.146	
2_2_122	W-11	Appendix IV	Selenium	mg/l	9	1	11%	0.263	0.374	
2_2_126	W-11	Appendix IV	Thallium	mg/l	9	2	22%	-0.319	0.301	
2_3_119	W-11	Supplemental	Radium-226	pci/l	8	0	0%	0.126	0.671	
2_3_121	W-11	Supplemental	Radium-228	pci/l	8	0	0%	-0.373	0.207	
2_3_124	W-11	Supplemental	Temperature (field)	deg c	9	0	0%	0.505	0.076	
2_3_125	W-11	Supplemental	Temperature (lab)	deg c	9	0	0%	0.193	0.497	
2_3_128	W-11	Supplemental	Total Suspended Solids	mg/l	9	0	0%	-0.023	0.937	
3_1_105	W-12	Appendix III	Boron	mg/l	9	0	0%	0.008	0.977	
3_1_107	W-12	Appendix III	Calcium	mg/l	9	0	0%	-0.189	0.505	
3_1_108	W-12	Appendix III	Chloride (as Cl)	mg/l	9	0	0%	-0.069	0.809	
3_1_111	W-12	Appendix III	Fluoride	mg/l	9	2	22%	-0.193	0.531	

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 4: Autocorrelation Tests, Non-Detects Excluded *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Autocorrelation	Box-Ljung p-value	Sig.
3_1_117	W-12	Appendix III	pH (field)	su	9	0	0%	-0.027	0.926	
3_1_118	W-12	Appendix III	pH (lab)	su	9	0	0%	-0.439	0.123	
3_1_123	W-12	Appendix III	Sulfate (as SO4)	mg/l	9	0	0%	0.324	0.255	
3_1_127	W-12	Appendix III	Total Dissolved Solids	mg/l	9	0	0%	0.216	0.447	
3_2_101	W-12	Appendix IV	Antimony	mg/l	9	3	33%	-0.210	0.516	
3_2_102	W-12	Appendix IV	Arsenic	mg/l	9	8	89%	NA	NA	
3_2_103	W-12	Appendix IV	Barium	mg/l	9	1	11%	-0.261	0.378	
3_2_104	W-12	Appendix IV	Beryllium	mg/l	8	6	75%	-0.500	0.157	
3_2_106	W-12	Appendix IV	Cadmium	mg/l	9	2	22%	-0.046	0.882	
3_2_109	W-12	Appendix IV	Chromium, Total	mg/l	9	5	56%	-0.667	0.059	
3_2_110	W-12	Appendix IV	Cobalt	mg/l	9	0	0%	-0.427	0.133	
3_2_112	W-12	Appendix IV	Fluoride (App IV)	mg/l	9	2	22%	-0.193	0.531	
3_2_114	W-12	Appendix IV	Lithium	mg/l	9	0	0%	0.260	0.360	
3_2_116	W-12	Appendix IV	Molybdenum	mg/l	9	4	44%	-0.292	0.388	
3_2_120	W-12	Appendix IV	Radium-226+228	pci/l	8	0	0%	0.197	0.505	
3_2_122	W-12	Appendix IV	Selenium	mg/l	9	1	11%	0.309	0.297	
3_2_126	W-12	Appendix IV	Thallium	mg/l	9	1	11%	-0.173	0.559	
3_3_119	W-12	Supplemental	Radium-226	pci/l	8	0	0%	0.378	0.201	
3_3_121	W-12	Supplemental	Radium-228	pci/l	8	1	12%	0.331	0.283	
3_3_124	W-12	Supplemental	Temperature (field)	deg c	9	0	0%	0.132	0.642	
3_3_125	W-12	Supplemental	Temperature (lab)	deg c	9	0	0%	0.098	0.731	
3_3_128	W-12	Supplemental	Total Suspended Solids	mg/l	9	1	11%	-0.100	0.736	
4_1_105	W-14	Appendix III	Boron	mg/l	7	0	0%	-0.061	0.843	
4_1_107	W-14	Appendix III	Calcium	mg/l	7	0	0%	-0.022	0.944	
4_1_108	W-14	Appendix III	Chloride (as Cl)	mg/l	7	0	0%	0.101	0.744	
4_1_111	W-14	Appendix III	Fluoride	mg/l	7	0	0%	0.048	0.875	
4_1_117	W-14	Appendix III	pH (field)	su	7	0	0%	-0.161	0.602	
4_1_118	W-14	Appendix III	pH (lab)	su	7	0	0%	-0.461	0.135	
4_1_123	W-14	Appendix III	Sulfate (as SO4)	mg/l	7	0	0%	-0.199	0.519	
4_1_127	W-14	Appendix III	Total Dissolved Solids	mg/l	7	0	0%	0.335	0.278	
4_2_101	W-14	Appendix IV	Antimony	mg/l	7	0	0%	0.085	0.782	
4_2_102	W-14	Appendix IV	Arsenic	mg/l	7	1	14%	0.076	0.813	
4_2_103	W-14	Appendix IV	Barium	mg/l	7	1	14%	0.079	0.807	
4_2_104	W-14	Appendix IV	Beryllium	mg/l	7	3	43%	0.085	0.810	
4_2_106	W-14	Appendix IV	Cadmium	mg/l	7	0	0%	-0.055	0.859	
4_2_109	W-14	Appendix IV	Chromium, Total	mg/l	7	1	14%	-0.407	0.207	
4_2_110	W-14	Appendix IV	Cobalt	mg/l	7	0	0%	-0.015	0.961	
4_2_112	W-14	Appendix IV	Fluoride (App IV)	mg/l	7	0	0%	0.048	0.875	
4_2_113	W-14	Appendix IV	Lead	mg/l	7	5	71%	-0.500	0.157	
4_2_114	W-14	Appendix IV	Lithium	mg/l	7	0	0%	0.310	0.316	
4_2_116	W-14	Appendix IV	Molybdenum	mg/l	7	1	14%	0.009	0.978	
4_2_120	W-14	Appendix IV	Radium-226+228	pci/l	7	0	0%	0.589	0.056	

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05



Table 4: Autocorrelation Tests, Non-Detects Excluded (*continued*)

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Autocorrelation	Box-Ljung p-value	Sig.
4_2_122	W-14	Appendix IV	Selenium	mg/l	7	0	0%	-0.024	0.939	
4_2_126	W-14	Appendix IV	Thallium	mg/l	7	1	14%	0.078	0.809	
4_3_119	W-14	Supplemental	Radium-226	pci/l	7	0	0%	-0.005	0.986	
4_3_121	W-14	Supplemental	Radium-228	pci/l	7	1	14%	0.448	0.165	
4_3_124	W-14	Supplemental	Temperature (field)	deg c	7	0	0%	0.441	0.153	
4_3_125	W-14	Supplemental	Temperature (lab)	deg c	7	0	0%	-0.342	0.267	
4_3_128	W-14	Supplemental	Total Suspended Solids	mg/l	7	3	43%	-0.792	0.025	*
5_1_105	W-16	Appendix III	Boron	mg/l	7	0	0%	-0.316	0.305	
5_1_107	W-16	Appendix III	Calcium	mg/l	7	0	0%	0.013	0.966	
5_1_108	W-16	Appendix III	Chloride (as Cl)	mg/l	7	0	0%	-0.017	0.957	
5_1_111	W-16	Appendix III	Fluoride	mg/l	4	0	0%	0.016	0.963	
5_1_117	W-16	Appendix III	pH (field)	su	7	0	0%	-0.099	0.748	
5_1_118	W-16	Appendix III	pH (lab)	su	7	0	0%	-0.445	0.149	
5_1_123	W-16	Appendix III	Sulfate (as SO4)	mg/l	7	0	0%	0.243	0.431	
5_1_127	W-16	Appendix III	Total Dissolved Solids	mg/l	6	0	0%	-0.025	0.937	
5_2_101	W-16	Appendix IV	Antimony	mg/l	4	2	50%	-0.500	0.157	
5_2_102	W-16	Appendix IV	Arsenic	mg/l	4	2	50%	-0.500	0.157	
5_2_103	W-16	Appendix IV	Barium	mg/l	4	1	25%	-0.500	0.171	
5_2_104	W-16	Appendix IV	Beryllium	mg/l	4	3	75%	NA	NA	
5_2_106	W-16	Appendix IV	Cadmium	mg/l	4	1	25%	-0.500	0.171	
5_2_110	W-16	Appendix IV	Cobalt	mg/l	7	1	14%	0.506	0.117	
5_2_112	W-16	Appendix IV	Fluoride (App IV)	mg/l	4	0	0%	0.016	0.963	
5_2_113	W-16	Appendix IV	Lead	mg/l	4	2	50%	-0.500	0.157	
5_2_114	W-16	Appendix IV	Lithium	mg/l	4	0	0%	-0.250	0.480	
5_2_116	W-16	Appendix IV	Molybdenum	mg/l	4	1	25%	-0.180	0.622	
5_2_120	W-16	Appendix IV	Radium-226+228	pci/l	4	0	0%	-0.235	0.506	
5_2_122	W-16	Appendix IV	Selenium	mg/l	4	0	0%	-0.250	0.479	
5_2_126	W-16	Appendix IV	Thallium	mg/l	4	1	25%	-0.500	0.171	
5_3_119	W-16	Supplemental	Radium-226	pci/l	4	0	0%	-0.368	0.298	
5_3_121	W-16	Supplemental	Radium-228	pci/l	4	1	25%	-0.662	0.070	
5_3_124	W-16	Supplemental	Temperature (field)	deg c	7	0	0%	0.017	0.956	
5_3_125	W-16	Supplemental	Temperature (lab)	deg c	7	0	0%	-0.273	0.377	
5_3_128	W-16	Supplemental	Total Suspended Solids	mg/l	7	2	29%	-0.258	0.445	
6_1_105	W-3B	Appendix III	Boron	mg/l	9	1	11%	0.160	0.589	
6_1_107	W-3B	Appendix III	Calcium	mg/l	9	0	0%	0.589	0.038	*
6_1_108	W-3B	Appendix III	Chloride (as Cl)	mg/l	9	0	0%	-0.001	0.997	
6_1_111	W-3B	Appendix III	Fluoride	mg/l	9	5	56%	-0.013	0.971	
6_1_117	W-3B	Appendix III	pH (field)	su	9	0	0%	-0.005	0.986	
6_1_118	W-3B	Appendix III	pH (lab)	su	9	0	0%	-0.027	0.924	
6_1_123	W-3B	Appendix III	Sulfate (as SO4)	mg/l	9	0	0%	-0.037	0.896	
6_1_127	W-3B	Appendix III	Total Dissolved Solids	mg/l	9	1	11%	-0.046	0.877	
6_2_101	W-3B	Appendix IV	Antimony	mg/l	8	4	50%	-0.226	0.523	

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 4: Autocorrelation Tests, Non-Detects Excluded (*continued*)

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Autocorrelation	Box-Ljung p-value	Sig.
6_2_102	W-3B	Appendix IV	Arsenic	mg/l	8	3	38%	-0.643	0.057	
6_2_103	W-3B	Appendix IV	Barium	mg/l	9	1	11%	0.398	0.179	
6_2_104	W-3B	Appendix IV	Beryllium	mg/l	9	6	67%	-0.082	0.823	
6_2_106	W-3B	Appendix IV	Cadmium	mg/l	9	0	0%	0.329	0.247	
6_2_109	W-3B	Appendix IV	Chromium, Total	mg/l	9	4	44%	0.305	0.366	
6_2_110	W-3B	Appendix IV	Cobalt	mg/l	9	0	0%	-0.188	0.509	
6_2_112	W-3B	Appendix IV	Fluoride (App IV)	mg/l	9	5	56%	-0.013	0.971	
6_2_113	W-3B	Appendix IV	Lead	mg/l	9	4	44%	-0.237	0.484	
6_2_114	W-3B	Appendix IV	Lithium	mg/l	9	0	0%	0.245	0.389	
6_2_116	W-3B	Appendix IV	Molybdenum	mg/l	9	3	33%	-0.093	0.773	
6_2_120	W-3B	Appendix IV	Radium-226+228	pci/l	9	0	0%	-0.265	0.352	
6_2_122	W-3B	Appendix IV	Selenium	mg/l	9	1	11%	0.222	0.452	
6_2_126	W-3B	Appendix IV	Thallium	mg/l	9	1	11%	0.066	0.822	
6_3_119	W-3B	Supplemental	Radium-226	pci/l	9	0	0%	0.250	0.380	
6_3_121	W-3B	Supplemental	Radium-228	pci/l	9	0	0%	-0.272	0.338	
6_3_124	W-3B	Supplemental	Temperature (field)	deg c	9	0	0%	0.240	0.398	
6_3_125	W-3B	Supplemental	Temperature (lab)	deg c	9	0	0%	0.109	0.701	
6_3_128	W-3B	Supplemental	Total Suspended Solids	mg/l	9	0	0%	-0.106	0.709	
7_1_105	W-5B	Appendix III	Boron	mg/l	12	1	8%	-0.096	0.718	
7_1_107	W-5B	Appendix III	Calcium	mg/l	12	0	0%	-0.020	0.937	
7_1_108	W-5B	Appendix III	Chloride (as Cl)	mg/l	12	0	0%	0.186	0.468	
7_1_111	W-5B	Appendix III	Fluoride	mg/l	12	1	8%	0.329	0.213	
7_1_117	W-5B	Appendix III	pH (field)	su	12	0	0%	-0.083	0.745	
7_1_118	W-5B	Appendix III	pH (lab)	su	12	0	0%	-0.004	0.986	
7_1_123	W-5B	Appendix III	Sulfate (as SO4)	mg/l	12	0	0%	0.046	0.857	
7_1_127	W-5B	Appendix III	Total Dissolved Solids	mg/l	12	0	0%	-0.029	0.909	
7_2_101	W-5B	Appendix IV	Antimony	mg/l	12	11	92%	NA	NA	
7_2_102	W-5B	Appendix IV	Arsenic	mg/l	12	8	67%	-0.099	0.781	
7_2_103	W-5B	Appendix IV	Barium	mg/l	12	1	8%	-0.367	0.165	
7_2_104	W-5B	Appendix IV	Beryllium	mg/l	11	9	82%	-0.500	0.157	
7_2_106	W-5B	Appendix IV	Cadmium	mg/l	12	2	17%	-0.014	0.961	
7_2_109	W-5B	Appendix IV	Chromium, Total	mg/l	12	11	92%	NA	NA	
7_2_110	W-5B	Appendix IV	Cobalt	mg/l	12	0	0%	0.518	0.043	*
7_2_112	W-5B	Appendix IV	Fluoride (App IV)	mg/l	12	1	8%	0.329	0.213	
7_2_113	W-5B	Appendix IV	Lead	mg/l	12	8	67%	0.264	0.456	
7_2_114	W-5B	Appendix IV	Lithium	mg/l	12	0	0%	0.226	0.376	
7_2_116	W-5B	Appendix IV	Molybdenum	mg/l	12	4	33%	0.119	0.687	
7_2_120	W-5B	Appendix IV	Radium-226+228	pci/l	11	0	0%	0.024	0.928	
7_2_122	W-5B	Appendix IV	Selenium	mg/l	12	5	42%	-0.298	0.335	
7_2_126	W-5B	Appendix IV	Thallium	mg/l	12	4	33%	-0.470	0.112	
7_3_119	W-5B	Supplemental	Radium-226	pci/l	11	0	0%	-0.514	0.052	
7_3_121	W-5B	Supplemental	Radium-228	pci/l	11	0	0%	0.049	0.852	

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 4: Autocorrelation Tests, Non-Detects Excluded (*continued*)

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Autocorrelation	Box-Ljung p-value	Sig.
7_3_124	W-5B	Supplemental	Temperature (field)	deg c	12	0	0%	0.567	0.027	*
7_3_125	W-5B	Supplemental	Temperature (lab)	deg c	12	0	0%	-0.012	0.962	
7_3_128	W-5B	Supplemental	Total Suspended Solids	mg/l	12	6	50%	0.121	0.707	
8_1_105	W-6B1	Appendix III	Boron	mg/l	9	1	11%	0.194	0.513	
8_1_107	W-6B1	Appendix III	Calcium	mg/l	9	0	0%	0.651	0.022	*
8_1_108	W-6B1	Appendix III	Chloride (as Cl)	mg/l	9	0	0%	0.147	0.606	
8_1_111	W-6B1	Appendix III	Fluoride	mg/l	9	5	56%	-0.261	0.460	
8_1_117	W-6B1	Appendix III	pH (field)	su	9	0	0%	-0.107	0.707	
8_1_118	W-6B1	Appendix III	pH (lab)	su	9	0	0%	0.404	0.155	
8_1_123	W-6B1	Appendix III	Sulfate (as SO4)	mg/l	9	0	0%	-0.283	0.319	
8_1_127	W-6B1	Appendix III	Total Dissolved Solids	mg/l	9	0	0%	-0.299	0.292	
8_2_101	W-6B1	Appendix IV	Antimony	mg/l	9	4	44%	-0.101	0.766	
8_2_102	W-6B1	Appendix IV	Arsenic	mg/l	9	3	33%	-0.401	0.214	
8_2_103	W-6B1	Appendix IV	Barium	mg/l	9	1	11%	0.471	0.111	
8_2_104	W-6B1	Appendix IV	Beryllium	mg/l	9	5	56%	-0.032	0.927	
8_2_106	W-6B1	Appendix IV	Cadmium	mg/l	9	0	0%	0.610	0.032	*
8_2_109	W-6B1	Appendix IV	Chromium, Total	mg/l	9	5	56%	-0.172	0.626	
8_2_110	W-6B1	Appendix IV	Cobalt	mg/l	9	0	0%	0.181	0.524	
8_2_112	W-6B1	Appendix IV	Fluoride (App IV)	mg/l	9	5	56%	-0.261	0.460	
8_2_113	W-6B1	Appendix IV	Lead	mg/l	9	4	44%	0.003	0.993	
8_2_114	W-6B1	Appendix IV	Lithium	mg/l	9	0	0%	0.347	0.223	
8_2_116	W-6B1	Appendix IV	Molybdenum	mg/l	9	3	33%	0.000	0.999	
8_2_120	W-6B1	Appendix IV	Radium-226+228	pci/l	9	0	0%	-0.124	0.663	
8_2_122	W-6B1	Appendix IV	Selenium	mg/l	9	2	22%	0.185	0.549	
8_2_126	W-6B1	Appendix IV	Thallium	mg/l	9	1	11%	0.496	0.094	
8_3_119	W-6B1	Supplemental	Radium-226	pci/l	9	0	0%	0.057	0.842	
8_3_121	W-6B1	Supplemental	Radium-228	pci/l	9	0	0%	-0.010	0.971	
8_3_124	W-6B1	Supplemental	Temperature (field)	deg c	9	0	0%	0.477	0.093	
8_3_125	W-6B1	Supplemental	Temperature (lab)	deg c	9	0	0%	0.238	0.403	
8_3_128	W-6B1	Supplemental	Total Suspended Solids	mg/l	9	0	0%	0.128	0.653	
9_1_105	W-7	Appendix III	Boron	mg/l	17	2	12%	0.432	0.065	
9_1_107	W-7	Appendix III	Calcium	mg/l	17	0	0%	-0.470	0.035	*
9_1_108	W-7	Appendix III	Chloride (as Cl)	mg/l	17	0	0%	0.088	0.694	
9_1_111	W-7	Appendix III	Fluoride	mg/l	17	7	41%	0.287	0.294	
9_1_117	W-7	Appendix III	pH (field)	su	17	0	0%	-0.347	0.119	
9_1_118	W-7	Appendix III	pH (lab)	su	17	0	0%	0.133	0.549	
9_1_123	W-7	Appendix III	Sulfate (as SO4)	mg/l	17	0	0%	-0.048	0.829	
9_1_127	W-7	Appendix III	Total Dissolved Solids	mg/l	17	0	0%	0.390	0.080	
9_2_101	W-7	Appendix IV	Antimony	mg/l	17	13	76%	0.218	0.538	
9_2_102	W-7	Appendix IV	Arsenic	mg/l	17	2	12%	0.294	0.209	
9_2_103	W-7	Appendix IV	Barium	mg/l	17	4	24%	-0.120	0.629	
9_2_104	W-7	Appendix IV	Beryllium	mg/l	16	14	88%	-0.500	0.157	

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05



Table 4: Autocorrelation Tests, Non-Detects Excluded (*continued*)

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Autocorrelation	Box-Ljung p-value	Sig.
9_2_106	W-7	Appendix IV	Cadmium	mg/l	17	0	0%	-0.116	0.601	
9_2_109	W-7	Appendix IV	Chromium, Total	mg/l	17	9	53%	-0.272	0.358	
9_2_110	W-7	Appendix IV	Cobalt	mg/l	17	0	0%	-0.033	0.883	
9_2_112	W-7	Appendix IV	Fluoride (App IV)	mg/l	17	7	41%	0.287	0.294	
9_2_113	W-7	Appendix IV	Lead	mg/l	17	8	47%	-0.163	0.566	
9_2_114	W-7	Appendix IV	Lithium	mg/l	17	0	0%	0.543	0.015	*
9_2_115	W-7	Appendix IV	Mercury	mg/l	16	10	62%	-0.762	0.018	*
9_2_116	W-7	Appendix IV	Molybdenum	mg/l	17	7	41%	-0.129	0.637	
9_2_120	W-7	Appendix IV	Radium-226+228	pci/l	15	0	0%	-0.120	0.608	
9_2_122	W-7	Appendix IV	Selenium	mg/l	17	0	0%	0.220	0.323	
9_2_126	W-7	Appendix IV	Thallium	mg/l	17	1	6%	-0.122	0.592	
9_3_119	W-7	Supplemental	Radium-226	pci/l	16	0	0%	0.041	0.859	
9_3_121	W-7	Supplemental	Radium-228	pci/l	16	1	6%	0.592	0.012	*
9_3_124	W-7	Supplemental	Temperature (field)	deg c	17	0	0%	-0.136	0.541	
9_3_125	W-7	Supplemental	Temperature (lab)	deg c	17	0	0%	-0.247	0.268	
9_3_128	W-7	Supplemental	Total Suspended Solids	mg/l	17	0	0%	0.369	0.097	

*** p < 0.001, ** p < 0.01, * p < 0.05



Table 5: Outlier Counts by Date

Date	Count
2020-03-05	3
2020-09-09	2
2020-11-20	1
2021-04-19	1
2021-05-26	1
2021-05-27	12
2021-12-02	2
2021-12-08	2
2021-12-10	2
2022-01-13	1
2022-02-24	1
2022-03-01	2
2022-04-01	4
2022-05-11	1
2022-06-06	2
2022-06-07	1
2022-07-15	1
2022-08-23	4
2022-09-29	1
2022-10-27	2

Table 6: Outliers Identified at the 1% Significance Level, Non-Detects Excluded

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	No. Detects	Date	Dilution	Value
10_2_101	W-9	Appendix IV	Antimony	mg/l	9	4	44%	5	2022-03-01	10	0.00760
1_1_105	W-1	Appendix III	Boron	mg/l	18	0	0%	18	2020-03-05	1	8.10
1_1_108	W-1	Appendix III	Chloride (as Cl)	mg/l	18	0	0%	18	2020-03-05	5	990
1_2_101	W-1	Appendix IV	Antimony	mg/l	18	13	72%	5	2022-05-11	1	0.00120
1_2_120	W-1	Appendix IV	Radium-226+228	pci/l	18	0	0%	18	2021-12-08	1	4.82
1_3_119	W-1	Supplemental	Radium-226	pci/l	18	1	6%	17	2020-09-09	1	2.15
1_3_121	W-1	Supplemental	Radium-228	pci/l	18	2	11%	16	2021-12-08	1	4.48
1_3_124	W-1	Supplemental	Temperature (field)	deg c	12	0	0%	12	2021-04-19	NA	184
1_3_128	W-1	Supplemental	Total Suspended Solids	mg/l	18	0	0%	18	2020-03-05	1	270
2_1_107	W-11	Appendix III	Calcium	mg/l	9	0	0%	9	2021-05-27	1	4.10
2_1_123	W-11	Appendix III	Sulfate (as SO4)	mg/l	9	0	0%	9	2022-01-13	1000	140000
2_2_103	W-11	Appendix IV	Barium	mg/l	9	1	11%	8	2021-05-27	1	0.240
2_2_114	W-11	Appendix IV	Lithium	mg/l	9	0	0%	9	2021-05-27	1	0.0560
3_1_111	W-12	Appendix III	Fluoride	mg/l	9	2	22%	7	2022-04-01	5	30.0
3_2_106	W-12	Appendix IV	Cadmium	mg/l	9	2	22%	7	2021-12-02	1	0.000540
3_2_112	W-12	Appendix IV	Fluoride (App IV)	mg/l	9	2	22%	7	2022-04-01	5	30.0
3_2_114	W-12	Appendix IV	Lithium	mg/l	9	0	0%	9	2021-12-02	2	0.720

(Table continues on next page)



Table 6: Outliers Identified at the 1% Significance Level, Non-Detects Excluded (*continued*)

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	No. Detects	Date	Dilution	Value
3_2_126	W-12	Appendix IV	Thallium	mg/l	9	1	11%	8	2022-03-01	10	0.00510
4_1_105	W-14	Appendix III	Boron	mg/l	7	0	0%	7	2022-04-01	8	1.00
4_1_107	W-14	Appendix III	Calcium	mg/l	7	0	0%	7	2022-04-01	100	480
4_1_117	W-14	Appendix III	pH (field)	su	7	0	0%	7	2022-06-06	NA	5.30
4_1_123	W-14	Appendix III	Sulfate (as SO4)	mg/l	7	0	0%	7	2022-06-06	200	31000
4_2_116	W-14	Appendix IV	Molybdenum	mg/l	7	1	14%	6	2022-07-15	1	0.0220
6_1_105	W-3B	Appendix III	Boron	mg/l	9	1	11%	8	2021-12-10	5	4.70
6_2_116	W-3B	Appendix IV	Molybdenum	mg/l	9	3	33%	6	2021-12-10	5	0.00880
7_1_111	W-5B	Appendix III	Fluoride	mg/l	12	1	8%	11	2022-08-23	1	9.00
7_1_117	W-5B	Appendix III	pH (field)	su	12	0	0%	12	2022-06-07	NA	5.84
7_2_102	W-5B	Appendix IV	Arsenic	mg/l	12	8	67%	4	2021-05-26	1	0.000870
7_2_106	W-5B	Appendix IV	Cadmium	mg/l	12	2	17%	10	2022-10-27	1	0.00280
7_2_112	W-5B	Appendix IV	Fluoride (App IV)	mg/l	12	1	8%	11	2022-08-23	1	9.00
7_2_120	W-5B	Appendix IV	Radium-226+228	pci/l	11	0	0%	11	2022-08-23	1	5.35
7_3_121	W-5B	Supplemental	Radium-228	pci/l	11	0	0%	11	2022-08-23	1	4.71
8_1_108	W-6B1	Appendix III	Chloride (as Cl)	mg/l	9	0	0%	9	2022-09-29	1	120
8_2_101	W-6B1	Appendix IV	Antimony	mg/l	9	4	44%	5	2022-02-24	10	0.00730
8_2_104	W-6B1	Appendix IV	Beryllium	mg/l	9	5	56%	4	2022-10-27	1	0.0000910
9_1_108	W-7	Appendix III	Chloride (as Cl)	mg/l	17	0	0%	17	2021-05-27	10	1100
9_1_117	W-7	Appendix III	pH (field)	su	17	0	0%	17	2021-05-27	NA	7.00
9_1_127	W-7	Appendix III	Total Dissolved Solids	mg/l	17	0	0%	17	2020-11-20	1	130000
9_2_103	W-7	Appendix IV	Barium	mg/l	17	4	24%	13	2021-05-27	10	0.0710
9_2_106	W-7	Appendix IV	Cadmium	mg/l	17	0	0%	17	2021-05-27	10	0.0390
9_2_109	W-7	Appendix IV	Chromium, Total	mg/l	17	9	53%	8	2021-05-27	10	0.0210
9_2_110	W-7	Appendix IV	Cobalt	mg/l	17	0	0%	17	2021-05-27	10	0.0630
9_2_113	W-7	Appendix IV	Lead	mg/l	17	8	47%	9	2021-05-27	10	0.0370
9_2_116	W-7	Appendix IV	Molybdenum	mg/l	17	7	41%	10	2021-05-27	10	0.0250
9_2_126	W-7	Appendix IV	Thallium	mg/l	17	1	6%	16	2021-05-27	10	0.0380
9_3_119	W-7	Supplemental	Radium-226	pci/l	16	0	0%	16	2020-09-09	1	3.36

Comanche Bottom Ash Pond

Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11



Table 7: Seasonality Tests

ID	Well	Constituent Type	Constituent	Unit	% NDs	Full							Without Non-Detects							ANOVA	Log ANOVA		
						Sample Size					p-Value			Sample Size					p-Value				
						Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis			ANOVA	Log ANOVA
10_1_105	W-9	Appendix III	Boron	mg/l	0%	2	5	0	2	9	0.208	0.389	0.373	2	5	0	2	9	0.208	0.389	0.373		
10_1_107	W-9	Appendix III	Calcium	mg/l	0%	2	5	0	2	9	0.988	0.684	0.757	2	5	0	2	9	0.988	0.684	0.757		
10_1_108	W-9	Appendix III	Chloride (as Cl)	mg/l	0%	2	5	0	2	9	0.313	0.296	0.337	2	5	0	2	9	0.313	0.296	0.337		
10_1_111	W-9	Appendix III	Fluoride	mg/l	22%	2	5	0	2	9	0.436	0.457	0.382	1	5	0	1	7	0.804	0.718	0.778		
10_1_117	W-9	Appendix III	pH (field)	su	0%	2	5	0	2	9	0.465	0.487	0.488	2	5	0	2	9	0.465	0.487	0.488		
10_1_118	W-9	Appendix III	pH (lab)	su	0%	2	5	0	2	9	0.565	0.597	0.601	2	5	0	2	9	0.565	0.597	0.601		
10_1_123	W-9	Appendix III	Sulfate (as SO4)	mg/l	0%	2	5	0	2	9	0.169	0.210	0.237	2	5	0	2	9	0.169	0.210	0.237		
10_1_127	W-9	Appendix III	Total Dissolved Solids	mg/l	0%	2	5	0	2	9	0.201	0.265	0.264	2	5	0	2	9	0.201	0.265	0.264		
10_2_101	W-9	Appendix IV	Antimony	mg/l	44%	2	5	0	2	9	0.302	0.543	0.365	1	3	0	1	5	0.670	0.891	0.937		
10_2_102	W-9	Appendix IV	Arsenic	mg/l	44%	2	5	0	2	9	0.675	0.665	0.673	1	2	0	2	5	0.165	0.049 *	0.053		
10_2_103	W-9	Appendix IV	Barium	mg/l	11%	2	5	0	2	9	0.795	0.710	0.697	2	4	0	2	8	0.943	0.941	0.918		
10_2_104	W-9	Appendix IV	Beryllium	mg/l	100%	2	4	0	2	8	0.461	0.628	0.553	NA	NA	NA	NA	NA	NA	NA	NA		
10_2_106	W-9	Appendix IV	Cadmium	mg/l	56%	2	5	0	2	9	0.710	0.670	0.537	2	0	0	2	4	0.683	0.655	0.574		
10_2_109	W-9	Appendix IV	Chromium, Total	mg/l	67%	2	5	0	2	9	0.886	0.731	0.865	1	1	0	1	3	0.368	NA	NA		
10_2_110	W-9	Appendix IV	Cobalt	mg/l	11%	2	5	0	2	9	0.503	0.591	0.585	2	4	0	2	8	0.570	0.400	0.594		
10_2_112	W-9	Appendix IV	Fluoride (App IV)	mg/l	22%	2	5	0	2	9	0.436	0.457	0.382	1	5	0	1	7	0.804	0.718	0.778		
10_2_113	W-9	Appendix IV	Lead	mg/l	78%	2	5	0	2	9	0.402	0.654	0.482	0	1	0	1	2	0.317	NA	NA		
10_2_114	W-9	Appendix IV	Lithium	mg/l	0%	2	5	0	2	9	0.745	0.720	0.682	2	5	0	2	9	0.745	0.720	0.682		
10_2_115	W-9	Appendix IV	Mercury	mg/l	100%	2	4	0	2	8	0.224	0.382	0.457	NA	NA	NA	NA	NA	NA	NA	NA		
10_2_116	W-9	Appendix IV	Molybdenum	mg/l	33%	2	5	0	2	9	0.679	0.756	0.826	1	3	0	2	6	0.807	0.808	0.812		
10_2_120	W-9	Appendix IV	Radium-226+228	pci/l	12%	2	5	0	1	8	0.407	0.433	0.416	2	5	0	0	7	0.245	0.292	0.279		
10_2_122	W-9	Appendix IV	Selenium	mg/l	11%	2	5	0	2	9	0.764	0.779	0.902	2	4	0	2	8	0.603	0.560	0.650		
10_2_126	W-9	Appendix IV	Thallium	mg/l	56%	2	5	0	2	9	0.299	0.712	0.553	1	1	0	2	4	0.407	0.721	0.781		
10_3_119	W-9	Supplemental	Radium-226	pci/l	0%	2	5	0	1	8	0.535	0.626	0.616	2	5	0	1	8	0.535	0.626	0.616		
10_3_121	W-9	Supplemental	Radium-228	pci/l	25%	2	5	0	1	8	0.407	0.465	0.394	1	5	0	0	6	0.770	0.877	0.955		
10_3_124	W-9	Supplemental	Temperature (field)	deg c	0%	2	5	0	2	9	0.068	0.063	0.056	2	5	0	2	9	0.068	0.063	0.056		
10_3_125	W-9	Supplemental	Temperature (lab)	deg c	0%	2	5	0	2	9	0.186	0.218	0.234	2	5	0	2	9	0.186	0.218	0.234		
10_3_128	W-9	Supplemental	Total Suspended Solids	mg/l	0%	2	5	0	2	9	0.751	0.629	0.799	2	5	0	2	9	0.751	0.629	0.799		
1_1_105	W-1	Appendix III	Boron	mg/l	0%	5	4	1	8	18	0.712	0.776	0.834	5	4	1	8	18	0.712	0.776	0.834		
1_1_107	W-1	Appendix III	Calcium	mg/l	0%	5	4	1	8	18	0.577	0.928	0.955	5	4	1	8	18	0.577	0.928	0.955		
1_1_108	W-1	Appendix III	Chloride (as Cl)	mg/l	0%	5	4	1	8	18	0.446	0.908	0.898	5	4	1	8	18	0.446	0.908	0.898		
1_1_111	W-1	Appendix III	Fluoride	mg/l	6%	5	4	1	8	18	0.177	0.518	0.214	5	4	0	8	17	0.287	0.454	0.253		
1_1_117	W-1	Appendix III	pH (field)	su	0%	4	2	1	5	12	0.656	0.728	0.726	4	2	1	5	12	0.656	0.728	0.726		
1_1_118	W-1	Appendix III	pH (lab)	su	0%	5	4	1	8	18	0.968	0.994	0.994	5	4	1	8	18	0.968	0.994	0.994		
1_1_123	W-1	Appendix III	Sulfate (as SO4)	mg/l	0%	5	4	1	8	18	0.839	0.975	0.924	5	4	1	8	18	0.839	0.975	0.924		
1_1_127	W-1	Appendix III	Total Dissolved Solids	mg/l	0%	5	4	1	8	18	0.457	0.568	0.402	5	4	1	8	18	0.457	0.568	0.402		
1_2_101	W-1	Appendix IV	Antimony	mg/l	72%	5	4	1	8	18	0.006 **	0.000 ***	0.000 ***	0	2	0	3	5	0.076	0.214	0.198		
1_2_102	W-1	Appendix IV	Arsenic	mg/l	17%	5	4	1	8	18	0.926	0.995	0.857	2	4	1	8	15	0.648	0.927	0.783		
1_2_103	W-1	Appendix IV	Barium	mg/l	17%	5	4	1	8	18	0.122	0.307	0.166	3	3	1	8	15	0.102	0.429	0.212		

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 7: Seasonality Tests *(continued)*

ID	Well	Constituent Type	Constituent	Unit	% NDs	Full									Without Non-Detects											
						Sample Size					p-Value				Sample Size					p-Value						
						Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA					
1_2_104	W-1	Appendix IV	Beryllium	mg/l	88%	5	4	0	8	17	0.031	*	0.069	0.013	*	0	1	0	1	2	0.317	NA	NA			
1_2_106	W-1	Appendix IV	Cadmium	mg/l	50%	5	4	1	8	18	0.136		0.085	0.125		1	0	0	8	9	1.000	0.748	0.808			
1_2_109	W-1	Appendix IV	Chromium, Total	mg/l	44%	5	4	1	8	18	0.417		0.711	0.540		0	2	0	8	10	0.600	0.916	0.726			
1_2_110	W-1	Appendix IV	Cobalt	mg/l	39%	5	4	1	8	18	0.769		0.622	0.720		0	2	1	8	11	0.440	0.728	0.542			
1_2_112	W-1	Appendix IV	Fluoride (App IV)	mg/l	6%	5	4	1	8	18	0.177		0.518	0.214		5	4	0	8	17	0.287	0.454	0.253			
1_2_113	W-1	Appendix IV	Lead	mg/l	50%	5	4	1	8	18	0.658		0.881	0.594		0	1	0	8	9	0.120	0.375	0.063			
1_2_114	W-1	Appendix IV	Lithium	mg/l	0%	5	4	1	8	18	0.224		0.267	0.287		5	4	1	8	18	0.224	0.267	0.287			
1_2_115	W-1	Appendix IV	Mercury	mg/l	100%	5	4	0	8	17	0.217		0.286	0.209		NA	NA	NA	NA	NA	NA	NA	NA			
1_2_116	W-1	Appendix IV	Molybdenum	mg/l	6%	5	4	1	8	18	0.790		0.782	0.832		5	3	1	8	17	0.926	0.860	0.911			
1_2_120	W-1	Appendix IV	Radium-226+228	pci/l	0%	5	4	1	8	18	0.584		0.995	0.909		5	4	1	8	18	0.584	0.995	0.909			
1_2_122	W-1	Appendix IV	Selenium	mg/l	0%	5	4	1	8	18	0.339		0.622	0.632		5	4	1	8	18	0.339	0.622	0.632			
1_2_126	W-1	Appendix IV	Thallium	mg/l	61%	5	4	1	8	18	0.031	*	0.135	0.017	*	1	1	0	5	7	0.140	0.010	*	0.040	*	
1_3_119	W-1	Supplemental	Radium-226	pci/l	6%	5	4	1	8	18	0.783		0.808	0.833		5	3	1	8	17	0.759	0.836	0.841			
1_3_121	W-1	Supplemental	Radium-228	pci/l	11%	5	4	1	8	18	0.428		0.925	0.750		4	4	1	7	16	0.609	0.920	0.882			
1_3_124	W-1	Supplemental	Temperature (field)	deg c	0%	4	2	1	5	12	0.664		0.169	0.199		4	2	1	5	12	0.664	0.169	0.199			
1_3_125	W-1	Supplemental	Temperature (lab)	deg c	0%	5	4	1	8	18	0.696		0.662	0.652		5	4	1	8	18	0.696	0.662	0.652			
1_3_128	W-1	Supplemental	Total Suspended Solids	mg/l	0%	5	4	1	8	18	0.105		0.476	0.172		5	4	1	8	18	0.105	0.476	0.172			
2_1_105	W-11	Appendix III	Boron	mg/l	11%	4	4	0	1	9	0.490		0.592	0.549		3	4	0	1	8	0.489	0.484	0.516			
2_1_107	W-11	Appendix III	Calcium	mg/l	0%	4	4	0	1	9	0.472		0.444	0.545		4	4	0	1	9	0.472	0.444	0.545			
2_1_108	W-11	Appendix III	Chloride (as Cl)	mg/l	0%	4	4	0	1	9	0.276		0.042	*	0.000	***	4	4	0	1	9	0.276	0.042	*	0.000	***
2_1_111	W-11	Appendix III	Fluoride	mg/l	11%	4	4	0	1	9	0.374		0.322	0.475		3	4	0	1	8	0.303	0.432	0.601			
2_1_117	W-11	Appendix III	pH (field)	su	0%	4	4	0	1	9	0.457		0.518	0.524		4	4	0	1	9	0.457	0.518	0.524			
2_1_118	W-11	Appendix III	pH (lab)	su	0%	4	4	0	1	9	0.871		0.917	0.919		4	4	0	1	9	0.871	0.917	0.919			
2_1_123	W-11	Appendix III	Sulfate (as SO4)	mg/l	0%	4	4	0	1	9	0.959		0.610	0.638		4	4	0	1	9	0.959	0.610	0.638			
2_1_127	W-11	Appendix III	Total Dissolved Solids	mg/l	0%	4	4	0	1	9	0.248		0.272	0.231		4	4	0	1	9	0.248	0.272	0.231			
2_2_101	W-11	Appendix IV	Antimony	mg/l	78%	4	4	0	1	9	0.209		0.283	0.294		0	1	0	1	2	0.317	NA	NA			
2_2_102	W-11	Appendix IV	Arsenic	mg/l	33%	4	4	0	1	9	0.276		0.395	0.129		2	3	0	1	6	0.500	0.384	0.368			
2_2_103	W-11	Appendix IV	Barium	mg/l	11%	4	4	0	1	9	0.400		0.402	0.329		4	3	0	1	8	0.571	0.516	0.550			
2_2_104	W-11	Appendix IV	Beryllium	mg/l	75%	4	3	0	1	8	0.271		0.579	0.604		0	1	0	1	2	0.317	NA	NA			
2_2_106	W-11	Appendix IV	Cadmium	mg/l	22%	4	4	0	1	9	0.967		0.848	0.962		4	2	0	1	7	0.920	0.916	0.921			
2_2_109	W-11	Appendix IV	Chromium, Total	mg/l	56%	4	4	0	1	9	0.861		0.670	0.890		0	3	0	1	4	0.655	0.828	0.752			
2_2_110	W-11	Appendix IV	Cobalt	mg/l	11%	4	4	0	1	9	0.401		0.543	0.582		4	3	0	1	8	0.530	0.739	0.783			
2_2_112	W-11	Appendix IV	Fluoride (App IV)	mg/l	11%	4	4	0	1	9	0.374		0.322	0.475		3	4	0	1	8	0.303	0.432	0.601			
2_2_113	W-11	Appendix IV	Lead	mg/l	78%	4	4	0	1	9	0.734		0.673	0.979		0	1	0	1	2	0.317	NA	NA			
2_2_114	W-11	Appendix IV	Lithium	mg/l	0%	4	4	0	1	9	0.685		0.615	0.601		4	4	0	1	9	0.685	0.615	0.601			
2_2_115	W-11	Appendix IV	Mercury	mg/l	100%	4	3	0	1	8	0.188		0.126	0.117		NA	NA	NA	NA	NA	NA	NA	NA			
2_2_116	W-11	Appendix IV	Molybdenum	mg/l	56%	4	4	0	1	9	0.741		0.688	0.950		1	2	0	1	4	0.259	0.264	0.253			
2_2_120	W-11	Appendix IV	Radium-226+228	pci/l	0%	3	4	0	1	8	0.414		0.178	0.194		3	4	0	1	8	0.414	0.178	0.194			
2_2_122	W-11	Appendix IV	Selenium	mg/l	11%	4	4	0	1	9	0.242		0.448	0.584		4	3	0	1	8	0.303	0.301	0.331			

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 7: Seasonality Tests *(continued)*

ID	Well	Constituent Type	Constituent	Unit	% NDs	Full							Without Non-Detects								
						Sample Size					p-Value			Sample Size					p-Value		
						Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA
2_2_126	W-11	Appendix IV	Thallium	mg/l	22%	4	4	0	1	9	0.733	0.744	0.948	4	2	0	1	7	0.568	0.700	0.695
2_3_119	W-11	Supplemental	Radium-226	pci/l	0%	3	4	0	1	8	0.400	0.341	0.307	3	4	0	1	8	0.400	0.341	0.307
2_3_121	W-11	Supplemental	Radium-228	pci/l	0%	3	4	0	1	8	0.311	0.204	0.230	3	4	0	1	8	0.311	0.204	0.230
2_3_124	W-11	Supplemental	Temperature (field)	deg c	0%	4	4	0	1	9	0.963	0.855	0.847	4	4	0	1	9	0.963	0.855	0.847
2_3_125	W-11	Supplemental	Temperature (lab)	deg c	0%	4	4	0	1	9	0.174	0.218	0.236	4	4	0	1	9	0.174	0.218	0.236
2_3_128	W-11	Supplemental	Total Suspended Solids	mg/l	0%	4	4	0	1	9	0.177	0.010	**	4	4	0	1	9	0.177	0.010	**
3_1_105	W-12	Appendix III	Boron	mg/l	0%	3	5	0	1	9	0.449	0.625	0.478	3	5	0	1	9	0.449	0.625	0.478
3_1_107	W-12	Appendix III	Calcium	mg/l	0%	3	5	0	1	9	0.726	0.489	0.279	3	5	0	1	9	0.726	0.489	0.279
3_1_108	W-12	Appendix III	Chloride (as Cl)	mg/l	0%	3	5	0	1	9	0.272	0.294	0.293	3	5	0	1	9	0.272	0.294	0.293
3_1_111	W-12	Appendix III	Fluoride	mg/l	22%	3	5	0	1	9	0.226	0.700	0.283	1	5	0	1	7	0.314	0.862	0.572
3_1_117	W-12	Appendix III	pH (field)	su	0%	3	5	0	1	9	0.203	0.169	0.170	3	5	0	1	9	0.203	0.169	0.170
3_1_118	W-12	Appendix III	pH (lab)	su	0%	3	5	0	1	9	0.527	0.593	0.593	3	5	0	1	9	0.527	0.593	0.593
3_1_123	W-12	Appendix III	Sulfate (as SO4)	mg/l	0%	3	5	0	1	9	0.334	0.422	0.414	3	5	0	1	9	0.334	0.422	0.414
3_1_127	W-12	Appendix III	Total Dissolved Solids	mg/l	0%	3	5	0	1	9	0.961	0.984	0.983	3	5	0	1	9	0.961	0.984	0.983
3_2_101	W-12	Appendix IV	Antimony	mg/l	33%	3	5	0	1	9	0.288	0.818	0.762	2	3	0	1	6	0.322	0.426	0.398
3_2_102	W-12	Appendix IV	Arsenic	mg/l	89%	3	5	0	1	9	0.374	0.678	0.388	0	0	0	1	1	NA	NA	NA
3_2_103	W-12	Appendix IV	Barium	mg/l	11%	3	5	0	1	9	0.730	0.722	0.722	3	4	0	1	8	0.724	0.870	0.866
3_2_104	W-12	Appendix IV	Beryllium	mg/l	75%	3	4	0	1	8	0.303	0.655	0.448	0	1	0	1	2	0.317	NA	NA
3_2_106	W-12	Appendix IV	Cadmium	mg/l	22%	3	5	0	1	9	0.568	0.706	0.601	3	3	0	1	7	0.443	0.635	0.633
3_2_109	W-12	Appendix IV	Chromium, Total	mg/l	56%	3	5	0	1	9	0.927	0.731	0.794	0	3	0	1	4	0.655	0.997	0.903
3_2_110	W-12	Appendix IV	Cobalt	mg/l	0%	3	5	0	1	9	0.538	0.486	0.419	3	5	0	1	9	0.538	0.486	0.419
3_2_112	W-12	Appendix IV	Fluoride (App IV)	mg/l	22%	3	5	0	1	9	0.226	0.700	0.283	1	5	0	1	7	0.314	0.862	0.572
3_2_113	W-12	Appendix IV	Lead	mg/l	100%	3	5	0	1	9	0.314	0.648	0.408	NA	NA	NA	NA	NA	NA	NA	NA
3_2_114	W-12	Appendix IV	Lithium	mg/l	0%	3	5	0	1	9	0.358	0.246	0.292	3	5	0	1	9	0.358	0.246	0.292
3_2_115	W-12	Appendix IV	Mercury	mg/l	100%	3	4	0	1	8	0.096	0.087	0.102	NA	NA	NA	NA	NA	NA	NA	NA
3_2_116	W-12	Appendix IV	Molybdenum	mg/l	44%	3	5	0	1	9	0.901	0.740	0.756	1	3	0	1	5	0.513	0.664	0.665
3_2_120	W-12	Appendix IV	Radium-226+228	pci/l	0%	2	5	0	1	8	0.247	0.179	0.235	2	5	0	1	8	0.247	0.179	0.235
3_2_122	W-12	Appendix IV	Selenium	mg/l	11%	3	5	0	1	9	0.509	0.667	0.602	3	4	0	1	8	0.499	0.666	0.609
3_2_126	W-12	Appendix IV	Thallium	mg/l	11%	3	5	0	1	9	0.192	0.679	0.590	3	4	0	1	8	0.252	0.463	0.419
3_3_119	W-12	Supplemental	Radium-226	pci/l	0%	2	5	0	1	8	0.294	0.727	0.771	2	5	0	1	8	0.294	0.727	0.771
3_3_121	W-12	Supplemental	Radium-228	pci/l	12%	2	5	0	1	8	0.247	0.115	0.158	2	4	0	1	7	0.235	0.144	0.188
3_3_124	W-12	Supplemental	Temperature (field)	deg c	0%	3	5	0	1	9	0.664	0.913	0.907	3	5	0	1	9	0.664	0.913	0.907
3_3_125	W-12	Supplemental	Temperature (lab)	deg c	0%	3	5	0	1	9	0.049	*	0.134	3	5	0	1	9	0.049	*	0.134
3_3_128	W-12	Supplemental	Total Suspended Solids	mg/l	11%	3	5	0	1	9	0.278	0.412	0.707	3	4	0	1	8	0.054	0.108	0.049
4_1_105	W-14	Appendix III	Boron	mg/l	0%	0	2	3	2	7	0.506	0.385	0.400	0	2	3	2	7	0.506	0.385	0.400
4_1_107	W-14	Appendix III	Calcium	mg/l	0%	0	2	3	2	7	0.565	0.383	0.387	0	2	3	2	7	0.565	0.383	0.387
4_1_108	W-14	Appendix III	Chloride (as Cl)	mg/l	0%	0	2	3	2	7	0.565	0.489	0.482	0	2	3	2	7	0.565	0.489	0.482
4_1_111	W-14	Appendix III	Fluoride	mg/l	0%	0	2	3	2	7	0.700	0.889	0.833	0	2	3	2	7	0.700	0.889	0.833
4_1_117	W-14	Appendix III	pH (field)	su	0%	0	2	3	2	7	0.926	0.580	0.584	0	2	3	2	7	0.926	0.580	0.584

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 7: Seasonality Tests *(continued)*

ID	Well	Constituent Type	Constituent	Unit	% NDs	Full							Without Non-Detects										
						Sample Size					p-Value			Sample Size					p-Value				
						Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA		
4_1_118	W-14	Appendix III	pH (lab)	su	0%	0	2	3	2	7	0.542	0.683	0.682	0	2	3	2	7	0.542	0.683	0.682		
4_1_123	W-14	Appendix III	Sulfate (as SO4)	mg/l	0%	0	2	3	2	7	0.310	0.518	0.493	0	2	3	2	7	0.310	0.518	0.493		
4_1_127	W-14	Appendix III	Total Dissolved Solids	mg/l	0%	0	2	3	2	7	0.227	0.313	0.294	0	2	3	2	7	0.227	0.313	0.294		
4_2_101	W-14	Appendix IV	Antimony	mg/l	0%	0	2	3	2	7	0.180	0.271	0.271	0	2	3	2	7	0.180	0.271	0.271		
4_2_102	W-14	Appendix IV	Arsenic	mg/l	14%	0	2	3	2	7	0.107	0.059	0.063	0	2	3	1	6	0.213	0.173	0.154		
4_2_103	W-14	Appendix IV	Barium	mg/l	14%	0	2	3	2	7	0.143	0.348	0.354	0	1	3	2	6	0.103	0.019	*		
4_2_104	W-14	Appendix IV	Beryllium	mg/l	43%	0	2	3	2	7	0.908	0.871	0.926	0	1	2	1	4	0.861	0.849	0.861		
4_2_106	W-14	Appendix IV	Cadmium	mg/l	0%	0	2	3	2	7	0.238	0.367	0.334	0	2	3	2	7	0.238	0.367	0.334		
4_2_109	W-14	Appendix IV	Chromium, Total	mg/l	14%	0	2	3	2	7	0.145	0.334	0.241	0	1	3	2	6	0.322	0.445	0.572		
4_2_110	W-14	Appendix IV	Cobalt	mg/l	0%	0	2	3	2	7	0.565	0.543	0.558	0	2	3	2	7	0.565	0.543	0.558		
4_2_112	W-14	Appendix IV	Fluoride (App IV)	mg/l	0%	0	2	3	2	7	0.700	0.889	0.833	0	2	3	2	7	0.700	0.889	0.833		
4_2_113	W-14	Appendix IV	Lead	mg/l	71%	0	2	3	2	7	0.435	0.343	0.394	0	0	2	0	2	NA	NA	NA		
4_2_114	W-14	Appendix IV	Lithium	mg/l	0%	0	2	3	2	7	0.075	0.023	*	0.023	*	0	2	3	2	7	0.075	0.023	*
4_2_115	W-14	Appendix IV	Mercury	mg/l	100%	0	2	3	2	7	0.287	0.340	0.340	NA	NA	NA	NA	NA	NA	NA	NA		
4_2_116	W-14	Appendix IV	Molybdenum	mg/l	14%	0	2	3	2	7	0.140	0.351	0.368	0	1	3	2	6	0.133	0.457	0.414		
4_2_120	W-14	Appendix IV	Radium-226+228	pci/l	0%	0	2	3	2	7	0.381	0.311	0.296	0	2	3	2	7	0.381	0.311	0.296		
4_2_122	W-14	Appendix IV	Selenium	mg/l	0%	0	2	3	2	7	0.920	0.945	0.945	0	2	3	2	7	0.920	0.945	0.945		
4_2_126	W-14	Appendix IV	Thallium	mg/l	14%	0	2	3	2	7	0.782	0.347	0.371	0	1	3	2	6	0.759	0.676	0.699		
4_3_119	W-14	Supplemental	Radium-226	pci/l	0%	0	2	3	2	7	0.153	0.151	0.182	0	2	3	2	7	0.153	0.151	0.182		
4_3_121	W-14	Supplemental	Radium-228	pci/l	14%	0	2	3	2	7	0.381	0.461	0.484	0	1	3	2	6	0.538	0.669	0.656		
4_3_124	W-14	Supplemental	Temperature (field)	deg c	0%	0	2	3	2	7	0.069	0.019	*	0.019	*	0	2	3	2	7	0.069	0.019	*
4_3_125	W-14	Supplemental	Temperature (lab)	deg c	0%	0	2	3	2	7	0.754	0.816	0.794	0	2	3	2	7	0.754	0.816	0.794		
4_3_128	W-14	Supplemental	Total Suspended Solids	mg/l	43%	0	2	3	2	7	0.215	0.396	0.372	0	1	1	2	4	0.407	0.728	0.690		
5_1_105	W-16	Appendix III	Boron	mg/l	0%	0	2	3	2	7	0.913	0.633	0.656	0	2	3	2	7	0.913	0.633	0.656		
5_1_107	W-16	Appendix III	Calcium	mg/l	0%	0	2	3	2	7	0.259	0.251	0.251	0	2	3	2	7	0.259	0.251	0.251		
5_1_108	W-16	Appendix III	Chloride (as Cl)	mg/l	0%	0	2	3	2	7	0.858	0.890	0.890	0	2	3	2	7	0.858	0.890	0.890		
5_1_111	W-16	Appendix III	Fluoride	mg/l	0%	0	2	1	1	4	0.259	0.738	0.416	0	2	1	1	4	0.259	0.738	0.416		
5_1_117	W-16	Appendix III	pH (field)	su	0%	0	2	3	2	7	0.898	0.613	0.617	0	2	3	2	7	0.898	0.613	0.617		
5_1_118	W-16	Appendix III	pH (lab)	su	0%	0	2	3	2	7	0.465	0.570	0.569	0	2	3	2	7	0.465	0.570	0.569		
5_1_123	W-16	Appendix III	Sulfate (as SO4)	mg/l	0%	0	2	3	2	7	0.202	0.218	0.218	0	2	3	2	7	0.202	0.218	0.218		
5_1_127	W-16	Appendix III	Total Dissolved Solids	mg/l	0%	0	2	2	2	6	0.206	0.418	0.398	0	2	2	2	6	0.206	0.418	0.398		
5_2_101	W-16	Appendix IV	Antimony	mg/l	50%	0	2	2	0	4	0.317	0.423	0.423	0	1	1	0	2	0.317	NA	NA		
5_2_102	W-16	Appendix IV	Arsenic	mg/l	50%	0	2	2	0	4	0.683	0.446	0.457	0	1	1	0	2	0.317	NA	NA		
5_2_103	W-16	Appendix IV	Barium	mg/l	25%	0	2	2	0	4	0.439	0.423	0.423	0	1	2	0	3	1.000	1.000	0.986		
5_2_104	W-16	Appendix IV	Beryllium	mg/l	75%	0	2	2	0	4	0.102	0.421	0.349	0	1	0	0	1	NA	NA	NA		
5_2_106	W-16	Appendix IV	Cadmium	mg/l	25%	0	2	2	0	4	0.439	0.426	0.427	0	1	2	0	3	1.000	1.000	0.984		
5_2_109	W-16	Appendix IV	Chromium, Total	mg/l	100%	0	2	2	0	4	0.317	0.423	0.423	NA	NA	NA	NA	NA	NA	NA	NA		
5_2_110	W-16	Appendix IV	Cobalt	mg/l	14%	0	2	3	2	7	0.441	0.519	0.533	0	1	3	2	6	0.110	0.073	0.068		
5_2_112	W-16	Appendix IV	Fluoride (App IV)	mg/l	0%	0	2	1	1	4	0.259	0.738	0.416	0	2	1	1	4	0.259	0.738	0.416		

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

ID	Well	Constituent Type	Constituent	Unit	% NDs	Full								Without Non-Detects											
						Sample Size					p-Value			Sample Size					p-Value						
						Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA				
5_2_113	W-16	Appendix IV	Lead	mg/l	50%	0	2	2	0	4	0.683	0.426	0.498	0	1	1	0	2	0.317	NA	NA				
5_2_114	W-16	Appendix IV	Lithium	mg/l	0%	0	2	2	0	4	1.000	1.000	1.000	0	2	2	0	4	1.000	1.000	1.000				
5_2_115	W-16	Appendix IV	Mercury	mg/l	100%	0	2	2	0	4	0.317	0.423	0.423	NA	NA	NA	NA	NA	NA	NA	NA				
5_2_116	W-16	Appendix IV	Molybdenum	mg/l	25%	0	2	2	0	4	0.439	0.449	0.583	0	1	2	0	3	1.000	0.681	0.694				
5_2_120	W-16	Appendix IV	Radium-226+228	pci/l	0%	0	2	2	0	4	0.439	0.817	0.807	0	2	2	0	4	0.439	0.817	0.807				
5_2_122	W-16	Appendix IV	Selenium	mg/l	0%	0	2	2	0	4	0.683	0.976	0.971	0	2	2	0	4	0.683	0.976	0.971				
5_2_126	W-16	Appendix IV	Thallium	mg/l	25%	0	2	2	0	4	1.000	0.428	0.437	0	1	2	0	3	0.221	0.333	0.330				
5_3_119	W-16	Supplemental	Radium-226	pci/l	0%	0	2	2	0	4	0.121	0.272	0.229	0	2	2	0	4	0.121	0.272	0.229				
5_3_121	W-16	Supplemental	Radium-228	pci/l	25%	0	2	2	0	4	1.000	0.937	0.880	0	1	2	0	3	0.221	0.615	0.628				
5_3_124	W-16	Supplemental	Temperature (field)	deg c	0%	0	2	3	2	7	0.331	0.622	0.615	0	2	3	2	7	0.331	0.622	0.615				
5_3_125	W-16	Supplemental	Temperature (lab)	deg c	0%	0	2	3	2	7	0.779	0.888	0.888	0	2	3	2	7	0.779	0.888	0.888				
5_3_128	W-16	Supplemental	Total Suspended Solids	mg/l	29%	0	2	3	2	7	0.285	0.520	0.513	0	2	1	2	5	0.223	0.440	0.341				
6_1_105	W-3B	Appendix III	Boron	mg/l	11%	3	2	3	1	9	0.194	0.259	0.127	2	2	3	1	8	0.343	0.294	0.213				
6_1_107	W-3B	Appendix III	Calcium	mg/l	0%	3	2	3	1	9	0.096	0.200	0.281	3	2	3	1	9	0.096	0.200	0.281				
6_1_108	W-3B	Appendix III	Chloride (as Cl)	mg/l	0%	3	2	3	1	9	0.318	0.304	0.249	3	2	3	1	9	0.318	0.304	0.249				
6_1_111	W-3B	Appendix III	Fluoride	mg/l	56%	3	2	3	1	9	0.275	0.139	0.160	0	2	2	0	4	0.439	0.341	0.340				
6_1_117	W-3B	Appendix III	pH (field)	su	0%	3	2	3	1	9	0.194	0.052	0.055	3	2	3	1	9	0.194	0.052	0.055				
6_1_118	W-3B	Appendix III	pH (lab)	su	0%	3	2	3	1	9	0.738	0.732	0.731	3	2	3	1	9	0.738	0.732	0.731				
6_1_123	W-3B	Appendix III	Sulfate (as SO4)	mg/l	0%	3	2	3	1	9	0.169	0.250	0.212	3	2	3	1	9	0.169	0.250	0.212				
6_1_127	W-3B	Appendix III	Total Dissolved Solids	mg/l	11%	3	2	3	1	9	0.744	0.725	0.678	2	2	3	1	8	0.722	0.917	0.915				
6_2_101	W-3B	Appendix IV	Antimony	mg/l	50%	3	1	3	1	8	0.156	0.064	0.003	**	0	1	2	1	4	0.259	0.657	0.640			
6_2_102	W-3B	Appendix IV	Arsenic	mg/l	38%	3	1	3	1	8	0.623	0.335	0.328	0	1	3	1	5	0.755	0.991	0.989				
6_2_103	W-3B	Appendix IV	Barium	mg/l	11%	3	2	3	1	9	0.197	0.369	0.360	3	1	3	1	8	0.203	0.242	0.254				
6_2_104	W-3B	Appendix IV	Beryllium	mg/l	67%	3	2	3	1	9	0.318	0.421	0.348	0	0	2	1	3	0.221	0.561	0.594				
6_2_106	W-3B	Appendix IV	Cadmium	mg/l	0%	3	2	3	1	9	0.225	0.212	0.209	3	2	3	1	9	0.225	0.212	0.209				
6_2_109	W-3B	Appendix IV	Chromium, Total	mg/l	44%	3	2	3	1	9	0.243	0.402	0.465	0	1	3	1	5	0.766	0.774	0.760				
6_2_110	W-3B	Appendix IV	Cobalt	mg/l	0%	3	2	3	1	9	0.462	0.590	0.645	3	2	3	1	9	0.462	0.590	0.645				
6_2_112	W-3B	Appendix IV	Fluoride (App IV)	mg/l	56%	3	2	3	1	9	0.275	0.139	0.160	0	2	2	0	4	0.439	0.341	0.340				
6_2_113	W-3B	Appendix IV	Lead	mg/l	44%	3	2	3	1	9	0.178	0.398	0.408	0	1	3	1	5	0.766	0.914	0.884				
6_2_114	W-3B	Appendix IV	Lithium	mg/l	0%	3	2	3	1	9	0.078	0.172	0.208	3	2	3	1	9	0.078	0.172	0.208				
6_2_115	W-3B	Appendix IV	Mercury	mg/l	100%	3	2	3	1	9	0.090	0.032	*	0.029	*	NA	NA	NA	NA	NA	NA	NA			
6_2_116	W-3B	Appendix IV	Molybdenum	mg/l	33%	3	2	3	1	9	0.373	0.413	0.434	1	1	3	1	6	0.364	0.020	*	0.085			
6_2_120	W-3B	Appendix IV	Radium-226+228	pci/l	0%	3	2	3	1	9	0.949	0.986	0.985	3	2	3	1	9	0.949	0.986	0.985				
6_2_122	W-3B	Appendix IV	Selenium	mg/l	11%	3	2	3	1	9	0.814	0.424	0.594	3	1	3	1	8	0.873	0.667	0.817				
6_2_126	W-3B	Appendix IV	Thallium	mg/l	11%	3	2	3	1	9	0.433	0.361	0.336	3	1	3	1	8	0.823	0.892	0.889				
6_3_119	W-3B	Supplemental	Radium-226	pci/l	0%	3	2	3	1	9	0.295	0.276	0.299	3	2	3	1	9	0.295	0.276	0.299				
6_3_121	W-3B	Supplemental	Radium-228	pci/l	0%	3	2	3	1	9	0.886	0.992	0.996	3	2	3	1	9	0.886	0.992	0.996				
6_3_124	W-3B	Supplemental	Temperature (field)	deg c	0%	3	2	3	1	9	0.060	0.014	*	0.023	*	3	2	3	1	9	0.060	0.014	*	0.023	*
6_3_125	W-3B	Supplemental	Temperature (lab)	deg c	0%	3	2	3	1	9	0.090	0.050	*	0.061	3	2	3	1	9	0.090	0.050	*	0.061		

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

ID	Well	Constituent Type	Constituent	Unit	% NDs	Full										Without Non-Detects									
						Sample Size					p-Value					Sample Size					p-Value				
						Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA				
6_3_128	W-3B	Supplemental	Total Suspended Solids	mg/l	0%	3	2	3	1	9	0.100	0.121	0.075	3	2	3	1	9	0.100	0.121	0.075				
7_1_105	W-5B	Appendix III	Boron	mg/l	8%	4	4	3	1	12	0.910	0.812	0.842	3	4	3	1	11	0.913	0.817	0.846				
7_1_107	W-5B	Appendix III	Calcium	mg/l	0%	4	4	3	1	12	0.798	0.929	0.919	4	4	3	1	12	0.798	0.929	0.919				
7_1_108	W-5B	Appendix III	Chloride (as Cl)	mg/l	0%	4	4	3	1	12	0.216	0.218	0.217	4	4	3	1	12	0.216	0.218	0.217				
7_1_111	W-5B	Appendix III	Fluoride	mg/l	8%	4	4	3	1	12	0.143	0.060	0.063	3	4	3	1	11	0.163	0.096	0.110				
7_1_117	W-5B	Appendix III	pH (field)	su	0%	4	4	3	1	12	0.624	0.502	0.496	4	4	3	1	12	0.624	0.502	0.496				
7_1_118	W-5B	Appendix III	pH (lab)	su	0%	4	4	3	1	12	0.468	0.448	0.446	4	4	3	1	12	0.468	0.448	0.446				
7_1_123	W-5B	Appendix III	Sulfate (as SO4)	mg/l	0%	4	4	3	1	12	0.278	0.288	0.288	4	4	3	1	12	0.278	0.288	0.288				
7_1_127	W-5B	Appendix III	Total Dissolved Solids	mg/l	0%	4	4	3	1	12	0.154	0.083	0.078	4	4	3	1	12	0.154	0.083	0.078				
7_2_101	W-5B	Appendix IV	Antimony	mg/l	92%	4	4	3	1	12	0.054	0.033	*	0.015	*	0	0	1	0	1	NA	NA	NA		
7_2_102	W-5B	Appendix IV	Arsenic	mg/l	67%	4	4	3	1	12	0.069	0.062	0.011	*	0	2	2	0	4	1.000	0.438	0.447			
7_2_103	W-5B	Appendix IV	Barium	mg/l	8%	4	4	3	1	12	0.605	0.720	0.715	3	4	3	1	11	0.584	0.570	0.583				
7_2_104	W-5B	Appendix IV	Beryllium	mg/l	82%	4	3	3	1	11	0.049	*	0.152	0.018	*	0	1	1	0	2	0.317	NA	NA		
7_2_106	W-5B	Appendix IV	Cadmium	mg/l	17%	4	4	3	1	12	0.382	0.027	*	0.145	3	3	3	1	10	0.066	0.000	***	0.002	**	
7_2_109	W-5B	Appendix IV	Chromium, Total	mg/l	92%	4	4	3	1	12	0.077	0.242	0.039	*	0	0	1	0	1	NA	NA	NA			
7_2_110	W-5B	Appendix IV	Cobalt	mg/l	0%	4	4	3	1	12	0.094	0.102	0.090	4	4	3	1	12	0.094	0.102	0.090				
7_2_112	W-5B	Appendix IV	Fluoride (App IV)	mg/l	8%	4	4	3	1	12	0.143	0.060	0.063	3	4	3	1	11	0.163	0.096	0.110				
7_2_113	W-5B	Appendix IV	Lead	mg/l	67%	4	4	3	1	12	0.093	0.318	0.106	0	1	2	1	4	0.259	0.350	0.355				
7_2_114	W-5B	Appendix IV	Lithium	mg/l	0%	4	4	3	1	12	0.091	0.079	0.092	4	4	3	1	12	0.091	0.079	0.092				
7_2_115	W-5B	Appendix IV	Mercury	mg/l	100%	4	3	3	1	11	0.064	0.586	0.213	NA	NA	NA	NA	NA	NA	NA	NA				
7_2_116	W-5B	Appendix IV	Molybdenum	mg/l	33%	4	4	3	1	12	0.735	0.507	0.580	1	3	3	1	8	0.591	0.529	0.506				
7_2_120	W-5B	Appendix IV	Radium-226+228	pci/l	0%	3	4	3	1	11	0.644	0.709	0.779	3	4	3	1	11	0.644	0.709	0.779				
7_2_122	W-5B	Appendix IV	Selenium	mg/l	42%	4	4	3	1	12	0.410	0.389	0.315	1	2	3	1	7	0.410	0.063	0.259				
7_2_126	W-5B	Appendix IV	Thallium	mg/l	33%	4	4	3	1	12	0.506	0.534	0.446	1	3	3	1	8	0.591	0.861	0.865				
7_3_119	W-5B	Supplemental	Radium-226	pci/l	0%	3	4	3	1	11	0.361	0.745	0.805	3	4	3	1	11	0.361	0.745	0.805				
7_3_121	W-5B	Supplemental	Radium-228	pci/l	0%	3	4	3	1	11	0.624	0.614	0.653	3	4	3	1	11	0.624	0.614	0.653				
7_3_124	W-5B	Supplemental	Temperature (field)	deg c	0%	4	4	3	1	12	0.097	0.004	**	0.005	**	4	4	3	1	12	0.097	0.004	**	0.005	**
7_3_125	W-5B	Supplemental	Temperature (lab)	deg c	0%	4	4	3	1	12	0.432	0.320	0.331	4	4	3	1	12	0.432	0.320	0.331				
7_3_128	W-5B	Supplemental	Total Suspended Solids	mg/l	50%	4	4	3	1	12	0.202	0.245	0.210	2	3	0	1	6	0.797	0.867	0.850				
8_1_105	W-6B1	Appendix III	Boron	mg/l	11%	3	2	2	2	9	0.098	0.242	0.093	2	2	2	2	8	0.136	0.252	0.146				
8_1_107	W-6B1	Appendix III	Calcium	mg/l	0%	3	2	2	2	9	0.094	0.009	**	0.009	**	3	2	2	2	9	0.094	0.009	**	0.009	**
8_1_108	W-6B1	Appendix III	Chloride (as Cl)	mg/l	0%	3	2	2	2	9	0.255	0.278	0.320	3	2	2	2	9	0.255	0.278	0.320				
8_1_111	W-6B1	Appendix III	Fluoride	mg/l	56%	3	2	2	2	9	0.830	0.530	0.844	1	1	1	1	4	0.392	NA	NA				
8_1_117	W-6B1	Appendix III	pH (field)	su	0%	3	2	2	2	9	0.675	0.686	0.690	3	2	2	2	9	0.675	0.686	0.690				
8_1_118	W-6B1	Appendix III	pH (lab)	su	0%	3	2	2	2	9	0.167	0.192	0.191	3	2	2	2	9	0.167	0.192	0.191				
8_1_123	W-6B1	Appendix III	Sulfate (as SO4)	mg/l	0%	3	2	2	2	9	0.682	0.510	0.536	3	2	2	2	9	0.682	0.510	0.536				
8_1_127	W-6B1	Appendix III	Total Dissolved Solids	mg/l	0%	3	2	2	2	9	0.508	0.781	0.781	3	2	2	2	9	0.508	0.781	0.781				
8_2_101	W-6B1	Appendix IV	Antimony	mg/l	44%	3	2	2	2	9	0.104	0.043	*	0.007	**	1	1	1	2	5	0.284	0.057	0.212		
8_2_102	W-6B1	Appendix IV	Arsenic	mg/l	33%	3	2	2	2	9	0.090	0.103	0.096	1	2	1	2	6	0.232	0.201	0.482				

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Comanche Bottom Ash Pond

Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11



Table 7: Seasonality Tests *(continued)*

ID	Well	Constituent Type	Constituent	Unit	% NDs	Full					Without Non-Detects											
						Sample Size					p-Value			Sample Size					p-Value			
						Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA	
8_2_103	W-6B1	Appendix IV	Barium	mg/l	11%	3	2	2	2	9	0.497	0.456	0.572	3	1	2	2	8	0.148	0.238	0.194	
8_2_104	W-6B1	Appendix IV	Beryllium	mg/l	56%	3	2	2	2	9	0.215	0.410	0.182	0	1	1	2	4	0.325	0.785	0.799	
8_2_106	W-6B1	Appendix IV	Cadmium	mg/l	0%	3	2	2	2	9	0.224	0.055	0.091	3	2	2	2	9	0.224	0.055	0.091	
8_2_109	W-6B1	Appendix IV	Chromium, Total	mg/l	56%	3	2	2	2	9	0.308	0.417	0.404	0	1	1	2	4	0.407	0.712	0.620	
8_2_110	W-6B1	Appendix IV	Cobalt	mg/l	0%	3	2	2	2	9	0.228	0.302	0.379	3	2	2	2	9	0.228	0.302	0.379	
8_2_112	W-6B1	Appendix IV	Fluoride (App IV)	mg/l	56%	3	2	2	2	9	0.830	0.530	0.844	1	1	1	1	4	0.392	NA	NA	
8_2_113	W-6B1	Appendix IV	Lead	mg/l	44%	3	2	2	2	9	0.523	0.422	0.646	0	1	2	2	5	0.301	0.593	0.533	
8_2_114	W-6B1	Appendix IV	Lithium	mg/l	0%	3	2	2	2	9	0.164	0.136	0.182	3	2	2	2	9	0.164	0.136	0.182	
8_2_115	W-6B1	Appendix IV	Mercury	mg/l	100%	3	2	2	2	9	0.090	0.032	*	0.029	*	NA	NA	NA	NA	NA	NA	
8_2_116	W-6B1	Appendix IV	Molybdenum	mg/l	33%	3	2	2	2	9	0.649	0.420	0.666	1	1	2	2	6	0.836	0.799	0.750	
8_2_120	W-6B1	Appendix IV	Radium-226+228	pci/l	0%	3	2	2	2	9	0.865	0.926	0.921	3	2	2	2	9	0.865	0.926	0.921	
8_2_122	W-6B1	Appendix IV	Selenium	mg/l	22%	3	2	2	2	9	0.743	0.442	0.675	2	1	2	2	7	0.189	0.068	0.103	
8_2_126	W-6B1	Appendix IV	Thallium	mg/l	11%	3	2	2	2	9	0.406	0.433	0.522	3	1	2	2	8	0.193	0.133	0.183	
8_3_119	W-6B1	Supplemental	Radium-226	pci/l	0%	3	2	2	2	9	0.343	0.334	0.346	3	2	2	2	9	0.343	0.334	0.346	
8_3_121	W-6B1	Supplemental	Radium-228	pci/l	0%	3	2	2	2	9	0.801	0.753	0.725	3	2	2	2	9	0.801	0.753	0.725	
8_3_124	W-6B1	Supplemental	Temperature (field)	deg c	0%	3	2	2	2	9	0.177	0.214	0.249	3	2	2	2	9	0.177	0.214	0.249	
8_3_125	W-6B1	Supplemental	Temperature (lab)	deg c	0%	3	2	2	2	9	0.188	0.143	0.139	3	2	2	2	9	0.188	0.143	0.139	
8_3_128	W-6B1	Supplemental	Total Suspended Solids	mg/l	0%	3	2	2	2	9	0.448	0.298	0.470	3	2	2	2	9	0.448	0.298	0.470	
9_1_105	W-7	Appendix III	Boron	mg/l	12%	4	5	1	7	17	0.146	0.341	0.323	3	4	1	7	15	0.230	0.413	0.425	
9_1_107	W-7	Appendix III	Calcium	mg/l	0%	4	5	1	7	17	0.493	0.790	0.850	4	5	1	7	17	0.493	0.790	0.850	
9_1_108	W-7	Appendix III	Chloride (as Cl)	mg/l	0%	4	5	1	7	17	0.019	*	0.078	0.051	4	5	1	7	17	0.019	*	0.078
9_1_111	W-7	Appendix III	Fluoride	mg/l	41%	4	5	1	7	17	0.139	0.160	0.071	1	3	0	6	10	0.103	0.084	0.033	*
9_1_117	W-7	Appendix III	pH (field)	su	0%	4	5	1	7	17	0.922	0.963	0.967	4	5	1	7	17	0.922	0.963	0.967	
9_1_118	W-7	Appendix III	pH (lab)	su	0%	4	5	1	7	17	0.216	0.168	0.170	4	5	1	7	17	0.216	0.168	0.170	
9_1_123	W-7	Appendix III	Sulfate (as SO4)	mg/l	0%	4	5	1	7	17	0.694	0.957	0.808	4	5	1	7	17	0.694	0.957	0.808	
9_1_127	W-7	Appendix III	Total Dissolved Solids	mg/l	0%	4	5	1	7	17	0.379	0.607	0.623	4	5	1	7	17	0.379	0.607	0.623	
9_2_101	W-7	Appendix IV	Antimony	mg/l	76%	4	5	1	7	17	0.426	0.269	0.388	0	1	1	2	4	0.861	0.816	0.816	
9_2_102	W-7	Appendix IV	Arsenic	mg/l	12%	4	5	1	7	17	0.819	0.923	0.488	3	4	1	7	15	0.962	0.987	0.755	
9_2_103	W-7	Appendix IV	Barium	mg/l	24%	4	5	1	7	17	0.427	0.211	0.237	2	4	1	6	13	0.356	0.452	0.343	
9_2_104	W-7	Appendix IV	Beryllium	mg/l	88%	4	4	1	7	16	0.176	0.439	0.284	0	1	0	1	2	0.317	NA	NA	
9_2_106	W-7	Appendix IV	Cadmium	mg/l	0%	4	5	1	7	17	0.137	0.426	0.287	4	5	1	7	17	0.137	0.426	0.287	
9_2_109	W-7	Appendix IV	Chromium, Total	mg/l	53%	4	5	1	7	17	0.413	0.484	0.552	0	3	1	4	8	0.200	0.516	0.352	
9_2_110	W-7	Appendix IV	Cobalt	mg/l	0%	4	5	1	7	17	0.210	0.445	0.421	4	5	1	7	17	0.210	0.445	0.421	
9_2_112	W-7	Appendix IV	Fluoride (App IV)	mg/l	41%	4	5	1	7	17	0.139	0.160	0.071	1	3	0	6	10	0.103	0.084	0.033	*
9_2_113	W-7	Appendix IV	Lead	mg/l	47%	4	5	1	7	17	0.485	0.228	0.395	1	3	1	4	9	0.303	0.678	0.633	
9_2_114	W-7	Appendix IV	Lithium	mg/l	0%	4	5	1	7	17	0.402	0.631	0.809	4	5	1	7	17	0.402	0.631	0.809	
9_2_115	W-7	Appendix IV	Mercury	mg/l	62%	4	4	1	7	16	0.104	0.416	0.320	0	0	1	5	6	0.527	0.659	0.592	
9_2_116	W-7	Appendix IV	Molybdenum	mg/l	41%	4	5	1	7	17	0.259	0.391	0.237	1	3	1	5	10	0.629	0.637	0.709	
9_2_120	W-7	Appendix IV	Radium-226+228	pci/l	0%	2	5	1	7	15	0.490	0.838	0.951	2	5	1	7	15	0.490	0.838	0.951	

(Table continues on next page)

*** p < 0.001, ** p < 0.01, * p < 0.05

Table 7: Seasonality Tests (continued)

ID	Well	Constituent Type	Constituent	Unit	% NDs	Full								Without Non-Detects											
						Sample Size					p-Value			Sample Size					p-Value						
						Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA	Winter	Spring	Summer	Fall	Total	Kruskal-Wallis	ANOVA	Log ANOVA				
9_2_122	W-7	Appendix IV	Selenium	mg/l	0%	4	5	1	7	17	0.732	0.925	0.920	4	5	1	7	17	0.732	0.925	0.920				
9_2_126	W-7	Appendix IV	Thallium	mg/l	6%	4	5	1	7	17	0.420	0.198	0.203	4	4	1	7	16	0.673	0.446	0.480				
9_3_119	W-7	Supplemental	Radium-226	pci/l	0%	3	5	1	7	16	0.334	0.343	0.330	3	5	1	7	16	0.334	0.343	0.330				
9_3_121	W-7	Supplemental	Radium-228	pci/l	6%	3	5	1	7	16	0.569	0.499	0.720	3	4	1	7	15	0.152	0.086	0.130				
9_3_124	W-7	Supplemental	Temperature (field)	deg c	0%	4	5	1	7	17	0.098	0.040	*	0.049	*	4	5	1	7	17	0.098	0.040	*	0.049	*
9_3_125	W-7	Supplemental	Temperature (lab)	deg c	0%	4	5	1	7	17	0.408	0.471	0.509	4	5	1	7	17	0.408	0.471	0.509				
9_3_128	W-7	Supplemental	Total Suspended Solids	mg/l	0%	4	5	1	7	17	0.355	0.194	0.462	4	5	1	7	17	0.355	0.194	0.462				

*** p < 0.001, ** p < 0.01, * p < 0.05



Table 8: Trend Tests: Lognormal MLE and MK

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Type	Method	Slope	p-value	Trend
10_1_105	W-9	Appendix III	Boron	mg/l	9	0	0%	Nonparametric	MK	-0.000328	0.035	↔
10_1_107	W-9	Appendix III	Calcium	mg/l	9	0	0%	Parametric	Lognormal MLE	0.000389	0.067	↔
10_1_108	W-9	Appendix III	Chloride (as Cl)	mg/l	9	0	0%	Parametric	Lognormal MLE	0.000175	0.385	↔
10_1_111	W-9	Appendix III	Fluoride	mg/l	9	2	22%	Nonparametric	MK	0.00160	0.073	↔
10_1_117	W-9	Appendix III	pH (field)	su	9	0	0%	Parametric	Lognormal MLE	0.0000256	0.219	↔
10_1_118	W-9	Appendix III	pH (lab)	su	9	0	0%	Parametric	Lognormal MLE	0.0000227	0.225	↔
10_1_123	W-9	Appendix III	Sulfate (as SO4)	mg/l	9	0	0%	Parametric	Lognormal MLE	0.000222	0.024	↔
10_1_127	W-9	Appendix III	Total Dissolved Solids	mg/l	9	0	0%	Parametric	Lognormal MLE	-0.0000903	0.626	↔
10_2_101	W-9	Appendix IV	Antimony	mg/l	9	4	44%	Parametric	Lognormal MLE	-0.000101	0.958	↔
10_2_102	W-9	Appendix IV	Arsenic	mg/l	9	4	44%	Parametric	Lognormal MLE	-0.000417	0.037	↔
10_2_103	W-9	Appendix IV	Barium	mg/l	9	1	11%	Parametric	Lognormal MLE	-0.000539	0.028	↔
10_2_110	W-9	Appendix IV	Cobalt	mg/l	9	1	11%	Parametric	Lognormal MLE	-0.00290	0.009	↓
10_2_112	W-9	Appendix IV	Fluoride (App IV)	mg/l	9	2	22%	Nonparametric	MK	0.00160	0.073	↔
10_2_114	W-9	Appendix IV	Lithium	mg/l	9	0	0%	Parametric	Lognormal MLE	0.000348	0.050	↔
10_2_116	W-9	Appendix IV	Molybdenum	mg/l	9	3	33%	Parametric	Lognormal MLE	-0.000155	0.818	↔
10_2_120	W-9	Appendix IV	Radium-226+228	pci/l	8	1	12%	Parametric	Lognormal MLE	0.000159	0.686	↔
10_2_122	W-9	Appendix IV	Selenium	mg/l	9	1	11%	Parametric	Lognormal MLE	0.000521	0.430	↔
10_3_119	W-9	Supplemental	Radium-226	pci/l	8	0	0%	Parametric	Lognormal MLE	-0.000963	0.021	↔
10_3_121	W-9	Supplemental	Radium-228	pci/l	8	2	25%	Parametric	Lognormal MLE	0.00141	0.000	↑
10_3_124	W-9	Supplemental	Temperature (field)	deg c	9	0	0%	Parametric	Lognormal MLE	0.000170	0.379	↔
10_3_125	W-9	Supplemental	Temperature (lab)	deg c	9	0	0%	Parametric	Lognormal MLE	0.0000337	0.816	↔
10_3_128	W-9	Supplemental	Total Suspended Solids	mg/l	9	0	0%	Parametric	Lognormal MLE	-0.00226	0.037	↔
1_1_105	W-1	Appendix III	Boron	mg/l	18	0	0%	Parametric	Lognormal MLE	-0.000682	0.000	↓
1_1_107	W-1	Appendix III	Calcium	mg/l	18	0	0%	Nonparametric	MK	0.179	0.030	↔
1_1_108	W-1	Appendix III	Chloride (as Cl)	mg/l	18	0	0%	Parametric	Lognormal MLE	-0.000226	0.002	↓
1_1_111	W-1	Appendix III	Fluoride	mg/l	18	1	6%	Nonparametric	MK	-0.00102	0.470	↔
1_1_117	W-1	Appendix III	pH (field)	su	12	0	0%	Parametric	Lognormal MLE	0.0000113	0.412	↔
1_1_118	W-1	Appendix III	pH (lab)	su	18	0	0%	Nonparametric	MK	0	0.133	↔
1_1_123	W-1	Appendix III	Sulfate (as SO4)	mg/l	18	0	0%	Parametric	Lognormal MLE	-0.0000976	0.633	↔
1_1_127	W-1	Appendix III	Total Dissolved Solids	mg/l	18	0	0%	Parametric	Lognormal MLE	-0.000124	0.787	↔
1_2_102	W-1	Appendix IV	Arsenic	mg/l	18	3	17%	Parametric	Lognormal MLE	-0.00296	0.000	↓
1_2_103	W-1	Appendix IV	Barium	mg/l	18	3	17%	Parametric	Lognormal MLE	-0.00160	0.000	↓
1_2_109	W-1	Appendix IV	Chromium, Total	mg/l	18	8	44%	Parametric	Lognormal MLE	-0.00168	0.026	↔
1_2_110	W-1	Appendix IV	Cobalt	mg/l	18	7	39%	Parametric	Lognormal MLE	-0.00157	0.002	↓
1_2_112	W-1	Appendix IV	Fluoride (App IV)	mg/l	18	1	6%	Nonparametric	MK	-0.00102	0.470	↔
1_2_114	W-1	Appendix IV	Lithium	mg/l	18	0	0%	Parametric	Lognormal MLE	0.000149	0.089	↔
1_2_116	W-1	Appendix IV	Molybdenum	mg/l	18	1	6%	Parametric	Lognormal MLE	-0.000570	0.000	↓
1_2_120	W-1	Appendix IV	Radium-226+228	pci/l	18	0	0%	Parametric	Lognormal MLE	0.0000127	0.972	↔
1_2_122	W-1	Appendix IV	Selenium	mg/l	18	0	0%	Parametric	Lognormal MLE	-0.000696	0.000	↓
1_3_119	W-1	Supplemental	Radium-226	pci/l	18	1	6%	Parametric	Lognormal MLE	-0.000543	0.169	↔
1_3_121	W-1	Supplemental	Radium-228	pci/l	18	2	11%	Parametric	Lognormal MLE	0.000300	0.555	↔
1_3_124	W-1	Supplemental	Temperature (field)	deg c	12	0	0%	Nonparametric	MK	-0.00727	0.007	↓
1_3_125	W-1	Supplemental	Temperature (lab)	deg c	18	0	0%	Parametric	Lognormal MLE	0.0000557	0.290	↔

(Table continues on next page)

Table 8: Trend Tests: Lognormal MLE and MK *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Type	Method	Slope	p-value	Trend
1_3_128	W-1	Supplemental	Total Suspended Solids	mg/l	18	0	0%	Parametric	Lognormal MLE	-0.00449	0.000	↓
2_1_105	W-11	Appendix III	Boron	mg/l	9	1	11%	Parametric	Lognormal MLE	-0.00164	0.000	↓
2_1_107	W-11	Appendix III	Calcium	mg/l	9	0	0%	Parametric	Lognormal MLE	0.00302	0.193	↔
2_1_108	W-11	Appendix III	Chloride (as Cl)	mg/l	9	0	0%	Nonparametric	MK	-0.133	0.402	↔
2_1_111	W-11	Appendix III	Fluoride	mg/l	9	1	11%	Parametric	Lognormal MLE	-0.00276	0.356	↔
2_1_117	W-11	Appendix III	pH (field)	su	9	0	0%	Parametric	Lognormal MLE	-0.00000915	0.640	↔
2_1_118	W-11	Appendix III	pH (lab)	su	9	0	0%	Nonparametric	MK	0.0000765	0.310	↔
2_1_123	W-11	Appendix III	Sulfate (as SO4)	mg/l	9	0	0%	Nonparametric	MK	0	0.739	↔
2_1_127	W-11	Appendix III	Total Dissolved Solids	mg/l	9	0	0%	Parametric	Lognormal MLE	-0.000260	0.042	↔
2_2_102	W-11	Appendix IV	Arsenic	mg/l	9	3	33%	Parametric	Lognormal MLE	-0.00501	0.036	↔
2_2_103	W-11	Appendix IV	Barium	mg/l	9	1	11%	Nonparametric	MK	0.00000746	0.529	↔
2_2_106	W-11	Appendix IV	Cadmium	mg/l	9	2	22%	Parametric	Lognormal MLE	0.00162	0.154	↔
2_2_110	W-11	Appendix IV	Cobalt	mg/l	9	1	11%	Parametric	Lognormal MLE	0.00408	0.075	↔
2_2_112	W-11	Appendix IV	Fluoride (App IV)	mg/l	9	1	11%	Parametric	Lognormal MLE	-0.00276	0.356	↔
2_2_114	W-11	Appendix IV	Lithium	mg/l	9	0	0%	Parametric	Lognormal MLE	0.00235	0.257	↔
2_2_120	W-11	Appendix IV	Radium-226+228	pci/l	8	0	0%	Parametric	Lognormal MLE	0.000621	0.244	↔
2_2_122	W-11	Appendix IV	Selenium	mg/l	9	1	11%	Parametric	Lognormal MLE	0.00510	0.252	↔
2_3_119	W-11	Supplemental	Radium-226	pci/l	8	0	0%	Parametric	Lognormal MLE	-0.000327	0.303	↔
2_3_121	W-11	Supplemental	Radium-228	pci/l	8	0	0%	Parametric	Lognormal MLE	0.00113	0.089	↔
2_3_124	W-11	Supplemental	Temperature (field)	deg c	9	0	0%	Parametric	Lognormal MLE	-0.000255	0.171	↔
2_3_125	W-11	Supplemental	Temperature (lab)	deg c	9	0	0%	Parametric	Lognormal MLE	0.000161	0.021	↔
2_3_128	W-11	Supplemental	Total Suspended Solids	mg/l	9	0	0%	Parametric	Lognormal MLE	0.00216	0.072	↔
3_1_105	W-12	Appendix III	Boron	mg/l	9	0	0%	Parametric	Lognormal MLE	-0.00116	0.001	↓
3_1_107	W-12	Appendix III	Calcium	mg/l	9	0	0%	Parametric	Lognormal MLE	0.00107	0.332	↔
3_1_108	W-12	Appendix III	Chloride (as Cl)	mg/l	9	0	0%	Parametric	Lognormal MLE	0.000158	0.046	↔
3_1_111	W-12	Appendix III	Fluoride	mg/l	9	2	22%	Nonparametric	MK	0.000161	0.295	↔
3_1_117	W-12	Appendix III	pH (field)	su	9	0	0%	Parametric	Lognormal MLE	-0.0000237	0.175	↔
3_1_118	W-12	Appendix III	pH (lab)	su	9	0	0%	Nonparametric	MK	0	0.713	↔
3_1_123	W-12	Appendix III	Sulfate (as SO4)	mg/l	9	0	0%	Parametric	Lognormal MLE	0.000168	0.034	↔
3_1_127	W-12	Appendix III	Total Dissolved Solids	mg/l	9	0	0%	Parametric	Lognormal MLE	0.000137	0.088	↔
3_2_101	W-12	Appendix IV	Antimony	mg/l	9	3	33%	Parametric	Lognormal MLE	-0.000140	0.251	↔
3_2_103	W-12	Appendix IV	Barium	mg/l	9	1	11%	Parametric	Lognormal MLE	-0.0000572	0.773	↔
3_2_106	W-12	Appendix IV	Cadmium	mg/l	9	2	22%	Parametric	Lognormal MLE	0.000495	0.362	↔
3_2_110	W-12	Appendix IV	Cobalt	mg/l	9	0	0%	Parametric	Lognormal MLE	0.000252	0.599	↔
3_2_112	W-12	Appendix IV	Fluoride (App IV)	mg/l	9	2	22%	Nonparametric	MK	0.000161	0.295	↔
3_2_114	W-12	Appendix IV	Lithium	mg/l	9	0	0%	Parametric	Lognormal MLE	0.000513	0.427	↔
3_2_120	W-12	Appendix IV	Radium-226+228	pci/l	8	0	0%	Parametric	Lognormal MLE	0.000964	0.001	↑
3_2_122	W-12	Appendix IV	Selenium	mg/l	9	1	11%	Parametric	Lognormal MLE	0.0000101	0.987	↔
3_2_126	W-12	Appendix IV	Thallium	mg/l	9	1	11%	Parametric	Lognormal MLE	0.0000273	0.899	↔
3_3_119	W-12	Supplemental	Radium-226	pci/l	8	0	0%	Parametric	Lognormal MLE	0.000366	0.045	↔
3_3_121	W-12	Supplemental	Radium-228	pci/l	8	1	12%	Parametric	Lognormal MLE	0.00125	0.000	↑
3_3_124	W-12	Supplemental	Temperature (field)	deg c	9	0	0%	Parametric	Lognormal MLE	0.0000619	0.250	↔
3_3_125	W-12	Supplemental	Temperature (lab)	deg c	9	0	0%	Parametric	Lognormal MLE	-0.0000186	0.871	↔

(Table continues on next page)



Table 8: Trend Tests: Lognormal MLE and MK (continued)

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Type	Method	Slope	p-value	Trend
3_3_128	W-12	Supplemental	Total Suspended Solids	mg/l	9	1	11%	Parametric	Lognormal MLE	-0.00145	0.345	↔
6_1_105	W-3B	Appendix III	Boron	mg/l	9	1	11%	Parametric	Lognormal MLE	-0.00393	0.002	↓
6_1_107	W-3B	Appendix III	Calcium	mg/l	9	0	0%	Parametric	Lognormal MLE	0.00180	0.033	↔
6_1_108	W-3B	Appendix III	Chloride (as Cl)	mg/l	9	0	0%	Parametric	Lognormal MLE	-0.000999	0.033	↔
6_1_117	W-3B	Appendix III	pH (field)	su	9	0	0%	Parametric	Lognormal MLE	0.0000892	0.222	↔
6_1_118	W-3B	Appendix III	pH (lab)	su	9	0	0%	Parametric	Lognormal MLE	-0.0000593	0.354	↔
6_1_123	W-3B	Appendix III	Sulfate (as SO4)	mg/l	9	0	0%	Nonparametric	MK	-39.7	0.042	↔
6_1_127	W-3B	Appendix III	Total Dissolved Solids	mg/l	9	1	11%	Parametric	Lognormal MLE	0.00430	0.449	↔
6_2_102	W-3B	Appendix IV	Arsenic	mg/l	8	3	38%	Parametric	Lognormal MLE	0.000461	0.431	↔
6_2_103	W-3B	Appendix IV	Barium	mg/l	9	1	11%	Parametric	Lognormal MLE	0.000423	0.007	↑
6_2_106	W-3B	Appendix IV	Cadmium	mg/l	9	0	0%	Nonparametric	MK	0	0.316	↔
6_2_109	W-3B	Appendix IV	Chromium, Total	mg/l	9	4	44%	Parametric	Lognormal MLE	0.00226	0.008	↑
6_2_110	W-3B	Appendix IV	Cobalt	mg/l	9	0	0%	Parametric	Lognormal MLE	-0.00109	0.767	↔
6_2_113	W-3B	Appendix IV	Lead	mg/l	9	4	44%	Parametric	Lognormal MLE	0.000625	0.580	↔
6_2_114	W-3B	Appendix IV	Lithium	mg/l	9	0	0%	Parametric	Lognormal MLE	0.000521	0.021	↔
6_2_120	W-3B	Appendix IV	Radium-226+228	pci/l	9	0	0%	Parametric	Lognormal MLE	-0.0000231	0.969	↔
6_2_122	W-3B	Appendix IV	Selenium	mg/l	9	1	11%	Parametric	Lognormal MLE	-0.00190	0.127	↔
6_2_126	W-3B	Appendix IV	Thallium	mg/l	9	1	11%	Parametric	Lognormal MLE	0.000190	0.380	↔
6_3_119	W-3B	Supplemental	Radium-226	pci/l	9	0	0%	Parametric	Lognormal MLE	0.0000979	0.708	↔
6_3_121	W-3B	Supplemental	Radium-228	pci/l	9	0	0%	Parametric	Lognormal MLE	-0.0000302	0.972	↔
6_3_124	W-3B	Supplemental	Temperature (field)	deg c	9	0	0%	Parametric	Lognormal MLE	0.00125	0.036	↔
6_3_125	W-3B	Supplemental	Temperature (lab)	deg c	9	0	0%	Parametric	Lognormal MLE	-0.000162	0.484	↔
6_3_128	W-3B	Supplemental	Total Suspended Solids	mg/l	9	0	0%	Parametric	Lognormal MLE	0.00216	0.217	↔
7_1_105	W-5B	Appendix III	Boron	mg/l	12	1	8%	Nonparametric	MK	0	0.882	↔
7_1_107	W-5B	Appendix III	Calcium	mg/l	12	0	0%	Parametric	Lognormal MLE	0.000169	0.059	↔
7_1_108	W-5B	Appendix III	Chloride (as Cl)	mg/l	12	0	0%	Nonparametric	MK	0	0.942	↔
7_1_111	W-5B	Appendix III	Fluoride	mg/l	12	1	8%	Nonparametric	MK	0.000501	0.193	↔
7_1_117	W-5B	Appendix III	pH (field)	su	12	0	0%	Nonparametric	MK	0.0000338	0.945	↔
7_1_118	W-5B	Appendix III	pH (lab)	su	12	0	0%	Parametric	Lognormal MLE	-0.00000601	0.782	↔
7_1_123	W-5B	Appendix III	Sulfate (as SO4)	mg/l	12	0	0%	Parametric	Lognormal MLE	0.000103	0.327	↔
7_1_127	W-5B	Appendix III	Total Dissolved Solids	mg/l	12	0	0%	Parametric	Lognormal MLE	-0.0000808	0.307	↔
7_2_103	W-5B	Appendix IV	Barium	mg/l	12	1	8%	Nonparametric	MK	0	0.828	↔
7_2_106	W-5B	Appendix IV	Cadmium	mg/l	12	2	17%	Parametric	Lognormal MLE	0.000153	0.847	↔
7_2_110	W-5B	Appendix IV	Cobalt	mg/l	12	0	0%	Parametric	Lognormal MLE	-0.000813	0.000	↓
7_2_112	W-5B	Appendix IV	Fluoride (App IV)	mg/l	12	1	8%	Nonparametric	MK	0.000501	0.193	↔
7_2_114	W-5B	Appendix IV	Lithium	mg/l	12	0	0%	Parametric	Lognormal MLE	0.000197	0.227	↔
7_2_120	W-5B	Appendix IV	Radium-226+228	pci/l	11	0	0%	Parametric	Lognormal MLE	0.000524	0.273	↔
7_2_122	W-5B	Appendix IV	Selenium	mg/l	12	5	42%	Parametric	Lognormal MLE	0.000267	0.846	↔
7_2_126	W-5B	Appendix IV	Thallium	mg/l	12	4	33%	Parametric	Lognormal MLE	-0.000160	0.379	↔
7_3_119	W-5B	Supplemental	Radium-226	pci/l	11	0	0%	Parametric	Lognormal MLE	-0.000218	0.476	↔
7_3_121	W-5B	Supplemental	Radium-228	pci/l	11	0	0%	Parametric	Lognormal MLE	0.000791	0.222	↔
7_3_124	W-5B	Supplemental	Temperature (field)	deg c	12	0	0%	Parametric	Lognormal MLE	0.000233	0.105	↔
7_3_125	W-5B	Supplemental	Temperature (lab)	deg c	12	0	0%	Parametric	Lognormal MLE	0.000110	0.278	↔

(Table continues on next page)



Table 8: Trend Tests: Lognormal MLE and MK *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Type	Method	Slope	p-value	Trend
7_3_128	W-5B	Supplemental	Total Suspended Solids	mg/l	12	6	50%	Nonparametric	MK	-0.00115	0.183	↔
8_1_105	W-6B1	Appendix III	Boron	mg/l	9	1	11%	Nonparametric	MK	-0.00561	0.003	↓
8_1_107	W-6B1	Appendix III	Calcium	mg/l	9	0	0%	Parametric	Lognormal MLE	0.00206	0.000	↑
8_1_108	W-6B1	Appendix III	Chloride (as Cl)	mg/l	9	0	0%	Nonparametric	MK	-1.03	0.042	↔
8_1_111	W-6B1	Appendix III	Fluoride	mg/l	9	5	56%	Nonparametric	MK	0	0.908	↔
8_1_117	W-6B1	Appendix III	pH (field)	su	9	0	0%	Parametric	Lognormal MLE	-0.0000306	0.469	↔
8_1_118	W-6B1	Appendix III	pH (lab)	su	9	0	0%	Parametric	Lognormal MLE	-0.000143	0.000	↓
8_1_123	W-6B1	Appendix III	Sulfate (as SO4)	mg/l	9	0	0%	Nonparametric	MK	-7.17	0.752	↔
8_1_127	W-6B1	Appendix III	Total Dissolved Solids	mg/l	9	0	0%	Parametric	Lognormal MLE	-0.000407	0.066	↔
8_2_102	W-6B1	Appendix IV	Arsenic	mg/l	9	3	33%	Parametric	Lognormal MLE	0.00101	0.758	↔
8_2_103	W-6B1	Appendix IV	Barium	mg/l	9	1	11%	Parametric	Lognormal MLE	0.000825	0.019	↔
8_2_106	W-6B1	Appendix IV	Cadmium	mg/l	9	0	0%	Parametric	Lognormal MLE	0.00336	0.000	↑
8_2_110	W-6B1	Appendix IV	Cobalt	mg/l	9	0	0%	Parametric	Lognormal MLE	0.000637	0.761	↔
8_2_112	W-6B1	Appendix IV	Fluoride (App IV)	mg/l	9	5	56%	Nonparametric	MK	0	0.908	↔
8_2_113	W-6B1	Appendix IV	Lead	mg/l	9	4	44%	Parametric	Lognormal MLE	0.00452	0.042	↔
8_2_114	W-6B1	Appendix IV	Lithium	mg/l	9	0	0%	Parametric	Lognormal MLE	0.000259	0.493	↔
8_2_116	W-6B1	Appendix IV	Molybdenum	mg/l	9	3	33%	Parametric	Lognormal MLE	0.000496	0.680	↔
8_2_120	W-6B1	Appendix IV	Radium-226+228	pci/l	9	0	0%	Parametric	Lognormal MLE	-0.000269	0.684	↔
8_2_122	W-6B1	Appendix IV	Selenium	mg/l	9	2	22%	Parametric	Lognormal MLE	-0.000806	0.664	↔
8_2_126	W-6B1	Appendix IV	Thallium	mg/l	9	1	11%	Parametric	Lognormal MLE	0.00218	0.001	↑
8_3_119	W-6B1	Supplemental	Radium-226	pci/l	9	0	0%	Parametric	Lognormal MLE	0.00130	0.008	↑
8_3_121	W-6B1	Supplemental	Radium-228	pci/l	9	0	0%	Parametric	Lognormal MLE	-0.000912	0.373	↔
8_3_124	W-6B1	Supplemental	Temperature (field)	deg c	9	0	0%	Parametric	Lognormal MLE	0.000477	0.166	↔
8_3_125	W-6B1	Supplemental	Temperature (lab)	deg c	9	0	0%	Parametric	Lognormal MLE	-0.000215	0.283	↔
8_3_128	W-6B1	Supplemental	Total Suspended Solids	mg/l	9	0	0%	Parametric	Lognormal MLE	0.00339	0.104	↔
9_1_105	W-7	Appendix III	Boron	mg/l	17	2	12%	Parametric	Lognormal MLE	-0.00191	0.000	↓
9_1_107	W-7	Appendix III	Calcium	mg/l	17	0	0%	Nonparametric	MK	0.0704	0.508	↔
9_1_108	W-7	Appendix III	Chloride (as Cl)	mg/l	17	0	0%	Nonparametric	MK	0.0926	0.089	↔
9_1_111	W-7	Appendix III	Fluoride	mg/l	17	7	41%	Parametric	Lognormal MLE	-0.00733	0.048	↔
9_1_117	W-7	Appendix III	pH (field)	su	17	0	0%	Parametric	Lognormal MLE	-0.0000230	0.239	↔
9_1_118	W-7	Appendix III	pH (lab)	su	17	0	0%	Nonparametric	MK	0	0.315	↔
9_1_123	W-7	Appendix III	Sulfate (as SO4)	mg/l	17	0	0%	Parametric	Lognormal MLE	0.000245	0.411	↔
9_1_127	W-7	Appendix III	Total Dissolved Solids	mg/l	17	0	0%	Nonparametric	MK	-12.4	0.032	↔
9_2_102	W-7	Appendix IV	Arsenic	mg/l	17	2	12%	Parametric	Lognormal MLE	-0.00478	0.000	↓
9_2_106	W-7	Appendix IV	Cadmium	mg/l	17	0	0%	Nonparametric	MK	0.00000185	0.090	↔
9_2_110	W-7	Appendix IV	Cobalt	mg/l	17	0	0%	Nonparametric	MK	0.0000105	0.009	↑
9_2_114	W-7	Appendix IV	Lithium	mg/l	17	0	0%	Parametric	Lognormal MLE	0.000619	0.003	↑
9_2_120	W-7	Appendix IV	Radium-226+228	pci/l	15	0	0%	Parametric	Lognormal MLE	0.000321	0.201	↔
9_2_122	W-7	Appendix IV	Selenium	mg/l	17	0	0%	Parametric	Lognormal MLE	0.000358	0.129	↔
9_2_126	W-7	Appendix IV	Thallium	mg/l	17	1	6%	Nonparametric	MK	0.00000152	0.082	↔
9_3_119	W-7	Supplemental	Radium-226	pci/l	16	0	0%	Parametric	Lognormal MLE	-0.000187	0.327	↔
9_3_121	W-7	Supplemental	Radium-228	pci/l	16	1	6%	Parametric	Lognormal MLE	0.000790	0.006	↑
9_3_124	W-7	Supplemental	Temperature (field)	deg c	17	0	0%	Parametric	Lognormal MLE	-0.000129	0.188	↔

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Table 8: Trend Tests: Lognormal MLE and MK (continued)

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Type	Method	Slope	p-value	Trend
9_3_125	W-7	Supplemental	Temperature (lab)	deg c	17	0	0%	Parametric	Lognormal MLE	0.0000519	0.485	↔
9_3_128	W-7	Supplemental	Total Suspended Solids	mg/l	17	0	0%	Parametric	Lognormal MLE	-0.00245	0.001	↓

Table 9: Trend Tests: Piecewise Linear-Linear

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Line 1			Line 2			Break 1	R-Squared	Overall Trend
								Slope	p-Value	Trend	Slope	p-Value	Trend			
10_1_107	W-9	Appendix III	Calcium	mg/l	9	0	0%	0.408	0.120	↔	-0.245	0.524	↔	2022-01-11	0.490	↔
10_1_108	W-9	Appendix III	Chloride (as Cl)	mg/l	9	0	0%	0.228	0.685	↔	-0.142	0.506	↔	2021-11-28	0.260	↔
10_1_117	W-9	Appendix III	pH (field)	su	9	0	0%	0.000801	0.504	↔	-0.0000471	0.914	↔	2021-07-21	0.239	↔
10_1_118	W-9	Appendix III	pH (lab)	su	9	0	0%	0.00104	0.525	↔	0.0000668	0.812	↔	2021-04-27	0.222	↔
10_1_123	W-9	Appendix III	Sulfate (as SO4)	mg/l	9	0	0%	1.01	0.706	↔	6.82	0.161	↔	2022-02-28	0.512	↔
10_1_127	W-9	Appendix III	Total Dissolved Solids	mg/l	9	0	0%	4.83	0.136	↔	-28.4	0.028	↔	2022-04-29	0.759	↔
10_2_101	W-9	Appendix IV	Antimony	mg/l	9	4	44%	0.00000353	0.700	↔	-0.0000138	0.374	↔	2022-02-28	0.188	↔
10_2_103	W-9	Appendix IV	Barium	mg/l	9	1	11%	0.0000538	0.484	↔	-0.000127	0.477	↔	2022-03-30	0.189	↔
10_2_104	W-9	Appendix IV	Beryllium	mg/l	8	8	100%	0.0000234	0.432	↔	-0.0000461	0.624	↔	2022-03-31	0.213	↔
10_2_106	W-9	Appendix IV	Cadmium	mg/l	9	5	56%	0.00000392	0.400	↔	-0.00000537	0.727	↔	2022-03-31	0.165	↔
10_2_110	W-9	Appendix IV	Cobalt	mg/l	9	1	11%	-0.000100	0.374	↔	0.0000000474	0.998	↔	2021-05-02	0.300	↔
10_2_113	W-9	Appendix IV	Lead	mg/l	9	7	78%	0.0000173	0.507	↔	-0.0000362	0.546	↔	2022-03-30	0.159	↔
10_2_114	W-9	Appendix IV	Lithium	mg/l	9	0	0%	-0.00104	0.613	↔	0.000626	0.123	↔	2021-05-23	0.465	↔
10_2_115	W-9	Appendix IV	Mercury	mg/l	8	8	100%	0.000000000000809	1.000	↔	-0.000000277	0.049	↔	2022-01-03	0.745	↔
10_2_122	W-9	Appendix IV	Selenium	mg/l	9	1	11%	0.0000771	0.445	↔	-0.000116	0.615	↔	2022-03-30	0.176	↔
10_3_119	W-9	Supplemental	Radium-226	pci/l	8	0	0%	-0.00144	0.609	↔	-0.000436	0.722	↔	2021-07-29	0.423	↔
1_1_105	W-1	Appendix III	Boron	mg/l	18	0	0%	-0.0163	0.017	↔	-0.00226	0.011	↔	2020-09-08	0.683	↔
1_1_107	W-1	Appendix III	Calcium	mg/l	18	0	0%	0.793	0.221	↔	0.168	0.105	↔	2020-09-29	0.372	↔
1_1_108	W-1	Appendix III	Chloride (as Cl)	mg/l	18	0	0%	-1.10	0.001	↓	-0.0846	0.164	↔	2020-10-15	0.684	↔
1_1_111	W-1	Appendix III	Fluoride	mg/l	18	1	6%	-0.110	0.011	↔	0.233	0.000	↑	2021-08-18	0.745	↔
1_1_117	W-1	Appendix III	pH (field)	su	12	0	0%	0.00216	0.258	↔	-0.000136	0.343	↔	2021-01-13	0.456	↔
1_1_118	W-1	Appendix III	pH (lab)	su	18	0	0%	0.00000483	0.988	↔	0.000132	0.440	↔	2021-01-14	0.135	↔
1_1_123	W-1	Appendix III	Sulfate (as SO4)	mg/l	18	0	0%	-44.8	0.149	↔	0.401	0.948	↔	2020-10-28	0.210	↔
1_1_127	W-1	Appendix III	Total Dissolved Solids	mg/l	18	0	0%	-249	0.084	↔	-4.57	0.793	↔	2020-09-08	0.344	↔
1_2_101	W-1	Appendix IV	Antimony	mg/l	18	13	72%	0.00000865	0.120	↔	-0.0000116	0.122	↔	2021-10-14	0.306	↔
1_2_102	W-1	Appendix IV	Arsenic	mg/l	18	3	17%	-0.0000336	0.045	↔	-0.0000103	0.002	↓	2020-10-14	0.699	↔
1_2_103	W-1	Appendix IV	Barium	mg/l	18	3	17%	-0.000147	0.035	↔	0.00000280	0.932	↔	2021-03-30	0.533	↔
1_2_104	W-1	Appendix IV	Beryllium	mg/l	17	15	88%	0.00000648	0.183	↔	-0.00000758	0.167	↔	2021-10-13	0.304	↔
1_2_106	W-1	Appendix IV	Cadmium	mg/l	18	9	50%	0.00000434	0.040	↔	-0.000000655	0.520	↔	2021-01-14	0.307	↔
1_2_110	W-1	Appendix IV	Cobalt	mg/l	18	7	39%	-0.00000695	0.055	↔	0.00000172	0.333	↔	2021-03-30	0.377	↔
1_2_112	W-1	Appendix IV	Fluoride (App IV)	mg/l	18	1	6%	-0.110	0.011	↔	0.233	0.000	↑	2021-08-18	0.745	↔
1_2_113	W-1	Appendix IV	Lead	mg/l	18	9	50%	0.00000600	0.410	↔	-0.00000247	0.510	↔	2021-01-14	0.086	↔
1_2_115	W-1	Appendix IV	Mercury	mg/l	17	17	100%	0.00000144	0.222	↔	-0.000000579	0.399	↔	2021-01-14	0.177	↔
1_2_116	W-1	Appendix IV	Molybdenum	mg/l	18	1	6%	-0.0000388	0.036	↔	-0.00000493	0.367	↔	2020-11-25	0.473	↔

(Table continues on next page)



Table 9: Trend Tests: Piecewise Linear-Linear (continued)

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Line 1			Line 2			Break 1	R-Squared	Overall Trend
								Slope	p-Value	Trend	Slope	p-Value	Trend			
1_2_120	W-1	Appendix IV	Radium-226+228	pci/l	18	0	0%	-0.00197	0.715	↔	0.000478	0.806	↔	2021-01-13	0.015	↔
1_2_122	W-1	Appendix IV	Selenium	mg/l	18	0	0%	-0.00311	0.000	↓	-0.000182	0.208	↔	2020-12-10	0.881	↔
1_2_126	W-1	Appendix IV	Thallium	mg/l	18	11	61%	0.00000345	0.028	↔	-0.0000101	0.111	↔	2022-04-04	0.404	↔
1_3_119	W-1	Supplemental	Radium-226	pci/l	18	1	6%	-0.000945	0.434	↔	0.000616	0.693	↔	2021-10-31	0.124	↔
1_3_121	W-1	Supplemental	Radium-228	pci/l	18	2	11%	0.00206	0.441	↔	-0.00396	0.263	↔	2021-12-07	0.147	↔
1_3_124	W-1	Supplemental	Temperature (field)	deg c	12	0	0%	0.448	0.494	↔	-0.176	0.099	↔	2021-04-18	0.365	↔
1_3_128	W-1	Supplemental	Total Suspended Solids	mg/l	18	0	0%	-0.984	0.000	↓	-0.0575	0.003	↓	2020-11-02	0.965	↓
2_1_107	W-11	Appendix III	Calcium	mg/l	9	0	0%	0.807	0.169	↔	-0.397	0.749	↔	2022-02-25	0.400	↔
2_1_108	W-11	Appendix III	Chloride (as Cl)	mg/l	9	0	0%	-0.0830	0.802	↔	-1.12	0.083	↔	2022-02-23	0.615	↔
2_1_111	W-11	Appendix III	Fluoride	mg/l	9	1	11%	-0.00671	0.896	↔	-0.00197	0.971	↔	2021-12-02	0.012	↔
2_1_117	W-11	Appendix III	pH (field)	su	9	0	0%	-0.000894	0.605	↔	0.0000889	0.741	↔	2021-05-26	0.161	↔
2_1_123	W-11	Appendix III	Sulfate (as SO4)	mg/l	9	0	0%	133	0.417	↔	-195	0.467	↔	2022-01-13	0.219	↔
2_1_127	W-11	Appendix III	Total Dissolved Solids	mg/l	9	0	0%	25.2	0.151	↔	-13.3	0.061	↔	2021-06-20	0.695	↔
2_2_101	W-11	Appendix IV	Antimony	mg/l	9	7	78%	0.0000120	0.274	↔	-0.0000168	0.344	↔	2022-01-13	0.342	↔
2_2_103	W-11	Appendix IV	Barium	mg/l	9	1	11%	0.00105	0.439	↔	-0.000295	0.191	↔	2021-05-26	0.380	↔
2_2_104	W-11	Appendix IV	Beryllium	mg/l	8	6	75%	0.0000246	0.401	↔	-0.0000466	0.614	↔	2022-04-01	0.232	↔
2_2_106	W-11	Appendix IV	Cadmium	mg/l	9	2	22%	0.00000529	0.202	↔	-0.00000680	0.603	↔	2022-04-01	0.332	↔
2_2_109	W-11	Appendix IV	Chromium, Total	mg/l	9	5	56%	0.000101	0.379	↔	-0.000181	0.495	↔	2022-03-31	0.237	↔
2_2_110	W-11	Appendix IV	Cobalt	mg/l	9	1	11%	0.0000380	0.033	↔	0.00000407	0.899	↔	2022-02-25	0.730	↔
2_2_112	W-11	Appendix IV	Fluoride (App IV)	mg/l	9	1	11%	-0.00671	0.896	↔	-0.00197	0.971	↔	2021-12-02	0.012	↔
2_2_114	W-11	Appendix IV	Lithium	mg/l	9	0	0%	-0.0199	0.132	↔	0.00647	0.176	↔	2021-05-27	0.578	↔
2_2_115	W-11	Appendix IV	Mercury	mg/l	8	8	100%	0.0000000000000978	1.000	↔	-0.000000274	0.053	↔	2022-01-01	0.735	↔
2_2_116	W-11	Appendix IV	Molybdenum	mg/l	9	5	56%	0.000110	0.313	↔	-0.000192	0.591	↔	2022-04-01	0.241	↔
2_2_120	W-11	Appendix IV	Radium-226+228	pci/l	8	0	0%	0.000136	0.983	↔	0.0118	0.231	↔	2022-02-24	0.421	↔
2_2_122	W-11	Appendix IV	Selenium	mg/l	9	1	11%	-0.0122	0.354	↔	0.00513	0.041	↔	2021-05-26	0.636	↔
2_2_126	W-11	Appendix IV	Thallium	mg/l	9	2	22%	0.0000220	0.376	↔	-0.0000313	0.580	↔	2022-03-31	0.225	↔
2_3_119	W-11	Supplemental	Radium-226	pci/l	8	0	0%	-0.00161	0.548	↔	0.00162	0.201	↔	2022-01-12	0.593	↔
2_3_121	W-11	Supplemental	Radium-228	pci/l	8	0	0%	0.00143	0.794	↔	0.0101	0.239	↔	2022-02-24	0.476	↔
2_3_124	W-11	Supplemental	Temperature (field)	deg c	9	0	0%	0.0140	0.685	↔	-0.00711	0.224	↔	2021-05-26	0.311	↔
2_3_125	W-11	Supplemental	Temperature (lab)	deg c	9	0	0%	0.00993	0.412	↔	-0.0000154	0.997	↔	2021-08-25	0.487	↔
2_3_128	W-11	Supplemental	Total Suspended Solids	mg/l	9	0	0%	-0.0143	0.622	↔	0.106	0.015	↔	2021-12-15	0.802	↔
3_1_105	W-12	Appendix III	Boron	mg/l	9	0	0%	0.00236	0.643	↔	-0.00188	0.061	↔	2021-05-27	0.599	↔
3_1_108	W-12	Appendix III	Chloride (as Cl)	mg/l	9	0	0%	0.0965	0.549	↔	0.317	0.410	↔	2022-03-31	0.345	↔
3_1_111	W-12	Appendix III	Fluoride	mg/l	9	2	22%	0.0251	0.437	↔	-0.0455	0.542	↔	2022-03-31	0.193	↔
3_1_117	W-12	Appendix III	pH (field)	su	9	0	0%	-0.000619	0.688	↔	-0.0000759	0.762	↔	2021-05-27	0.214	↔
3_1_118	W-12	Appendix III	pH (lab)	su	9	0	0%	0.000212	0.405	↔	-0.000303	0.278	↔	2021-12-02	0.318	↔
3_1_123	W-12	Appendix III	Sulfate (as SO4)	mg/l	9	0	0%	0.854	0.802	↔	6.50	0.279	↔	2022-01-13	0.431	↔
3_1_127	W-12	Appendix III	Total Dissolved Solids	mg/l	9	0	0%	19.2	0.174	↔	-3.74	0.448	↔	2021-08-08	0.590	↔
3_2_101	W-12	Appendix IV	Antimony	mg/l	9	3	33%	0.00000645	0.446	↔	-0.0000147	0.308	↔	2022-02-28	0.285	↔
3_2_102	W-12	Appendix IV	Arsenic	mg/l	9	8	89%	0.0000190	0.159	↔	-0.00000588	0.230	↔	2021-05-28	0.517	↔
3_2_103	W-12	Appendix IV	Barium	mg/l	9	1	11%	0.0000625	0.434	↔	-0.000116	0.531	↔	2022-03-31	0.197	↔
3_2_104	W-12	Appendix IV	Beryllium	mg/l	8	6	75%	0.0000243	0.409	↔	-0.0000459	0.623	↔	2022-04-01	0.225	↔

(Table continues on next page)



Table 9: Trend Tests: Piecewise Linear-Linear *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Line 1			Line 2			Break 1	R-Squared	Overall Trend
								Slope	p-Value	Trend	Slope	p-Value	Trend			
3_2_106	W-12	Appendix IV	Cadmium	mg/l	9	2	22%	-0.00000112	0.970	↔	0.00000226	0.645	↔	2021-04-21	0.080	↔
3_2_109	W-12	Appendix IV	Chromium, Total	mg/l	9	5	56%	0.0000917	0.380	↔	-0.000167	0.631	↔	2022-04-01	0.193	↔
3_2_112	W-12	Appendix IV	Fluoride (App IV)	mg/l	9	2	22%	0.0251	0.437	↔	-0.0455	0.542	↔	2022-03-31	0.193	↔
3_2_114	W-12	Appendix IV	Lithium	mg/l	9	0	0%	-0.000821	0.910	↔	0.00369	0.211	↔	2021-12-01	0.319	↔
3_2_115	W-12	Appendix IV	Mercury	mg/l	8	8	100%	0.000000000000369	1.000	↔	-0.000000276	0.052	↔	2022-01-03	0.739	↔
3_2_116	W-12	Appendix IV	Molybdenum	mg/l	9	4	44%	0.0000982	0.438	↔	-0.000175	0.550	↔	2022-03-31	0.191	↔
3_2_120	W-12	Appendix IV	Radium-226+228	pci/l	8	0	0%	0.00157	0.482	↔	0.00584	0.116	↔	2022-02-28	0.717	↔
3_2_126	W-12	Appendix IV	Thallium	mg/l	9	1	11%	0.0000199	0.351	↔	-0.0000367	0.604	↔	2022-04-01	0.216	↔
3_3_119	W-12	Supplemental	Radium-226	pci/l	8	0	0%	-0.000822	0.574	↔	0.000453	0.113	↔	2021-05-27	0.557	↔
3_3_121	W-12	Supplemental	Radium-228	pci/l	8	1	12%	0.00172	0.296	↔	0.00486	0.077	↔	2022-02-28	0.811	↔
3_3_124	W-12	Supplemental	Temperature (field)	deg c	9	0	0%	0.00238	0.375	↔	-0.00163	0.558	↔	2022-01-12	0.311	↔
3_3_125	W-12	Supplemental	Temperature (lab)	deg c	9	0	0%	-0.00282	0.500	↔	0.00908	0.524	↔	2022-04-01	0.192	↔
4_1_105	W-14	Appendix III	Boron	mg/l	7	0	0%	-0.00513	0.101	↔	0.000195	0.888	↔	2022-06-06	0.756	↔
4_1_117	W-14	Appendix III	pH (field)	su	7	0	0%	-0.0202	0.232	↔	0.00812	0.378	↔	2022-06-06	0.528	↔
4_1_123	W-14	Appendix III	Sulfate (as SO4)	mg/l	7	0	0%	143	0.535	↔	-61.5	0.251	↔	2022-06-05	0.482	↔
4_2_101	W-14	Appendix IV	Antimony	mg/l	7	0	0%	-0.00000295	0.429	↔	-0.000000842	0.306	↔	2022-06-03	0.791	↔
4_2_102	W-14	Appendix IV	Arsenic	mg/l	7	1	14%	-0.000000385	0.096	↔	-0.00000212	0.073	↔	2022-09-20	0.942	↔
4_2_106	W-14	Appendix IV	Cadmium	mg/l	7	0	0%	0.00000256	0.154	↔	-0.00000404	0.583	↔	2022-08-24	0.572	↔
4_2_109	W-14	Appendix IV	Chromium, Total	mg/l	7	1	14%	-0.00309	0.000	↓	0.000000598	0.870	↔	2022-05-06	1.000	↔
4_2_110	W-14	Appendix IV	Cobalt	mg/l	7	0	0%	-0.0000571	0.143	↔	0.00000579	0.415	↔	2022-05-15	0.716	↔
4_2_114	W-14	Appendix IV	Lithium	mg/l	7	0	0%	-0.00230	0.143	↔	0.00297	0.212	↔	2022-08-05	0.682	↔
4_2_115	W-14	Appendix IV	Mercury	mg/l	7	7	100%	-0.000000911	0.080	↔	0.0000000503	0.546	↔	2022-05-26	0.891	↔
4_2_120	W-14	Appendix IV	Radium-226+228	pci/l	7	0	0%	0.0232	0.056	↔	-0.0406	0.357	↔	2022-09-23	0.835	↔
4_3_121	W-14	Supplemental	Radium-228	pci/l	7	1	14%	0.0214	0.075	↔	-0.0267	0.544	↔	2022-09-08	0.754	↔
4_3_124	W-14	Supplemental	Temperature (field)	deg c	7	0	0%	0.0372	0.007	↑	-0.0440	0.017	↔	2022-08-07	0.958	↔
4_3_128	W-14	Supplemental	Total Suspended Solids	mg/l	7	3	43%	-0.197	0.192	↔	0.0329	0.278	↔	2022-05-11	0.615	↔
5_1_107	W-16	Appendix III	Calcium	mg/l	7	0	0%	-0.624	0.129	↔	0.637	0.287	↔	2022-07-15	0.690	↔
5_1_117	W-16	Appendix III	pH (field)	su	7	0	0%	-0.0106	0.354	↔	0.00263	0.281	↔	2022-05-29	0.579	↔
5_1_123	W-16	Appendix III	Sulfate (as SO4)	mg/l	7	0	0%	-8.74	0.172	↔	15.1	0.157	↔	2022-08-15	0.694	↔
5_1_127	W-16	Appendix III	Total Dissolved Solids	mg/l	6	0	0%	-25.9	0.312	↔	-18.2	0.862	↔	2022-08-25	0.705	↔
5_3_124	W-16	Supplemental	Temperature (field)	deg c	7	0	0%	0.194	0.003	↑	-0.0283	0.007	↓	2022-05-07	0.978	↔
6_1_105	W-3B	Appendix III	Boron	mg/l	9	1	11%	-0.0735	0.007	↓	-0.00316	0.163	↔	2022-01-20	0.933	↔
6_1_107	W-3B	Appendix III	Calcium	mg/l	9	0	0%	-2.35	0.517	↔	1.11	0.036	↔	2022-02-08	0.643	↔
6_1_111	W-3B	Appendix III	Fluoride	mg/l	9	5	56%	0.666	0.279	↔	-0.150	0.675	↔	2022-04-10	0.337	↔
6_1_117	W-3B	Appendix III	pH (field)	su	9	0	0%	-0.000309	0.679	↔	0.00538	0.125	↔	2022-08-13	0.566	↔
6_1_118	W-3B	Appendix III	pH (lab)	su	9	0	0%	-0.00882	0.076	↔	0.000525	0.301	↔	2022-01-27	0.733	↔
6_1_127	W-3B	Appendix III	Total Dissolved Solids	mg/l	9	1	11%	-433	0.682	↔	139	0.281	↔	2022-02-22	0.276	↔
6_2_101	W-3B	Appendix IV	Antimony	mg/l	8	4	50%	0.0000441	0.640	↔	-0.0000215	0.120	↔	2022-01-23	0.587	↔
6_2_102	W-3B	Appendix IV	Arsenic	mg/l	8	3	38%	-0.0000411	0.001	↓	0.000000112	0.954	↔	2022-02-27	0.977	↔
6_2_103	W-3B	Appendix IV	Barium	mg/l	9	1	11%	0.000327	0.532	↔	-0.000187	0.273	↔	2022-03-30	0.296	↔
6_2_104	W-3B	Appendix IV	Beryllium	mg/l	9	6	67%	0.0000952	0.608	↔	-0.0000736	0.232	↔	2022-03-30	0.301	↔
6_2_106	W-3B	Appendix IV	Cadmium	mg/l	9	0	0%	-0.0000206	0.287	↔	0.00000426	0.908	↔	2022-06-08	0.292	↔

(Table continues on next page)



Table 9: Trend Tests: Piecewise Linear-Linear (continued)

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Line 1			Line 2			Break 1	R-Squared	Overall Trend
								Slope	p-Value	Trend	Slope	p-Value	Trend			
6_2_109	W-3B	Appendix IV	Chromium, Total	mg/l	9	4	44%	0.000398	0.609	↔	-0.000286	0.264	↔	2022-03-30	0.274	↔
6_2_110	W-3B	Appendix IV	Cobalt	mg/l	9	0	0%	-0.000315	0.356	↔	0.000399	0.553	↔	2022-06-08	0.227	↔
6_2_112	W-3B	Appendix IV	Fluoride (App IV)	mg/l	9	5	56%	0.666	0.279	↔	-0.150	0.675	↔	2022-04-10	0.337	↔
6_2_113	W-3B	Appendix IV	Lead	mg/l	9	4	44%	0.0000936	0.564	↔	-0.0000641	0.233	↔	2022-03-30	0.310	↔
6_2_114	W-3B	Appendix IV	Lithium	mg/l	9	0	0%	0.0147	0.045	↔	0.0000724	0.914	↔	2022-01-26	0.839	↔
6_2_115	W-3B	Appendix IV	Mercury	mg/l	9	9	100%	-0.000000484	0.014	↔	-0.0000000000162	1.000	↔	2022-06-06	0.884	↔
6_2_116	W-3B	Appendix IV	Molybdenum	mg/l	9	3	33%	0.000462	0.382	↔	-0.000325	0.323	↔	2022-03-31	0.313	↔
6_2_122	W-3B	Appendix IV	Selenium	mg/l	9	1	11%	0.000310	0.626	↔	-0.000229	0.274	↔	2022-03-30	0.263	↔
6_2_126	W-3B	Appendix IV	Thallium	mg/l	9	1	11%	0.000106	0.513	↔	-0.0000624	0.241	↔	2022-03-30	0.324	↔
6_3_119	W-3B	Supplemental	Radium-226	pci/l	9	0	0%	0.00977	0.108	↔	-0.00227	0.205	↔	2022-03-04	0.584	↔
6_3_121	W-3B	Supplemental	Radium-228	pci/l	9	0	0%	-0.0111	0.586	↔	0.0141	0.535	↔	2022-06-07	0.141	↔
6_3_124	W-3B	Supplemental	Temperature (field)	deg c	9	0	0%	0.0438	0.028	↔	-0.0372	0.256	↔	2022-06-24	0.721	↔
6_3_125	W-3B	Supplemental	Temperature (lab)	deg c	9	0	0%	-0.0335	0.080	↔	0.0100	0.333	↔	2022-03-31	0.573	↔
6_3_128	W-3B	Supplemental	Total Suspended Solids	mg/l	9	0	0%	0.0783	0.643	↔	-0.0106	0.839	↔	2022-03-30	0.159	↔
7_1_105	W-5B	Appendix III	Boron	mg/l	12	1	8%	0.00281	0.218	↔	-0.000632	0.364	↔	2021-06-13	0.254	↔
7_1_107	W-5B	Appendix III	Calcium	mg/l	12	0	0%	0.125	0.153	↔	-0.0962	0.796	↔	2022-05-06	0.274	↔
7_1_108	W-5B	Appendix III	Chloride (as Cl)	mg/l	12	0	0%	-0.0822	0.146	↔	0.0191	0.266	↔	2021-06-28	0.349	↔
7_1_111	W-5B	Appendix III	Fluoride	mg/l	12	1	8%	-0.000777	0.936	↔	0.0185	0.229	↔	2022-02-15	0.278	↔
7_1_117	W-5B	Appendix III	pH (field)	su	12	0	0%	-0.000875	0.256	↔	0.00326	0.534	↔	2022-06-07	0.206	↔
7_1_118	W-5B	Appendix III	pH (lab)	su	12	0	0%	0.000949	0.429	↔	-0.000652	0.106	↔	2021-09-29	0.346	↔
7_1_123	W-5B	Appendix III	Sulfate (as SO4)	mg/l	12	0	0%	0.558	0.320	↔	-3.08	0.652	↔	2022-08-08	0.144	↔
7_2_103	W-5B	Appendix IV	Barium	mg/l	12	1	8%	-0.0000271	0.087	↔	0.00000363	0.428	↔	2021-06-30	0.475	↔
7_2_104	W-5B	Appendix IV	Beryllium	mg/l	11	9	82%	-0.000000211	0.950	↔	-0.00000889	0.236	↔	2022-02-25	0.387	↔
7_2_106	W-5B	Appendix IV	Cadmium	mg/l	12	2	17%	-0.00000273	0.037	↔	0.00000883	0.033	↔	2022-04-21	0.629	↔
7_2_109	W-5B	Appendix IV	Chromium, Total	mg/l	12	11	92%	0.00000443	0.714	↔	-0.0000340	0.220	↔	2022-03-18	0.276	↔
7_2_110	W-5B	Appendix IV	Cobalt	mg/l	12	0	0%	-0.00000225	0.035	↔	-0.00000288	0.063	↔	2022-02-24	0.822	↔
7_2_112	W-5B	Appendix IV	Fluoride (App IV)	mg/l	12	1	8%	-0.000777	0.936	↔	0.0185	0.229	↔	2022-02-15	0.278	↔
7_2_114	W-5B	Appendix IV	Lithium	mg/l	12	0	0%	-0.000285	0.446	↔	0.000141	0.240	↔	2021-06-30	0.260	↔
7_2_115	W-5B	Appendix IV	Mercury	mg/l	11	11	100%	-0.00000342	0.430	↔	0.000000113	0.894	↔	2021-10-03	0.684	↔
7_2_120	W-5B	Appendix IV	Radium-226+228	pci/l	11	0	0%	-0.0000723	0.976	↔	0.0116	0.304	↔	2022-05-24	0.290	↔
7_2_126	W-5B	Appendix IV	Thallium	mg/l	12	4	33%	0.000000926	0.662	↔	-0.00000544	0.259	↔	2022-03-29	0.214	↔
7_3_119	W-5B	Supplemental	Radium-226	pci/l	11	0	0%	0.00122	0.686	↔	-0.000443	0.312	↔	2021-05-25	0.170	↔
7_3_121	W-5B	Supplemental	Radium-228	pci/l	11	0	0%	-0.0000226	0.992	↔	0.0111	0.316	↔	2022-05-11	0.324	↔
7_3_124	W-5B	Supplemental	Temperature (field)	deg c	12	0	0%	0.00122	0.828	↔	0.0103	0.414	↔	2022-02-25	0.239	↔
7_3_125	W-5B	Supplemental	Temperature (lab)	deg c	12	0	0%	0.00623	0.397	↔	-0.00351	0.605	↔	2022-01-13	0.202	↔
8_1_105	W-6B1	Appendix III	Boron	mg/l	9	1	11%	-0.0788	0.003	↓	-0.00427	0.035	↔	2022-01-13	0.953	↔
8_1_107	W-6B1	Appendix III	Calcium	mg/l	9	0	0%	1.23	0.013	↔	0.120	0.916	↔	2022-06-08	0.842	↔
8_1_111	W-6B1	Appendix III	Fluoride	mg/l	9	5	56%	0.189	0.320	↔	-0.836	0.674	↔	2022-08-23	0.254	↔
8_1_118	W-6B1	Appendix III	pH (lab)	su	9	0	0%	-0.00338	0.319	↔	-0.000510	0.160	↔	2022-02-23	0.837	↔
8_1_127	W-6B1	Appendix III	Total Dissolved Solids	mg/l	9	0	0%	-2.44	0.952	↔	-56	0.681	↔	2022-06-08	0.334	↔
8_2_101	W-6B1	Appendix IV	Antimony	mg/l	9	4	44%	-0.0000231	0.288	↔	0.00000143	0.950	↔	2022-06-07	0.429	↔
8_2_102	W-6B1	Appendix IV	Arsenic	mg/l	9	3	33%	-0.0000216	0.314	↔	0.00000635	0.780	↔	2022-06-07	0.351	↔

(Table continues on next page)



Table 9: Trend Tests: Piecewise Linear-Linear *(continued)*

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Line 1			Line 2			Break 1	R-Squared	Overall Trend
								Slope	p-Value	Trend	Slope	p-Value	Trend			
8_2_103	W-6B1	Appendix IV	Barium	mg/l	9	1	11%	0.000315	0.339	↔	-0.000148	0.424	↔	2022-03-30	0.274	↔
8_2_104	W-6B1	Appendix IV	Beryllium	mg/l	9	5	56%	0.0000994	0.576	↔	-0.0000682	0.214	↔	2022-03-29	0.323	↔
8_2_106	W-6B1	Appendix IV	Cadmium	mg/l	9	0	0%	-0.0000110	0.647	↔	0.000130	0.004	↑	2022-05-27	0.929	↔
8_2_109	W-6B1	Appendix IV	Chromium, Total	mg/l	9	5	56%	0.000419	0.385	↔	-0.000273	0.328	↔	2022-03-30	0.316	↔
8_2_110	W-6B1	Appendix IV	Cobalt	mg/l	9	0	0%	-0.000310	0.171	↔	0.000634	0.372	↔	2022-06-08	0.600	↔
8_2_112	W-6B1	Appendix IV	Fluoride (App IV)	mg/l	9	5	56%	0.189	0.320	↔	-0.836	0.674	↔	2022-08-23	0.254	↔
8_2_113	W-6B1	Appendix IV	Lead	mg/l	9	4	44%	0.0000948	0.366	↔	-0.0000576	0.339	↔	2022-03-30	0.312	↔
8_2_114	W-6B1	Appendix IV	Lithium	mg/l	9	0	0%	0.0129	0.020	↔	-0.00418	0.013	↔	2022-03-29	0.881	↔
8_2_115	W-6B1	Appendix IV	Mercury	mg/l	9	9	100%	-0.000000481	0.013	↔	-0.00000000000176	1.000	↔	2022-06-07	0.889	↔
8_2_116	W-6B1	Appendix IV	Molybdenum	mg/l	9	3	33%	0.000499	0.520	↔	-0.000283	0.233	↔	2022-03-29	0.322	↔
8_2_120	W-6B1	Appendix IV	Radium-226+228	pci/l	9	0	0%	-0.0249	0.269	↔	0.0143	0.553	↔	2022-05-06	0.282	↔
8_2_122	W-6B1	Appendix IV	Selenium	mg/l	9	2	22%	0.000397	0.511	↔	-0.000233	0.209	↔	2022-03-29	0.343	↔
8_2_126	W-6B1	Appendix IV	Thallium	mg/l	9	1	11%	0.000101	0.538	↔	-0.0000448	0.358	↔	2022-03-29	0.250	↔
8_3_119	W-6B1	Supplemental	Radium-226	pci/l	9	0	0%	0.00679	0.352	↔	0.00121	0.761	↔	2022-05-05	0.504	↔
8_3_121	W-6B1	Supplemental	Radium-228	pci/l	9	0	0%	-0.0319	0.275	↔	0.0131	0.417	↔	2022-05-05	0.424	↔
8_3_124	W-6B1	Supplemental	Temperature (field)	deg c	9	0	0%	0.0209	0.199	↔	-0.0300	0.552	↔	2022-07-25	0.375	↔
8_3_125	W-6B1	Supplemental	Temperature (lab)	deg c	9	0	0%	-0.0174	0.229	↔	0.0119	0.441	↔	2022-06-07	0.401	↔
8_3_128	W-6B1	Supplemental	Total Suspended Solids	mg/l	9	0	0%	-0.00831	0.946	↔	0.213	0.609	↔	2022-06-08	0.411	↔
9_1_105	W-7	Appendix III	Boron	mg/l	17	2	12%	0.00860	0.487	↔	-0.00509	0.002	↓	2020-12-03	0.636	↔
9_1_107	W-7	Appendix III	Calcium	mg/l	17	0	0%	-7.69	0.595	↔	0.0703	0.611	↔	2020-09-12	0.066	↔
9_1_108	W-7	Appendix III	Chloride (as Cl)	mg/l	17	0	0%	0.851	0.016	↔	-0.437	0.209	↔	2021-05-27	0.422	↔
9_1_111	W-7	Appendix III	Fluoride	mg/l	17	7	41%	6.21	0.339	↔	-0.121	0.064	↔	2020-09-09	0.282	↔
9_1_117	W-7	Appendix III	pH (field)	su	17	0	0%	0.000587	0.408	↔	-0.000619	0.111	↔	2021-05-26	0.243	↔
9_1_118	W-7	Appendix III	pH (lab)	su	17	0	0%	0.000935	0.025	↔	-0.000389	0.341	↔	2021-05-27	0.387	↔
9_1_123	W-7	Appendix III	Sulfate (as SO4)	mg/l	17	0	0%	-60	0.447	↔	61.8	0.148	↔	2021-05-26	0.205	↔
9_1_127	W-7	Appendix III	Total Dissolved Solids	mg/l	17	0	0%	476	0.266	↔	-60.4	0.074	↔	2020-11-19	0.291	↔
9_2_101	W-7	Appendix IV	Antimony	mg/l	17	13	76%	0.0000573	0.058	↔	-0.00000529	0.236	↔	2020-12-04	0.334	↔
9_2_102	W-7	Appendix IV	Arsenic	mg/l	17	2	12%	0.0000270	0.210	↔	-0.0000523	0.033	↔	2021-05-27	0.640	↔
9_2_103	W-7	Appendix IV	Barium	mg/l	17	4	24%	0.0000256	0.388	↔	-0.000116	0.534	↔	2022-03-31	0.090	↔
9_2_106	W-7	Appendix IV	Cadmium	mg/l	17	0	0%	0.0000604	0.108	↔	-0.0000354	0.077	↔	2021-05-26	0.356	↔
9_2_109	W-7	Appendix IV	Chromium, Total	mg/l	17	9	53%	0.0000509	0.195	↔	-0.000158	0.343	↔	2022-03-30	0.190	↔
9_2_110	W-7	Appendix IV	Cobalt	mg/l	17	0	0%	0.0000874	0.104	↔	-0.0000398	0.154	↔	2021-05-26	0.353	↔
9_2_112	W-7	Appendix IV	Fluoride (App IV)	mg/l	17	7	41%	6.21	0.339	↔	-0.121	0.064	↔	2020-09-09	0.282	↔
9_2_113	W-7	Appendix IV	Lead	mg/l	17	8	47%	0.0000666	0.068	↔	-0.0000343	0.356	↔	2021-05-27	0.276	↔
9_2_114	W-7	Appendix IV	Lithium	mg/l	17	0	0%	-0.00111	0.685	↔	0.00499	0.104	↔	2021-05-27	0.555	↔
9_2_115	W-7	Appendix IV	Mercury	mg/l	16	10	62%	0.00000372	0.111	↔	-0.000000981	0.157	↔	2021-01-14	0.319	↔
9_2_116	W-7	Appendix IV	Molybdenum	mg/l	17	7	41%	0.0000615	0.135	↔	-0.000174	0.316	↔	2022-03-30	0.235	↔
9_2_120	W-7	Appendix IV	Radium-226+228	pci/l	15	0	0%	-0.00314	0.442	↔	0.00456	0.452	↔	2021-05-27	0.273	↔
9_2_122	W-7	Appendix IV	Selenium	mg/l	17	0	0%	-0.00211	0.184	↔	0.00248	0.008	↑	2021-05-26	0.525	↔
9_2_126	W-7	Appendix IV	Thallium	mg/l	17	1	6%	0.0000618	0.072	↔	-0.0000288	0.409	↔	2021-05-27	0.269	↔
9_3_119	W-7	Supplemental	Radium-226	pci/l	16	0	0%	-0.00348	0.028	↔	0.00138	0.442	↔	2021-05-27	0.384	↔
9_3_121	W-7	Supplemental	Radium-228	pci/l	16	1	6%	-0.0115	0.772	↔	0.00254	0.013	↔	2020-10-05	0.431	↔

(Table continues on next page)

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Line 1			Line 2			Break 1	R-Squared	Overall Trend
								Slope	p-Value	Trend	Slope	p-Value	Trend			
9_3_124	W-7	Supplemental	Temperature (field)	deg c	17	0	0%	-0.0194	0.171	↔	0.00250	0.483	↔	2021-02-17	0.303	↔
9_3_128	W-7	Supplemental	Total Suspended Solids	mg/l	17	0	0%	-2.60	0.081	↔	-0.0700	0.040	↔	2020-09-25	0.602	↔

Table 10: Trend Tests: Piecewise Linear-Linear-Linear

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Line 1			Line 2			Line 3			Break 1	Break 2	R-Squared	Overall Trend
								Slope	p-Value	Trend	Slope	p-Value	Trend	Slope	p-Value	Trend				
10_1_127	W-9	Appendix III	Total Dissolved Solids	mg/l	9	0	0%	-1.96	0.892	↔	16.7	0.319	↔	-28.4	0.072	↔	2021-10-16	2022-04-06	0.818	↔
10_2_102	W-9	Appendix IV	Arsenic	mg/l	9	4	44%	0.0000292	0.158	↔	-0.00000941	0.120	↔	0.000000455	0.961	↔	2021-04-26	2022-04-08	0.780	↔
10_2_103	W-9	Appendix IV	Barium	mg/l	9	1	11%	-0.0000514	0.880	↔	0.000296	0.576	↔	-0.000185	0.401	↔	2021-11-13	2022-03-30	0.358	↔
10_2_109	W-9	Appendix IV	Chromium, Total	mg/l	9	6	67%	-0.000101	0.849	↔	0.000431	0.602	↔	-0.000238	0.482	↔	2021-10-25	2022-03-30	0.330	↔
10_2_110	W-9	Appendix IV	Cobalt	mg/l	9	1	11%	-0.0000889	0.313	↔	0.0000829	0.511	↔	-0.0000380	0.458	↔	2021-09-19	2022-03-30	0.554	↔
10_2_113	W-9	Appendix IV	Lead	mg/l	9	7	78%	-0.0000270	0.819	↔	0.0000858	0.508	↔	-0.0000533	0.575	↔	2021-10-13	2022-03-31	0.301	↔
10_2_114	W-9	Appendix IV	Lithium	mg/l	9	0	0%	-0.00104	0.119	↔	0.00786	0.016	↔	-0.000155	0.581	↔	2021-11-18	2022-01-16	0.959	↔
10_2_116	W-9	Appendix IV	Molybdenum	mg/l	9	3	33%	-0.0000858	0.877	↔	0.000513	0.410	↔	-0.000258	0.564	↔	2021-11-15	2022-03-31	0.358	↔
10_2_126	W-9	Appendix IV	Thallium	mg/l	9	5	56%	-0.0000167	0.892	↔	0.000113	0.412	↔	-0.0000600	0.546	↔	2021-11-17	2022-03-31	0.365	↔
10_3_119	W-9	Supplemental	Radium-226	pci/l	8	0	0%	-0.00164	0.658	↔	0.00342	0.599	↔	-0.00145	0.620	↔	2021-12-30	2022-03-31	0.570	↔
10_3_121	W-9	Supplemental	Radium-228	pci/l	8	2	25%	0.000378	0.923	↔	0.00568	0.443	↔	-0.000802	0.795	↔	2021-12-12	2022-05-05	0.819	↔
1_1_111	W-1	Appendix III	Fluoride	mg/l	18	1	6%	-0.159	0.026	↔	-0.00880	0.953	↔	0.233	0.001	↑	2021-01-03	2021-10-27	0.769	↔
1_1_123	W-1	Appendix III	Sulfate (as SO4)	mg/l	18	0	0%	-46.5	0.166	↔	4.14	0.886	↔	-5.33	0.798	↔	2020-10-28	2021-10-22	0.217	↔
1_1_127	W-1	Appendix III	Total Dissolved Solids	mg/l	18	0	0%	-315	0.001	↓	913	0.046	↔	-41.4	0.039	↔	2020-10-14	2020-11-25	0.708	↔
1_2_101	W-1	Appendix IV	Antimony	mg/l	18	13	72%	0.0000116	0.178	↔	0.00000271	0.768	↔	-0.0000139	0.181	↔	2021-01-14	2022-02-05	0.341	↔
1_2_102	W-1	Appendix IV	Arsenic	mg/l	18	3	17%	-0.0000374	0.012	↔	0.0000112	0.833	↔	-0.0000177	0.004	↓	2020-11-01	2021-04-18	0.762	↔
1_2_106	W-1	Appendix IV	Cadmium	mg/l	18	9	50%	0.00000459	0.046	↔	-0.00000142	0.935	↔	-0.000000119	0.951	↔	2021-01-14	2021-08-27	0.314	↔
1_2_112	W-1	Appendix IV	Fluoride (App IV)	mg/l	18	1	6%	-0.159	0.026	↔	-0.00880	0.953	↔	0.233	0.001	↑	2021-01-03	2021-10-27	0.769	↔
1_2_115	W-1	Appendix IV	Mercury	mg/l	17	17	100%	0.00000155	0.225	↔	-0.000000821	0.673	↔	-0.000000151	0.906	↔	2021-01-14	2021-12-17	0.190	↔
1_2_116	W-1	Appendix IV	Molybdenum	mg/l	18	1	6%	-0.0000412	0.043	↔	-0.00000149	0.830	↔	-0.0000243	0.379	↔	2020-11-24	2022-04-07	0.519	↔
1_2_120	W-1	Appendix IV	Radium-226+228	pci/l	18	0	0%	-0.00373	0.451	↔	0.0134	0.726	↔	-0.00455	0.290	↔	2021-03-19	2021-08-12	0.152	↔
1_2_126	W-1	Appendix IV	Thallium	mg/l	18	11	61%	0.00000198	0.363	↔	0.0000225	0.562	↔	-0.0000126	0.063	↔	2022-01-03	2022-03-19	0.455	↔
1_3_119	W-1	Supplemental	Radium-226	pci/l	18	1	6%	0.00131	0.743	↔	-0.00178	0.328	↔	0.000725	0.660	↔	2020-09-08	2021-08-03	0.174	↔
1_3_121	W-1	Supplemental	Radium-228	pci/l	18	2	11%	-0.00301	0.461	↔	0.0157	0.620	↔	-0.00516	0.153	↔	2021-03-16	2021-08-10	0.276	↔
1_3_124	W-1	Supplemental	Temperature (field)	deg c	12	0	0%	0.543	0.135	↔	-0.292	0.268	↔	0.0295	0.922	↔	2021-04-19	2022-03-14	0.455	↔
1_3_128	W-1	Supplemental	Total Suspended Solids	mg/l	18	0	0%	-0.977	0.000	↓	-0.119	0.086	↔	0.00193	0.967	↔	2020-10-28	2021-09-08	0.971	↔
2_1_107	W-11	Appendix III	Calcium	mg/l	9	0	0%	-2.42	0.224	↔	3.10	0.588	↔	-0.653	0.475	↔	2021-07-15	2022-02-02	0.766	↔
2_1_111	W-11	Appendix III	Fluoride	mg/l	9	1	11%	-0.0394	0.790	↔	0.105	0.519	↔	-0.0587	0.610	↔	2021-11-15	2022-04-01	0.243	↔
2_1_123	W-11	Appendix III	Sulfate (as SO4)	mg/l	9	0	0%	206	0.310	↔	-770	0.742	↔	80.3	0.860	↔	2022-01-13	2022-04-19	0.408	↔
2_2_104	W-11	Appendix IV	Beryllium	mg/l	8	6	75%	-0.00000507	0.935	↔	0.000149	0.594	↔	-0.0000731	0.554	↔	2021-12-21	2022-04-01	0.431	↔
2_2_106	W-11	Appendix IV	Cadmium	mg/l	9	2	22%	-0.00000352	0.848	↔	0.0000233	0.286	↔	-0.0000112	0.448	↔	2021-11-03	2022-04-01	0.558	↔
2_2_109	W-11	Appendix IV	Chromium, Total	mg/l	9	5	56%	-0.0000753	0.881	↔	0.000490	0.554	↔	-0.000276	0.392	↔	2021-11-09	2022-03-31	0.419	↔
2_2_110	W-11	Appendix IV	Cobalt	mg/l	9	1	11%	-0.0000406	0.437	↔	0.0000640	0.692	↔	-0.00000206	0.934	↔	2021-05-29	2022-02-21	0.871	↔

(Table continues on next page)

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Line 1			Line 2			Line 3			Break 1	Break 2	R-Squared	Overall Trend
								Slope	p-Value	Trend	Slope	p-Value	Trend	Slope	p-Value	Trend				
2_2_112	W-11	Appendix IV	Fluoride (App IV)	mg/l	9	1	11%	-0.0394	0.790	↔	0.105	0.519	↔	-0.0587	0.610	↔	2021-11-15	2022-04-01	0.243	↔
2_2_114	W-11	Appendix IV	Lithium	mg/l	9	0	0%	-0.0263	0.064	↔	0.0169	0.607	↔	-0.00179	0.724	↔	2021-06-25	2022-02-24	0.829	↔
2_2_116	W-11	Appendix IV	Molybdenum	mg/l	9	5	56%	-0.0000788	0.884	↔	0.000522	0.395	↔	-0.000293	0.495	↔	2021-11-08	2022-04-01	0.420	↔
2_3_124	W-11	Supplemental	Temperature (field)	deg c	9	0	0%	0.0203	0.184	↔	-0.0514	0.270	↔	0.0106	0.174	↔	2021-10-03	2022-02-24	0.865	↔
2_3_125	W-11	Supplemental	Temperature (lab)	deg c	9	0	0%	0.00964	0.035	↔	-0.0254	0.300	↔	0.00979	0.084	↔	2021-12-28	2022-03-31	0.897	↔
3_1_107	W-12	Appendix III	Calcium	mg/l	9	0	0%	-0.140	0.881	↔	2.83	0.672	↔	-0.509	0.713	↔	2021-12-02	2022-03-03	0.401	↔
3_1_111	W-12	Appendix III	Fluoride	mg/l	9	2	22%	-0.0222	0.876	↔	0.134	0.553	↔	-0.0716	0.431	↔	2021-11-13	2022-03-31	0.380	↔
3_2_102	W-12	Appendix IV	Arsenic	mg/l	9	8	89%	0.0000195	0.241	↔	-0.0000141	0.395	↔	0.000000113	0.992	↔	2021-07-26	2022-04-19	0.605	↔
3_2_103	W-12	Appendix IV	Barium	mg/l	9	1	11%	-0.0000635	0.854	↔	0.000342	0.385	↔	-0.000183	0.510	↔	2021-11-10	2022-04-01	0.400	↔
3_2_106	W-12	Appendix IV	Cadmium	mg/l	9	2	22%	-0.00000494	0.803	↔	0.0000237	0.460	↔	-0.00000994	0.433	↔	2021-11-11	2022-03-31	0.462	↔
3_2_109	W-12	Appendix IV	Chromium, Total	mg/l	9	5	56%	-0.0000722	0.891	↔	0.000466	0.577	↔	-0.000257	0.446	↔	2021-11-13	2022-03-31	0.359	↔
3_2_112	W-12	Appendix IV	Fluoride (App IV)	mg/l	9	2	22%	-0.0222	0.876	↔	0.134	0.553	↔	-0.0716	0.431	↔	2021-11-13	2022-03-31	0.380	↔
3_2_122	W-12	Appendix IV	Selenium	mg/l	9	1	11%	-0.000106	0.714	↔	0.000399	0.249	↔	-0.000256	0.299	↔	2021-10-19	2022-04-01	0.619	↔
3_2_126	W-12	Appendix IV	Thallium	mg/l	9	1	11%	-0.0000173	0.868	↔	0.000104	0.532	↔	-0.0000568	0.399	↔	2021-11-12	2022-03-31	0.412	↔
3_3_119	W-12	Supplemental	Radium-226	pci/l	8	0	0%	-0.00103	0.344	↔	0.00255	0.406	↔	-0.000149	0.797	↔	2021-10-17	2022-03-12	0.795	↔
3_3_121	W-12	Supplemental	Radium-228	pci/l	8	1	12%	0.00573	0.548	↔	0.000826	0.815	↔	0.00486	0.212	↔	2021-04-12	2022-01-28	0.839	↔
4_1_111	W-14	Appendix III	Fluoride	mg/l	7	0	0%	-0.848	0.383	↔	0.464	0.323	↔	-1.20	0.302	↔	2022-05-11	2022-09-15	0.907	↔
4_2_102	W-14	Appendix IV	Arsenic	mg/l	7	1	14%	-0.000000624	0.432	↔	0.000000250	0.814	↔	-0.00000212	0.282	↔	2022-07-09	2022-09-07	0.968	↔
4_2_104	W-14	Appendix IV	Beryllium	mg/l	7	3	43%	0.00000657	0.231	↔	-0.00000667	0.207	↔	0.000000714	0.677	↔	2022-05-23	2022-07-15	0.949	↔
4_2_106	W-14	Appendix IV	Cadmium	mg/l	7	0	0%	-0.00000114	0.921	↔	0.00000432	0.477	↔	-0.00000497	0.697	↔	2022-05-23	2022-08-24	0.694	↔
4_2_109	W-14	Appendix IV	Chromium, Total	mg/l	7	1	14%	-0.00309	0.002	↓	0.0000159	0.262	↔	-0.00000949	0.253	↔	2022-05-06	2022-08-05	1.000	↔
4_2_110	W-14	Appendix IV	Cobalt	mg/l	7	0	0%	-0.0000571	0.174	↔	0.0000256	0.325	↔	-0.0000148	0.323	↔	2022-05-27	2022-08-19	0.971	↔
4_2_112	W-14	Appendix IV	Fluoride (App IV)	mg/l	7	0	0%	-0.848	0.383	↔	0.464	0.323	↔	-1.20	0.302	↔	2022-05-11	2022-09-15	0.907	↔
4_2_120	W-14	Appendix IV	Radium-226+228	pci/l	7	0	0%	-0.00292	0.759	↔	0.0495	0.153	↔	-0.0406	0.222	↔	2022-06-13	2022-09-06	0.991	↔
4_2_122	W-14	Appendix IV	Selenium	mg/l	7	0	0%	-0.00286	0.337	↔	0.00126	0.338	↔	-0.00303	0.337	↔	2022-05-11	2022-09-13	0.900	↔
4_2_126	W-14	Appendix IV	Thallium	mg/l	7	1	14%	-0.000683	0.001	↓	0.0000128	0.067	↔	-0.00000442	0.110	↔	2022-05-06	2022-07-18	1.000	↔
4_3_125	W-14	Supplemental	Temperature (lab)	deg c	7	0	0%	0.0393	0.504	↔	-0.0500	0.585	↔	0.0576	0.601	↔	2022-07-03	2022-09-12	0.699	↔
5_1_108	W-16	Appendix III	Chloride (as Cl)	mg/l	7	0	0%	0.123	0.492	↔	-0.371	0.314	↔	1.23	0.130	↔	2022-06-08	2022-09-19	0.975	↔
5_1_123	W-16	Appendix III	Sulfate (as SO4)	mg/l	7	0	0%	0.0000000736	1.000	↔	-27.0	0.321	↔	15.1	0.317	↔	2022-06-07	2022-07-26	0.894	↔
5_3_124	W-16	Supplemental	Temperature (field)	deg c	7	0	0%	0.194	0.019	↔	-0.0570	0.061	↔	-0.0195	0.097	↔	2022-05-13	2022-07-18	0.999	↔
6_1_107	W-3B	Appendix III	Calcium	mg/l	9	0	0%	-2.40	0.007	↓	6.00	0.004	↑	0.00320	0.987	↔	2022-03-19	2022-05-10	0.988	↔
6_2_102	W-3B	Appendix IV	Arsenic	mg/l	8	3	38%	-0.0000411	0.025	↔	-0.000000780	0.962	↔	0.000000480	0.928	↔	2022-02-25	2022-06-26	0.977	↔
6_2_103	W-3B	Appendix IV	Barium	mg/l	9	1	11%	0.000498	0.407	↔	-0.000664	0.324	↔	0.0000926	0.817	↔	2022-03-30	2022-06-16	0.524	↔
6_2_104	W-3B	Appendix IV	Beryllium	mg/l	9	6	67%	0.000162	0.427	↔	-0.000259	0.270	↔	0.0000336	0.806	↔	2022-03-30	2022-06-15	0.567	↔
6_2_106	W-3B	Appendix IV	Cadmium	mg/l	9	0	0%	0.000118	0.061	↔	-0.000167	0.022	↔	0.00000473	0.552	↔	2022-02-13	2022-04-05	0.943	↔
6_2_109	W-3B	Appendix IV	Chromium, Total	mg/l	9	4	44%	0.000651	0.465	↔	-0.000989	0.329	↔	0.000128	0.832	↔	2022-03-30	2022-06-16	0.503	↔
6_2_113	W-3B	Appendix IV	Lead	mg/l	9	4	44%	0.000151	0.402	↔	-0.000224	0.276	↔	0.0000286	0.812	↔	2022-03-30	2022-06-15	0.567	↔
6_2_114	W-3B	Appendix IV	Lithium	mg/l	9	0	0%	0.00781	0.033	↔	-0.00434	0.152	↔	0.00187	0.295	↔	2022-03-28	2022-06-20	0.933	↔
6_2_115	W-3B	Appendix IV	Mercury	mg/l	9	9	100%	-0.000000257	0.471	↔	-0.000000827	0.305	↔	0.0000000511	0.769	↔	2022-03-16	2022-05-27	0.919	↔
6_2_122	W-3B	Appendix IV	Selenium	mg/l	9	1	11%	0.000506	0.309	↔	-0.000777	0.628	↔	0.0000903	0.858	↔	2022-03-31	2022-06-15	0.472	↔
6_2_126	W-3B	Appendix IV	Thallium	mg/l	9	1	11%	0.000164	0.192	↔	-0.000229	0.549	↔	0.0000225	0.850	↔	2022-03-31	2022-06-10	0.576	↔
6_3_119	W-3B	Supplemental	Radium-226	pci/l	9	0	0%	0.0109	0.069	↔	-0.00976	0.331	↔	0.00106	0.632	↔	2022-03-22	2022-06-07	0.846	↔

(Table continues on next page)

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Line 1			Line 2			Line 3			Break 1	Break 2	R-Squared	Overall Trend
								Slope	p-Value	Trend	Slope	p-Value	Trend	Slope	p-Value	Trend				
6_3_124	W-3B	Supplemental	Temperature (field)	deg c	9	0	0%	0.0108	0.925	↔	0.0621	0.152	↔	-0.0428	0.296	↔	2022-02-22	2022-06-21	0.772	↔
6_3_128	W-3B	Supplemental	Total Suspended Solids	mg/l	9	0	0%	0.143	0.419	↔	-0.188	0.341	↔	0.0993	0.427	↔	2022-03-30	2022-06-18	0.532	↔
7_1_117	W-5B	Appendix III	pH (field)	su	12	0	0%	0.000143	0.885	↔	-0.00718	0.364	↔	0.00612	0.246	↔	2022-03-05	2022-06-07	0.462	↔
7_1_118	W-5B	Appendix III	pH (lab)	su	12	0	0%	0.000642	0.097	↔	-0.00189	0.394	↔	0.000592	0.565	↔	2022-01-18	2022-06-06	0.560	↔
7_1_123	W-5B	Appendix III	Sulfate (as SO4)	mg/l	12	0	0%	-0.0411	0.953	↔	6.60	0.624	↔	-5.56	0.200	↔	2022-04-24	2022-07-13	0.410	↔
7_2_101	W-5B	Appendix IV	Antimony	mg/l	12	11	92%	0.00000330	0.659	↔	-0.0000475	0.657	↔	0.00000405	0.878	↔	2022-02-25	2022-05-13	0.336	↔
7_2_102	W-5B	Appendix IV	Arsenic	mg/l	12	8	67%	-0.0000759	0.098	↔	0.0000104	0.465	↔	-0.0000165	0.191	↔	2021-04-23	2022-02-24	0.604	↔
7_2_104	W-5B	Appendix IV	Beryllium	mg/l	11	9	82%	-0.0000328	0.084	↔	0.0000291	0.368	↔	-0.0000113	0.050	↔	2021-07-23	2022-01-30	0.733	↔
7_2_106	W-5B	Appendix IV	Cadmium	mg/l	12	2	17%	-0.00000685	0.027	↔	0.00000000314	0.998	↔	0.0000295	0.001	↑	2021-07-06	2022-08-20	0.937	↔
7_2_109	W-5B	Appendix IV	Chromium, Total	mg/l	12	11	92%	-0.0000782	0.092	↔	0.0000420	0.515	↔	-0.0000398	0.115	↔	2021-06-19	2022-02-25	0.612	↔
7_2_110	W-5B	Appendix IV	Cobalt	mg/l	12	0	0%	-0.00000197	0.030	↔	-0.00000642	0.102	↔	0.00000231	0.697	↔	2022-03-25	2022-07-14	0.882	↔
7_2_113	W-5B	Appendix IV	Lead	mg/l	12	8	67%	-0.0000454	0.017	↔	0.00000537	0.226	↔	-0.00000724	0.189	↔	2021-04-25	2022-02-25	0.792	↔
7_2_114	W-5B	Appendix IV	Lithium	mg/l	12	0	0%	-0.0000453	0.579	↔	0.000794	0.229	↔	-0.000559	0.198	↔	2022-03-29	2022-07-10	0.589	↔
7_2_115	W-5B	Appendix IV	Mercury	mg/l	11	11	100%	-0.00000419	0.406	↔	0.000000600	0.749	↔	-0.000000634	0.871	↔	2021-09-13	2022-06-14	0.711	↔
7_2_116	W-5B	Appendix IV	Molybdenum	mg/l	12	4	33%	-0.0000743	0.116	↔	0.000170	0.216	↔	-0.0000343	0.112	↔	2021-09-29	2022-01-23	0.598	↔
7_2_122	W-5B	Appendix IV	Selenium	mg/l	12	5	42%	-0.0000633	0.092	↔	0.0000785	0.162	↔	-0.0000368	0.080	↔	2021-09-01	2022-02-25	0.656	↔
7_3_124	W-5B	Supplemental	Temperature (field)	deg c	12	0	0%	-0.00119	0.616	↔	0.133	0.021	↔	-0.0394	0.022	↔	2022-04-29	2022-06-13	0.872	↔
7_3_125	W-5B	Supplemental	Temperature (lab)	deg c	12	0	0%	0.00954	0.204	↔	-0.0240	0.254	↔	0.0124	0.440	↔	2022-01-13	2022-05-10	0.448	↔
7_3_128	W-5B	Supplemental	Total Suspended Solids	mg/l	12	6	50%	-0.00602	0.590	↔	-0.00123	0.528	↔	0.0184	0.232	↔	2021-04-26	2022-08-22	0.446	↔
8_1_107	W-6B1	Appendix III	Calcium	mg/l	9	0	0%	-1.82	0.372	↔	1.83	0.108	↔	-0.0795	0.849	↔	2022-01-16	2022-06-06	0.937	↔
8_2_102	W-6B1	Appendix IV	Arsenic	mg/l	9	3	33%	0.0000402	0.753	↔	-0.0000366	0.371	↔	0.0000206	0.750	↔	2022-01-25	2022-06-29	0.449	↔
8_2_103	W-6B1	Appendix IV	Barium	mg/l	9	1	11%	0.000466	0.422	↔	-0.000622	0.343	↔	0.000172	0.791	↔	2022-03-29	2022-06-25	0.480	↔
8_2_104	W-6B1	Appendix IV	Beryllium	mg/l	9	5	56%	0.000163	0.233	↔	-0.000270	0.545	↔	0.0000543	0.804	↔	2022-03-30	2022-06-21	0.578	↔
8_2_109	W-6B1	Appendix IV	Chromium, Total	mg/l	9	5	56%	0.000684	0.395	↔	-0.00112	0.237	↔	0.000186	0.835	↔	2022-03-29	2022-06-16	0.578	↔
8_2_113	W-6B1	Appendix IV	Lead	mg/l	9	4	44%	0.000149	0.401	↔	-0.000227	0.271	↔	0.0000604	0.760	↔	2022-03-29	2022-06-26	0.558	↔
8_2_114	W-6B1	Appendix IV	Lithium	mg/l	9	0	0%	0.0148	0.004	↑	-0.0101	0.236	↔	0.000134	0.972	↔	2022-03-30	2022-06-28	0.959	↔
8_2_115	W-6B1	Appendix IV	Mercury	mg/l	9	9	100%	-0.000000260	0.439	↔	-0.000000849	0.257	↔	0.0000000568	0.731	↔	2022-03-17	2022-05-27	0.926	↔
8_2_116	W-6B1	Appendix IV	Molybdenum	mg/l	9	3	33%	0.000769	0.376	↔	-0.00113	0.262	↔	0.000294	0.760	↔	2022-03-29	2022-06-25	0.572	↔
8_2_122	W-6B1	Appendix IV	Selenium	mg/l	9	2	22%	0.000628	0.172	↔	-0.000967	0.502	↔	0.000211	0.764	↔	2022-03-30	2022-06-20	0.631	↔
8_3_121	W-6B1	Supplemental	Radium-228	pci/l	9	0	0%	-0.0346	0.097	↔	0.0574	0.170	↔	-0.123	0.251	↔	2022-05-27	2022-09-12	0.790	↔
8_3_124	W-6B1	Supplemental	Temperature (field)	deg c	9	0	0%	-0.0383	0.088	↔	0.0878	0.014	↔	-0.0300	0.197	↔	2022-03-13	2022-06-08	0.944	↔
9_1_105	W-7	Appendix III	Boron	mg/l	17	2	12%	0.0161	0.195	↔	-0.0164	0.594	↔	-0.00283	0.141	↔	2020-12-03	2021-04-01	0.710	↔
9_1_108	W-7	Appendix III	Chloride (as Cl)	mg/l	17	0	0%	-0.209	0.862	↔	1.30	0.192	↔	-0.518	0.042	↔	2020-11-30	2021-05-26	0.490	↔
9_1_117	W-7	Appendix III	pH (field)	su	17	0	0%	0.000805	0.155	↔	-0.00107	0.832	↔	-0.0000519	0.948	↔	2021-05-27	2022-01-29	0.303	↔
9_1_127	W-7	Appendix III	Total Dissolved Solids	mg/l	17	0	0%	675	0.022	↔	-423	0.060	↔	47.6	0.348	↔	2020-12-03	2021-05-09	0.618	↔
9_2_101	W-7	Appendix IV	Antimony	mg/l	17	13	76%	0.0000520	0.171	↔	-0.00000133	0.855	↔	-0.0000154	0.295	↔	2020-12-01	2022-01-15	0.385	↔
9_2_102	W-7	Appendix IV	Arsenic	mg/l	17	2	12%	0.0000439	0.034	↔	-0.0000820	0.320	↔	0.00000339	0.916	↔	2021-05-27	2022-03-11	0.762	↔
9_2_104	W-7	Appendix IV	Beryllium	mg/l	16	14	88%	0.00000896	0.909	↔	0.0000146	0.466	↔	-0.0000434	0.344	↔	2020-12-09	2022-03-30	0.235	↔
9_2_106	W-7	Appendix IV	Cadmium	mg/l	17	0	0%	0.0000752	0.014	↔	-0.0000665	0.789	↔	0.00000240	0.951	↔	2021-05-27	2022-01-26	0.446	↔
9_2_110	W-7	Appendix IV	Cobalt	mg/l	17	0	0%	0.000112	0.044	↔	-0.0000922	0.139	↔	0.0000199	0.717	↔	2021-05-26	2022-01-20	0.471	↔
9_2_114	W-7	Appendix IV	Lithium	mg/l	17	0	0%	-0.00209	0.391	↔	0.0310	0.184	↔	-0.00167	0.640	↔	2021-11-06	2022-02-03	0.710	↔
9_2_115	W-7	Appendix IV	Mercury	mg/l	16	10	62%	0.00000435	0.086	↔	-0.00000156	0.391	↔	-0.0000000758	0.955	↔	2021-01-14	2021-12-10	0.367	↔

(Table continues on next page)

Table 10: Trend Tests: Piecewise Linear-Linear-Linear (continued)

ID	Well	Constituent Type	Constituent	Unit	n	No. NDs	% NDs	Line 1			Line 2			Line 3			Break 1	Break 2	R-Squared	Overall Trend
								Slope	p-Value	Trend	Slope	p-Value	Trend	Slope	p-Value	Trend				
9_2_116	W-7	Appendix IV	Molybdenum	mg/l	17	7	41%	-0.00000578	0.920	↔	0.000604	0.210	↔	-0.000298	0.167	↔	2021-12-29	2022-03-31	0.423	↔
9_2_120	W-7	Appendix IV	Radium-226+228	pci/l	15	0	0%	-0.0283	0.635	↔	0.00350	0.206	↔	-0.00424	0.580	↔	2020-10-06	2022-03-14	0.304	↔
9_2_126	W-7	Appendix IV	Thallium	mg/l	17	1	6%	-0.00000247	0.985	↔	0.0000856	0.233	↔	-0.0000333	0.376	↔	2020-11-23	2021-05-27	0.295	↔
9_3_121	W-7	Supplemental	Radium-228	pci/l	16	1	6%	-0.00261	0.756	↔	0.00473	0.047	↔	-0.00469	0.338	↔	2021-01-01	2022-03-01	0.582	↔
9_3_128	W-7	Supplemental	Total Suspended Solids	mg/l	17	0	0%	-3.37	0.035	↔	0.811	0.588	↔	-0.0941	0.031	↔	2020-09-27	2020-11-08	0.651	↔

Comanche Bottom Ash Pond – Upper Confidence Limits for Assessment Monitoring

Code	Well	Type	Constituent	Unit	n	% NDs	Range of Sampling Period	Method	LCL**
1_2_101	W-1	Appendix IV	Antimony	mg/l	18	72%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.00057
1_2_102	W-1	Appendix IV	Arsenic	mg/l	18	17%	2020-03-05 to 2020-11-30	Normal MLE LCL	0.0054
1_2_103	W-1	Appendix IV	Barium	mg/l	18	17%	2020-03-05 to 2020-11-30	Lognormal MLE Likelihood Profile LCL	0.021
1_2_104	W-1	Appendix IV	Beryllium	mg/l	17	88%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.00031
1_2_106	W-1	Appendix IV	Cadmium	mg/l	18	50%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.00041
1_2_109	W-1	Appendix IV	Chromium, Total	mg/l	18	44%	2020-03-05 to 2020-11-30	Gamma MLE Bootstrap LCL	0.0029
1_2_110	W-1	Appendix IV	Cobalt	mg/l	18	39%	2020-03-05 to 2020-11-30	Normal MLE LCL	0.00083
1_2_112	W-1	Appendix IV	Fluoride (App IV)	mg/l	18	6%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	3.1
1_2_113	W-1	Appendix IV	Lead	mg/l	18	50%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.0014
1_2_114	W-1	Appendix IV	Lithium	mg/l	18	0%	2020-03-05 to 2020-11-30	Normal LCL	2.0
1_2_115	W-1	Appendix IV	Mercury	mg/l	17	100%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.00013
1_2_116	W-1	Appendix IV	Molybdenum	mg/l	18	6%	2020-03-05 to 2020-11-30	Normal MLE LCL	0.019
1_2_120	W-1	Appendix IV	Radium-226+228	pci/l	18	0%	2020-03-05 to 2020-11-30	Adjusted Gamma LCL	1.8
1_2_122	W-1	Appendix IV	Selenium	mg/l	18	0%	2020-03-05 to 2020-11-30	Adjusted Gamma LCL	0.78
1_2_126	W-1	Appendix IV	Thallium	mg/l	18	61%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.00033
2_2_101	W-11	Appendix IV	Antimony	mg/l	9	78%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.00040
2_2_102	W-11	Appendix IV	Arsenic	mg/l	9	33%	2020-03-05 to 2020-11-30	Gamma MLE Bootstrap LCL	0.0023
2_2_103	W-11	Appendix IV	Barium	mg/l	9	11%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.013
2_2_104	W-11	Appendix IV	Beryllium	mg/l	8	75%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.00016
2_2_106	W-11	Appendix IV	Cadmium	mg/l	9	22%	2020-03-05 to 2020-11-30	Normal MLE LCL	0.00086
2_2_109	W-11	Appendix IV	Chromium, Total	mg/l	9	56%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.0010
2_2_110	W-11	Appendix IV	Cobalt	mg/l	9	11%	2020-03-05 to 2020-11-30	Normal MLE LCL	0.0095
2_2_112	W-11	Appendix IV	Fluoride (App IV)	mg/l	9	11%	2020-03-05 to 2020-11-30	Gamma MLE Bootstrap LCL	0.69
2_2_113	W-11	Appendix IV	Lead	mg/l	9	78%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.00045
2_2_114	W-11	Appendix IV	Lithium	mg/l	9	0%	2020-03-05 to 2020-11-30	Normal LCL	2.4
2_2_115	W-11	Appendix IV	Mercury	mg/l	8	100%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.000061
2_2_116	W-11	Appendix IV	Molybdenum	mg/l	9	56%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.0037
2_2_120	W-11	Appendix IV	Radium-226+228	pci/l	8	0%	2020-03-05 to 2020-11-30	Adjusted Gamma LCL	3.1
2_2_122	W-11	Appendix IV	Selenium	mg/l	9	11%	2020-03-05 to 2020-11-30	Normal MLE LCL	2.6
2_2_126	W-11	Appendix IV	Thallium	mg/l	9	22%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.0034
3_2_101	W-12	Appendix IV	Antimony	mg/l	9	33%	2020-03-05 to 2020-11-30	Normal MLE LCL	0.00062
3_2_102	W-12	Appendix IV	Arsenic	mg/l	9	89%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.00033
3_2_103	W-12	Appendix IV	Barium	mg/l	9	11%	2020-03-05 to 2020-11-30	Normal MLE LCL	0.014
3_2_104	W-12	Appendix IV	Beryllium	mg/l	8	75%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.00025
3_2_106	W-12	Appendix IV	Cadmium	mg/l	9	22%	2020-03-05 to 2020-11-30	Normal MLE LCL	0.00093
3_2_109	W-12	Appendix IV	Chromium, Total	mg/l	9	56%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.00098
3_2_110	W-12	Appendix IV	Cobalt	mg/l	9	0%	2020-03-05 to 2020-11-30	Normal LCL	0.023
3_2_112	W-12	Appendix IV	Fluoride (App IV)	mg/l	9	22%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.17
3_2_113	W-12	Appendix IV	Lead	mg/l	9	100%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.00018
3_2_114	W-12	Appendix IV	Lithium	mg/l	9	0%	2020-03-05 to 2020-11-30	Normal LCL	1.8
3_2_115	W-12	Appendix IV	Mercury	mg/l	8	100%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.000061
3_2_116	W-12	Appendix IV	Molybdenum	mg/l	9	44%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.0039
3_2_120	W-12	Appendix IV	Radium-226+228	pci/l	8	0%	2020-03-05 to 2020-11-30	Normal LCL	2.2
3_2_122	W-12	Appendix IV	Selenium	mg/l	9	11%	2020-03-05 to 2020-11-30	Normal MLE LCL	0.020
3_2_126	W-12	Appendix IV	Thallium	mg/l	9	11%	2020-03-05 to 2020-11-30	Gamma MLE Bootstrap LCL	0.0035
4_2_101	W-14	Appendix IV	Antimony	mg/l	7	0%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.00042
4_2_102	W-14	Appendix IV	Arsenic	mg/l	7	14%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.00033
4_2_103	W-14	Appendix IV	Barium	mg/l	7	14%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.014
4_2_104	W-14	Appendix IV	Beryllium	mg/l	7	43%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.000080
4_2_106	W-14	Appendix IV	Cadmium	mg/l	7	0%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.00097
4_2_109	W-14	Appendix IV	Chromium, Total	mg/l	7	14%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.00068
4_2_110	W-14	Appendix IV	Cobalt	mg/l	7	0%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.010
4_2_112	W-14	Appendix IV	Fluoride (App IV)	mg/l	7	0%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.29
4_2_113	W-14	Appendix IV	Lead	mg/l	7	71%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.00018
4_2_114	W-14	Appendix IV	Lithium	mg/l	7	0%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	3.3
4_2_115	W-14	Appendix IV	Mercury	mg/l	7	100%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.000061
4_2_116	W-14	Appendix IV	Molybdenum	mg/l	7	14%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.015
4_2_120	W-14	Appendix IV	Radium-226+228	pci/l	7	0%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	1.9
4_2_122	W-14	Appendix IV	Selenium	mg/l	7	0%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	1.2
4_2_126	W-14	Appendix IV	Thallium	mg/l	7	14%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.0020
5_2_101	W-16	Appendix IV	Antimony	mg/l	4	50%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.00040
5_2_102	W-16	Appendix IV	Arsenic	mg/l	4	50%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.00033
5_2_103	W-16	Appendix IV	Barium	mg/l	4	25%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.012
5_2_104	W-16	Appendix IV	Beryllium	mg/l	4	75%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.000080
5_2_106	W-16	Appendix IV	Cadmium	mg/l	4	25%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.0021
5_2_109	W-16	Appendix IV	Chromium, Total	mg/l	4	100%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.00050
5_2_110	W-16	Appendix IV	Cobalt	mg/l	7	14%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.011
5_2_112	W-16	Appendix IV	Fluoride (App IV)	mg/l	4	0%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.32
5_2_113	W-16	Appendix IV	Lead	mg/l	4	50%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.00018
5_2_114	W-16	Appendix IV	Lithium	mg/l	4	0%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	2.3
5_2_115	W-16	Appendix IV	Mercury	mg/l	4	100%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.000061
5_2_116	W-16	Appendix IV	Molybdenum	mg/l	4	25%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.0032
5_2_120	W-16	Appendix IV	Radium-226+228	pci/l	4	0%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	1.7
5_2_122	W-16	Appendix IV	Selenium	mg/l	4	0%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.098
5_2_126	W-16	Appendix IV	Thallium	mg/l	4	25%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.0048
6_2_101	W-38	Appendix IV	Antimony	mg/l	8	50%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.00041
6_2_102	W-38	Appendix IV	Arsenic	mg/l	8	38%	2020-03-05 to 2020-11-30	Normal MLE LCL	0.00068
6_2_103	W-38	Appendix IV	Barium	mg/l	9	11%	2020-03-05 to 2020-11-30	Normal MLE LCL	0.014
6_2_104	W-38	Appendix IV	Beryllium	mg/l	9	67%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.000080
6_2_106	W-38	Appendix IV	Cadmium	mg/l	9	0%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.017

6_2_109	W-3B	Appendix IV	Chromium, Total	mg/l	9	44%	2020-03-05 to 2020-11-30	Normal MLE LCL	0.00056
6_2_110	W-3B	Appendix IV	Cobalt	mg/l	9	0%	2020-03-05 to 2020-11-30	Normal LCL	0.077
6_2_112	W-3B	Appendix IV	Fluoride (App IV)	mg/l	9	56%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.17
6_2_113	W-3B	Appendix IV	Lead	mg/l	9	44%	2020-03-05 to 2020-11-30	Normal MLE LCL	0.00054
6_2_114	W-3B	Appendix IV	Lithium	mg/l	9	0%	2020-03-05 to 2020-11-30	Normal LCL	2.9
6_2_115	W-3B	Appendix IV	Mercury	mg/l	9	100%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.000061
6_2_116	W-3B	Appendix IV	Molybdenum	mg/l	9	33%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.0017
6_2_120	W-3B	Appendix IV	Radium-226+228	pci/l	9	0%	2020-03-05 to 2020-11-30	Normal LCL	10
6_2_122	W-3B	Appendix IV	Selenium	mg/l	9	11%	2020-03-05 to 2020-11-30	Normal MLE LCL	0.0066
6_2_126	W-3B	Appendix IV	Thallium	mg/l	9	11%	2020-03-05 to 2020-11-30	Normal MLE LCL	0.0028
7_2_101	W-5B	Appendix IV	Antimony	mg/l	12	92%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.00040
7_2_102	W-5B	Appendix IV	Arsenic	mg/l	12	67%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.00033
7_2_103	W-5B	Appendix IV	Barium	mg/l	12	8%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.017
7_2_104	W-5B	Appendix IV	Beryllium	mg/l	11	82%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.000080
7_2_106	W-5B	Appendix IV	Cadmium	mg/l	12	17%	2020-03-05 to 2020-11-30	Normal MLE LCL	0.00069
7_2_109	W-5B	Appendix IV	Chromium, Total	mg/l	12	92%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.00050
7_2_110	W-5B	Appendix IV	Cobalt	mg/l	12	0%	2020-03-05 to 2020-11-30	Normal LCL	0.0027
7_2_112	W-5B	Appendix IV	Fluoride (App IV)	mg/l	12	8%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.19
7_2_113	W-5B	Appendix IV	Lead	mg/l	12	67%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.00020
7_2_114	W-5B	Appendix IV	Lithium	mg/l	12	0%	2020-03-05 to 2020-11-30	Normal LCL	0.26
7_2_115	W-5B	Appendix IV	Mercury	mg/l	11	100%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.000061
7_2_116	W-5B	Appendix IV	Molybdenum	mg/l	12	33%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.0017
7_2_120	W-5B	Appendix IV	Radium-226+228	pci/l	11	0%	2020-03-05 to 2020-11-30	Adjusted Gamma LCL	1.8
7_2_122	W-5B	Appendix IV	Selenium	mg/l	12	42%	2020-03-05 to 2020-11-30	Normal MLE LCL	0.00025
7_2_126	W-5B	Appendix IV	Thallium	mg/l	12	33%	2020-03-05 to 2020-11-30	Normal MLE LCL	0.00074
8_2_101	W-6B/6B	Appendix IV	Antimony	mg/l	9	44%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.00040
8_2_102	W-6B/6B	Appendix IV	Arsenic	mg/l	9	33%	2020-03-05 to 2020-11-30	Normal MLE LCL	0.00059
8_2_103	W-6B/6B	Appendix IV	Barium	mg/l	9	11%	2020-03-05 to 2020-11-30	Normal MLE LCL	0.017
8_2_104	W-6B/6B	Appendix IV	Beryllium	mg/l	9	56%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.000091
8_2_106	W-6B/6B	Appendix IV	Cadmium	mg/l	9	0%	2020-03-05 to 2020-11-30	Lognormal H-LCL	0.012
8_2_109	W-6B/6B	Appendix IV	Chromium, Total	mg/l	9	56%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.00085
8_2_110	W-6B/6B	Appendix IV	Cobalt	mg/l	9	0%	2020-03-05 to 2020-11-30	Normal LCL	0.074
8_2_112	W-6B/6B	Appendix IV	Fluoride (App IV)	mg/l	9	56%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.17
8_2_113	W-6B/6B	Appendix IV	Lead	mg/l	9	44%	2020-03-05 to 2020-11-30	Normal MLE LCL	0.00034
8_2_114	W-6B/6B	Appendix IV	Lithium	mg/l	9	0%	2020-03-05 to 2020-11-30	Normal LCL	3.4
8_2_115	W-6B/6B	Appendix IV	Mercury	mg/l	9	100%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.000061
8_2_116	W-6B/6B	Appendix IV	Molybdenum	mg/l	9	33%	2020-03-05 to 2020-11-30	Normal MLE LCL	0.0042
8_2_120	W-6B/6B	Appendix IV	Radium-226+228	pci/l	9	0%	2020-03-05 to 2020-11-30	Normal LCL	8.4
8_2_122	W-6B/6B	Appendix IV	Selenium	mg/l	9	22%	2020-03-05 to 2020-11-30	Normal MLE LCL	0.0037
8_2_126	W-6B/6B	Appendix IV	Thallium	mg/l	9	11%	2020-03-05 to 2020-11-30	Normal MLE LCL	0.0026
9_2_101	W-7	Appendix IV	Antimony	mg/l	17	76%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.00057
9_2_102	W-7	Appendix IV	Arsenic	mg/l	17	12%	2020-03-05 to 2020-11-30	Normal MLE LCL	0.0065
9_2_103	W-7	Appendix IV	Barium	mg/l	17	24%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.014
9_2_104	W-7	Appendix IV	Beryllium	mg/l	16	88%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.00031
9_2_106	W-7	Appendix IV	Cadmium	mg/l	17	0%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.0056
9_2_109	W-7	Appendix IV	Chromium, Total	mg/l	17	53%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.0018
9_2_110	W-7	Appendix IV	Cobalt	mg/l	17	0%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.016
9_2_112	W-7	Appendix IV	Fluoride (App IV)	mg/l	17	41%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.17
9_2_113	W-7	Appendix IV	Lead	mg/l	17	47%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.00084
9_2_114	W-7	Appendix IV	Lithium	mg/l	17	0%	2020-03-05 to 2020-11-30	Normal LCL	3.5
9_2_115	W-7	Appendix IV	Mercury	mg/l	16	62%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.00013
9_2_116	W-7	Appendix IV	Molybdenum	mg/l	17	41%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.0052
9_2_120	W-7	Appendix IV	Radium-226+228	pci/l	15	0%	2020-03-05 to 2020-11-30	Normal LCL	4.2
9_2_122	W-7	Appendix IV	Selenium	mg/l	17	0%	2020-03-05 to 2020-11-30	Normal LCL	1.6
9_2_126	W-7	Appendix IV	Thallium	mg/l	17	6%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.0047
10_2_101	W-9	Appendix IV	Antimony	mg/l	9	44%	2020-03-05 to 2020-11-30	Gamma MLE Bootstrap LCL	0.00066
10_2_102	W-9	Appendix IV	Arsenic	mg/l	9	44%	2020-03-05 to 2020-11-30	Normal MLE LCL	0.00071
10_2_103	W-9	Appendix IV	Barium	mg/l	9	11%	2020-03-05 to 2020-11-30	Normal MLE LCL	0.017
10_2_104	W-9	Appendix IV	Beryllium	mg/l	8	100%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.000080
10_2_106	W-9	Appendix IV	Cadmium	mg/l	9	56%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.00055
10_2_109	W-9	Appendix IV	Chromium, Total	mg/l	9	67%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.0011
10_2_110	W-9	Appendix IV	Cobalt	mg/l	9	11%	2020-03-05 to 2020-11-30	Normal MLE LCL	0.0020
10_2_112	W-9	Appendix IV	Fluoride (App IV)	mg/l	9	22%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.17
10_2_113	W-9	Appendix IV	Lead	mg/l	9	78%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.00024
10_2_114	W-9	Appendix IV	Lithium	mg/l	9	0%	2020-03-05 to 2020-11-30	Normal LCL	1.0
10_2_115	W-9	Appendix IV	Mercury	mg/l	8	100%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.000061
10_2_116	W-9	Appendix IV	Molybdenum	mg/l	9	33%	2020-03-05 to 2020-11-30	Normal MLE LCL	0.0041
10_2_120	W-9	Appendix IV	Radium-226+228	pci/l	8	12%	2020-03-05 to 2020-11-30	Normal MLE LCL	1.5
10_2_122	W-9	Appendix IV	Selenium	mg/l	9	11%	2020-03-05 to 2020-11-30	Normal MLE LCL	0.0042
10_2_126	W-9	Appendix IV	Thallium	mg/l	9	56%	2020-03-05 to 2020-11-30	Nonparametric LCL around the Median	0.00026

* UTLs developed from December 2015 to August 2022 background samples from well W-2C

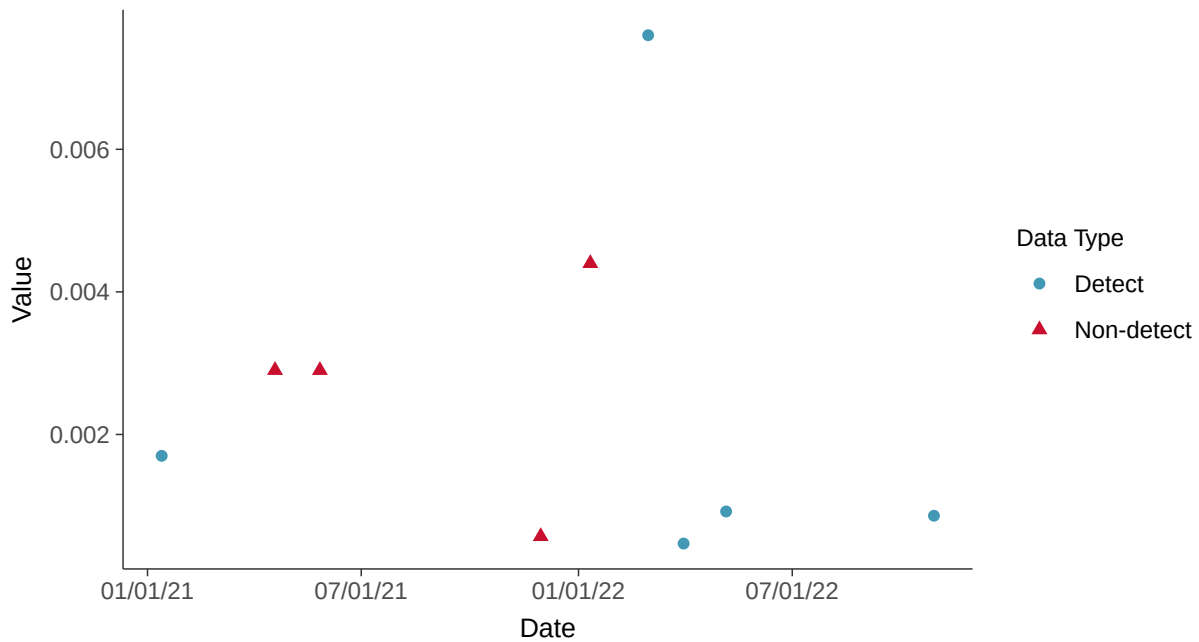
** LCLs are generated for 95% confidence level for all CWP except at well W-16. W-16 LCLs are computed for 90% confidence interval due to data limitations

Appendix IV: Antimony, W-9

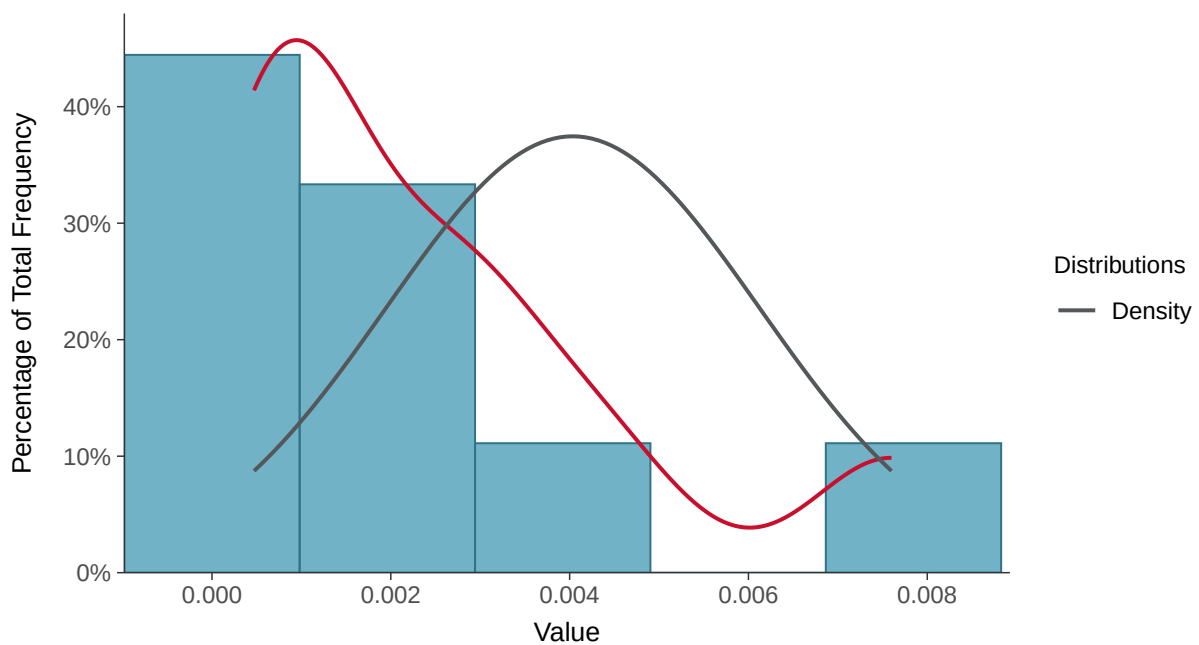
ID: 10_2_101

Scatter Plot

Antimony, W-9 (mg/l)

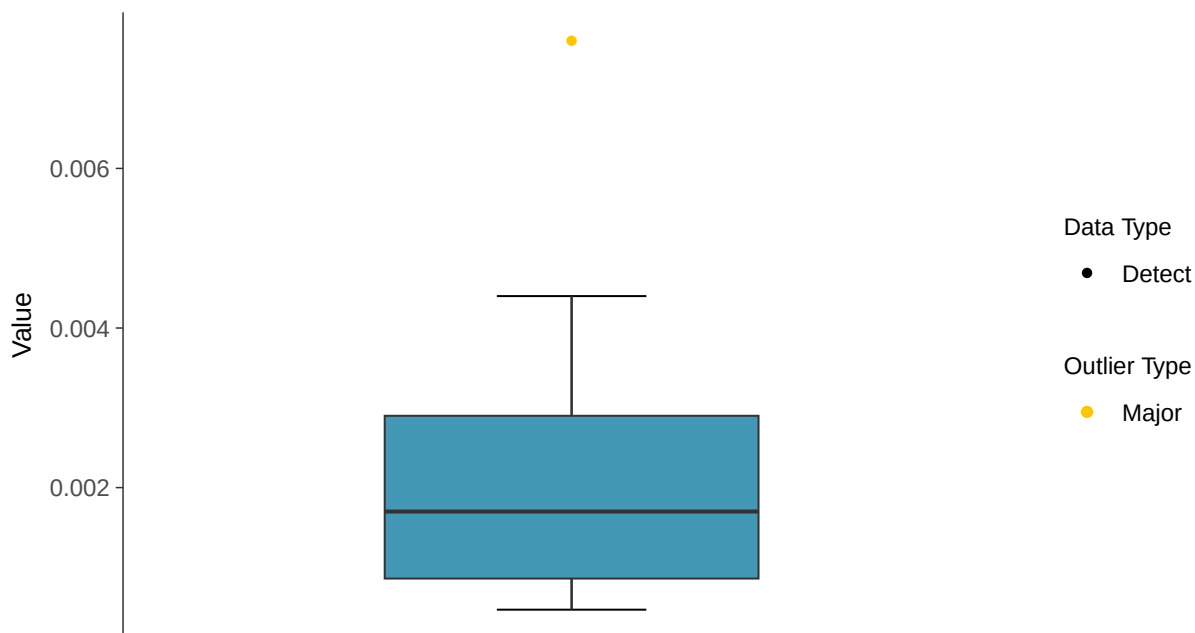
**Histogram**

Antimony, W-9 (mg/l)



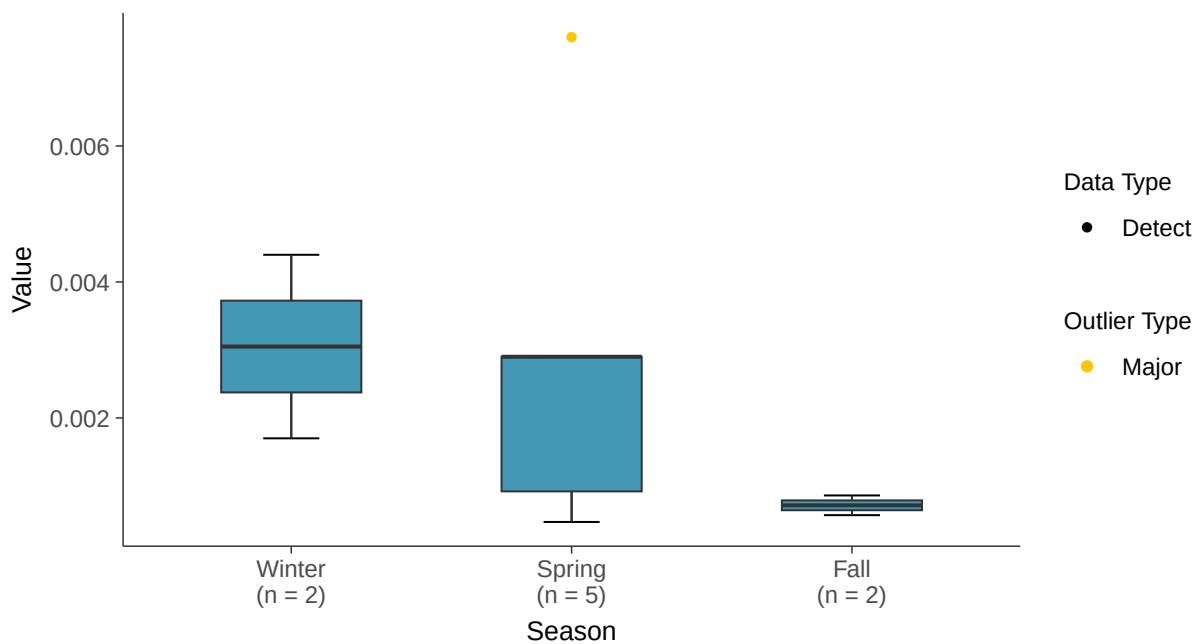
Boxplot

Antimony, W-9 (mg/l)



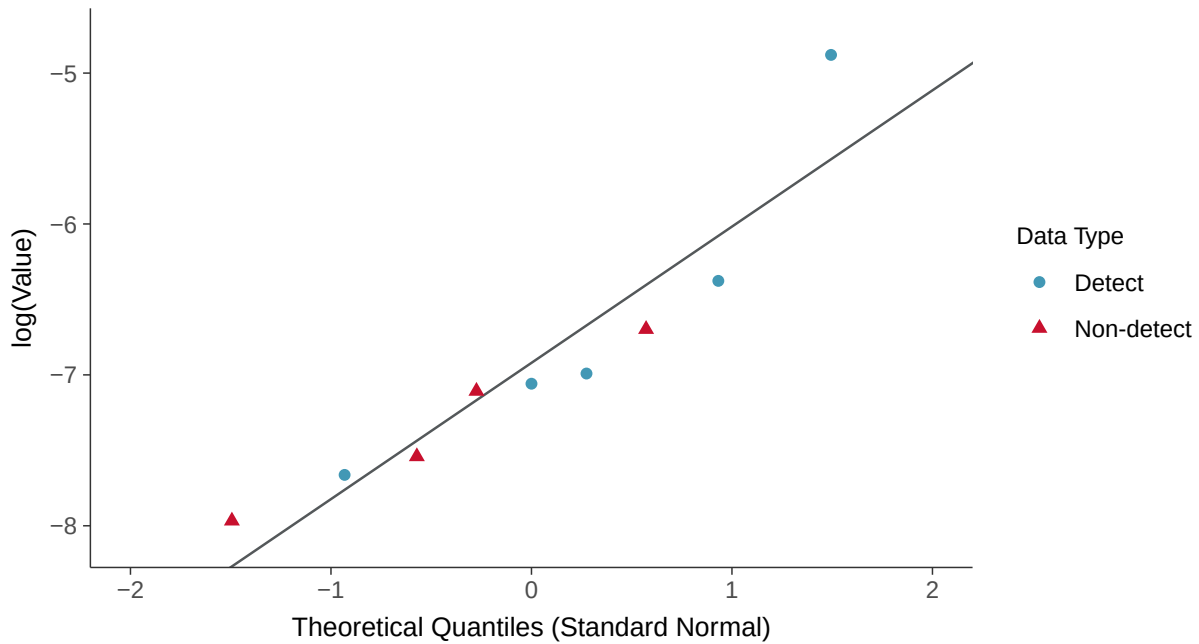
Boxplot by Season

Antimony, W-9 (mg/l)

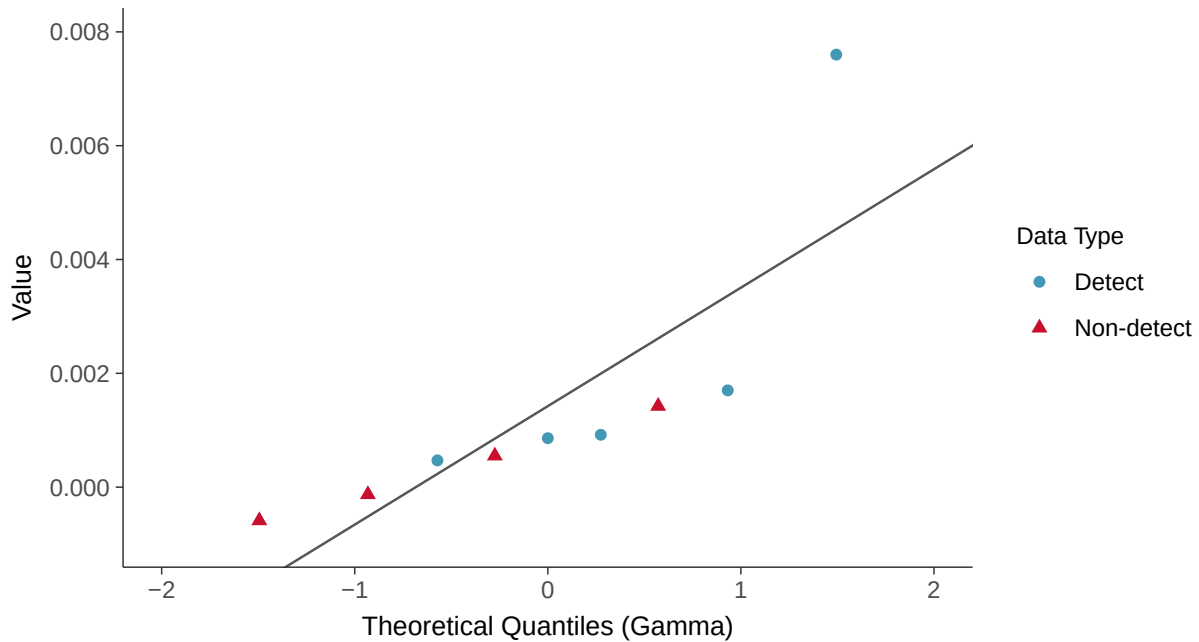


Lognormal Q-Q plot using ROS Imputed Estimates

Antimony, W-9 (mg/l)

**Gamma Q-Q plot using ROS Imputed Estimates**

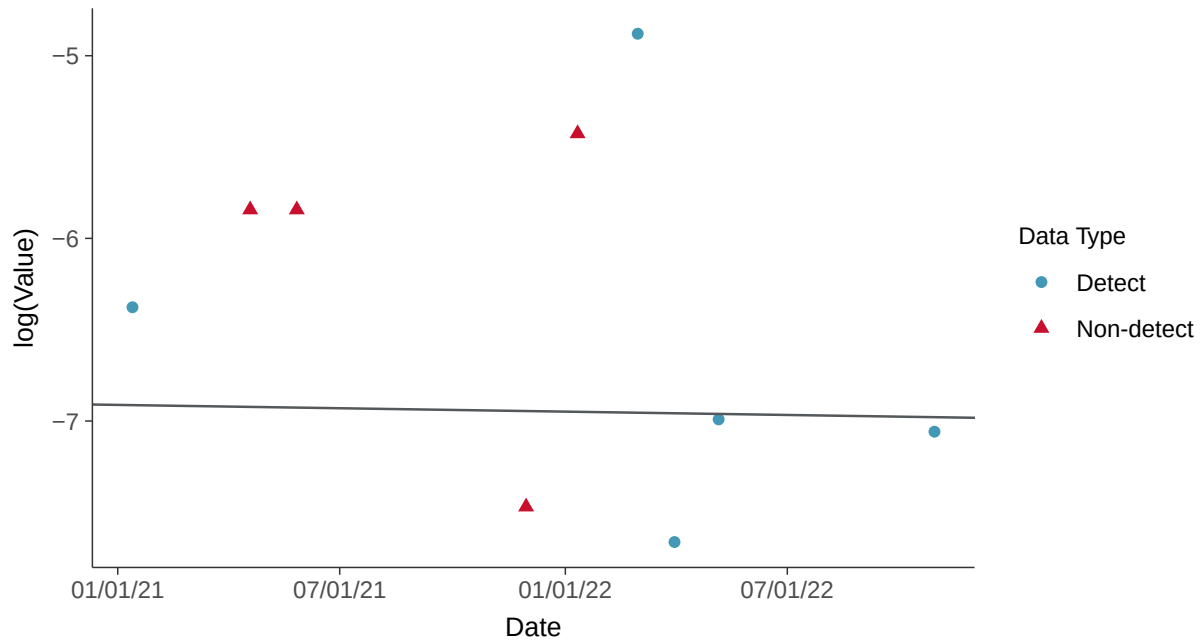
Antimony, W-9 (mg/l)



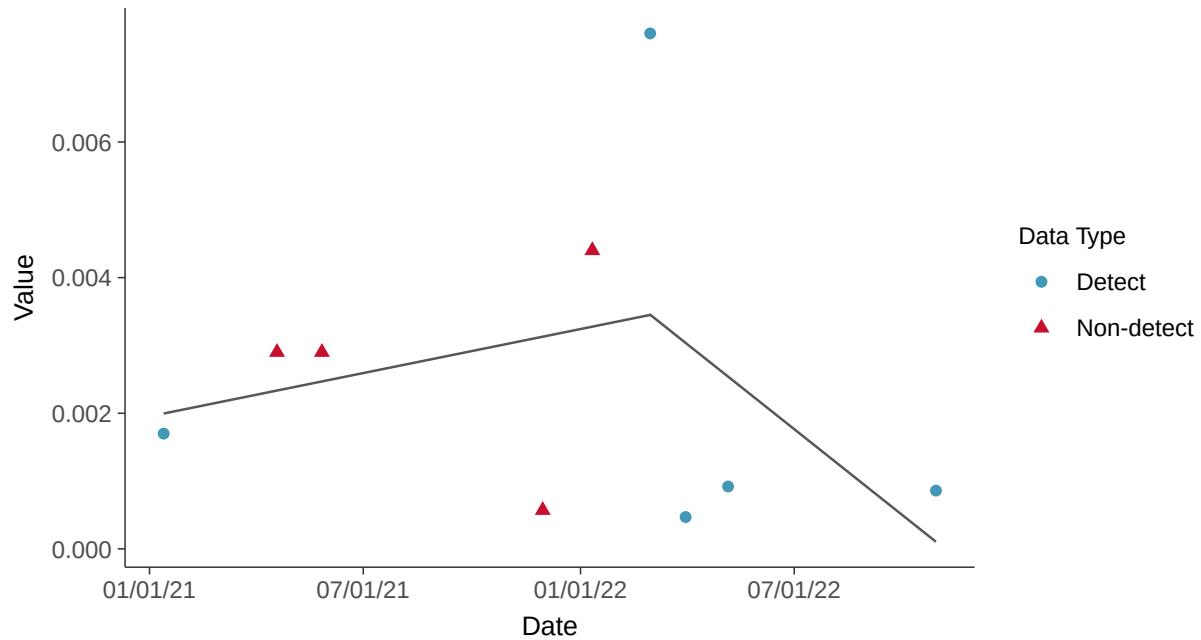
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Trend Regression: Lognormal MLE

Antimony, W-9 (mg/l)

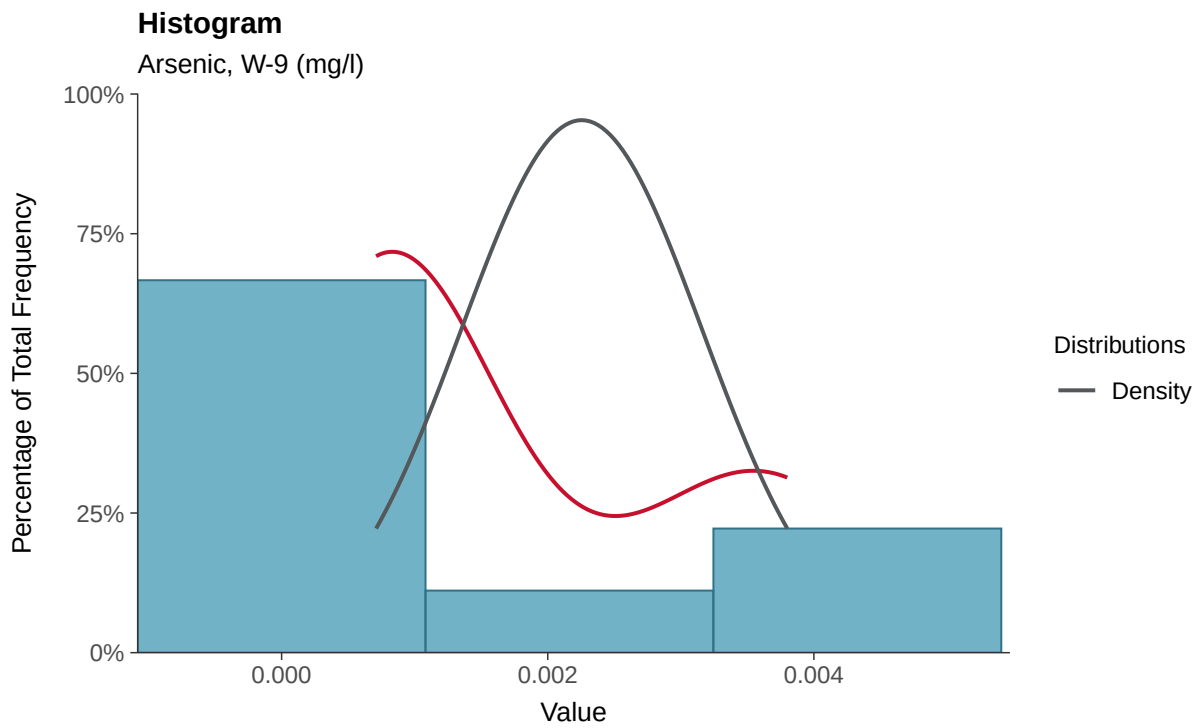
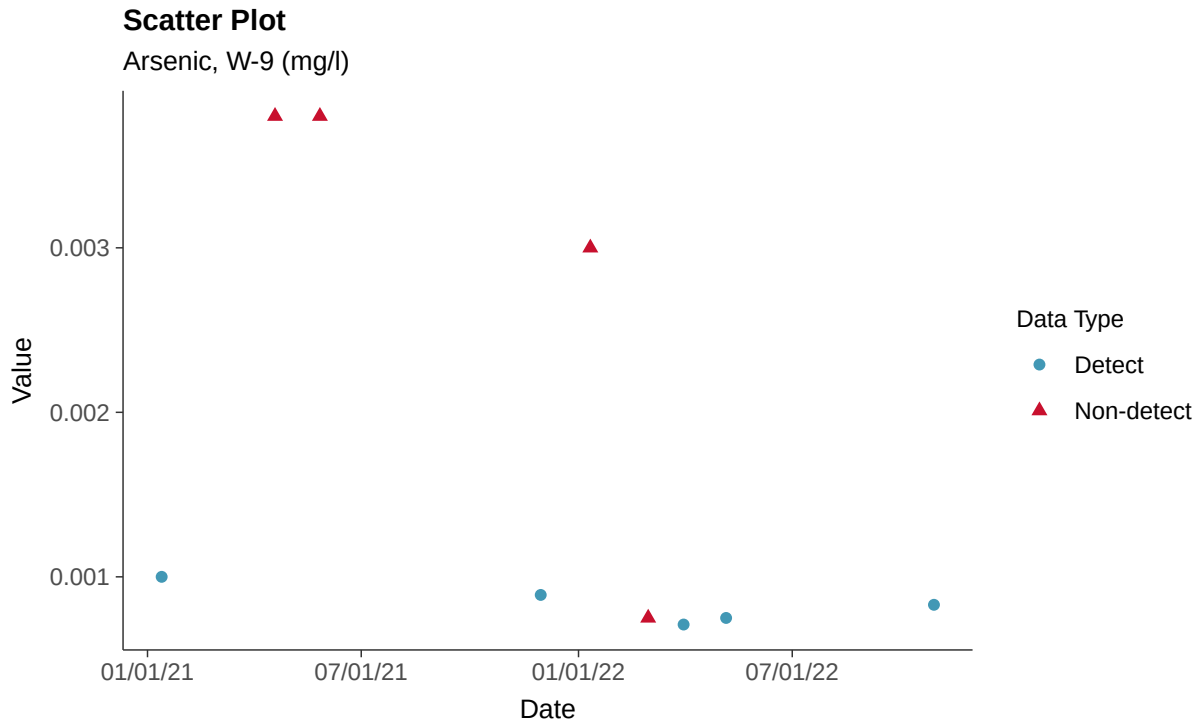
**Trend Regression: Piecewise Linear-Linear**

Antimony, W-9 (mg/l)



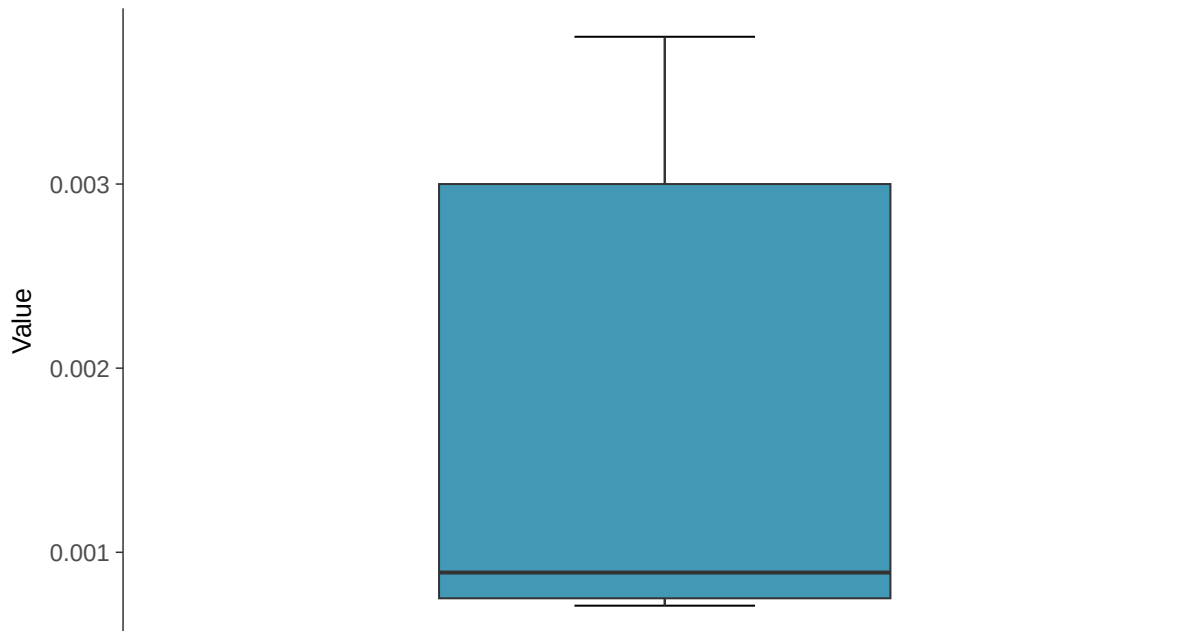
Appendix IV: Arsenic, W-9

ID: 10_2_102



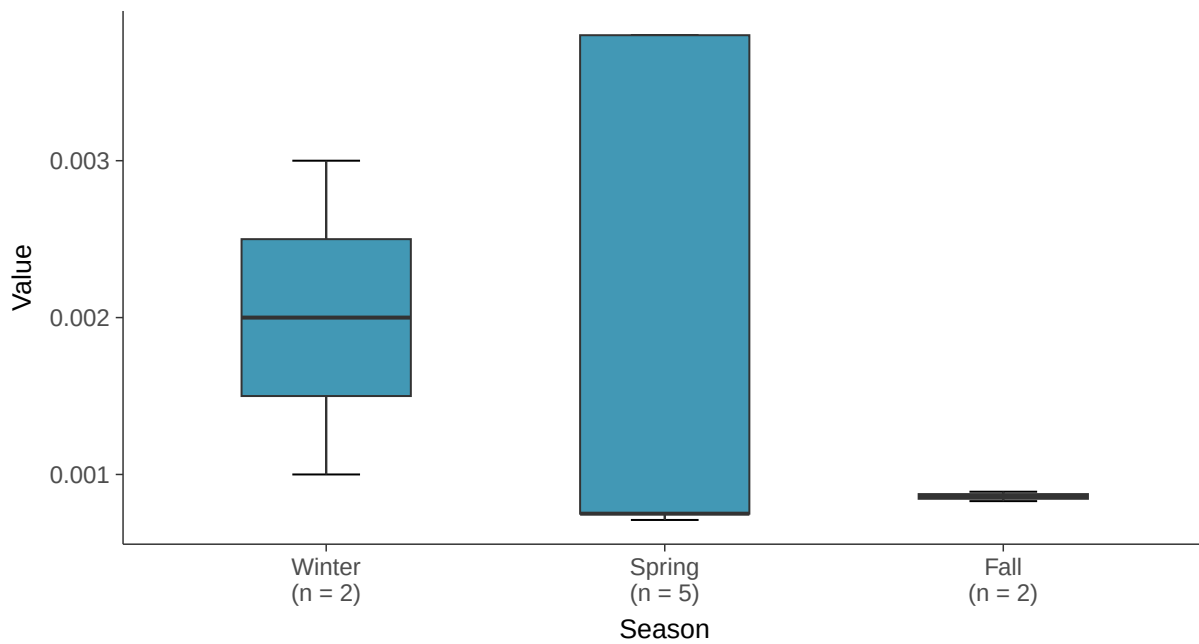
Boxplot

Arsenic, W-9 (mg/l)



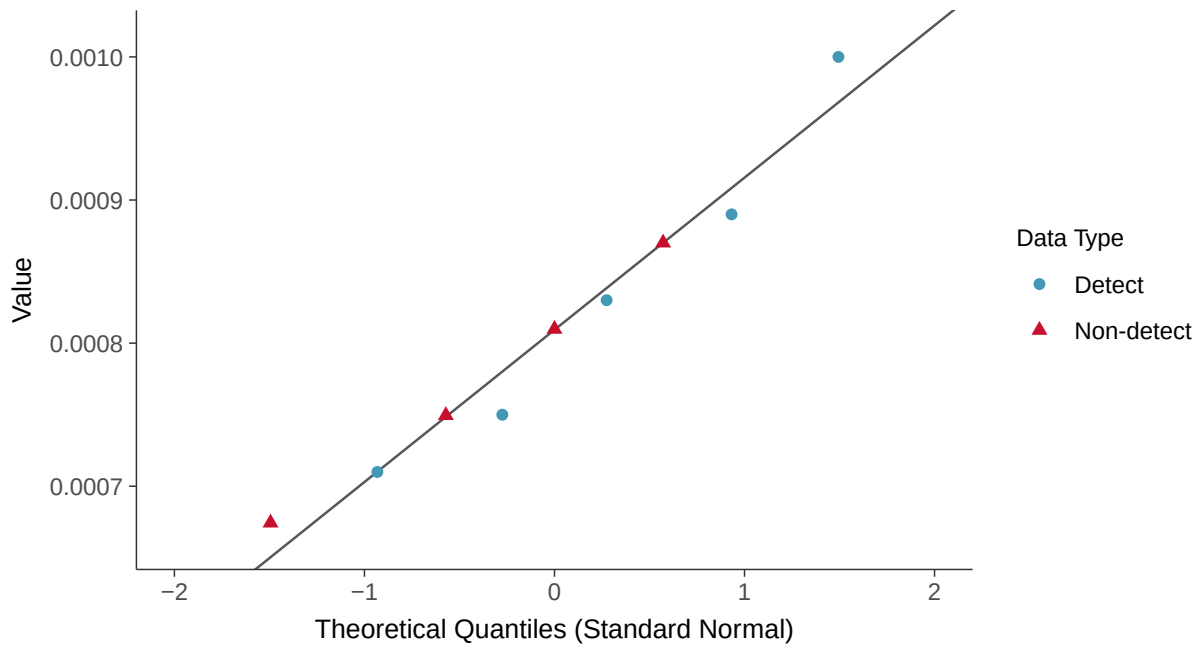
Boxplot by Season

Arsenic, W-9 (mg/l)



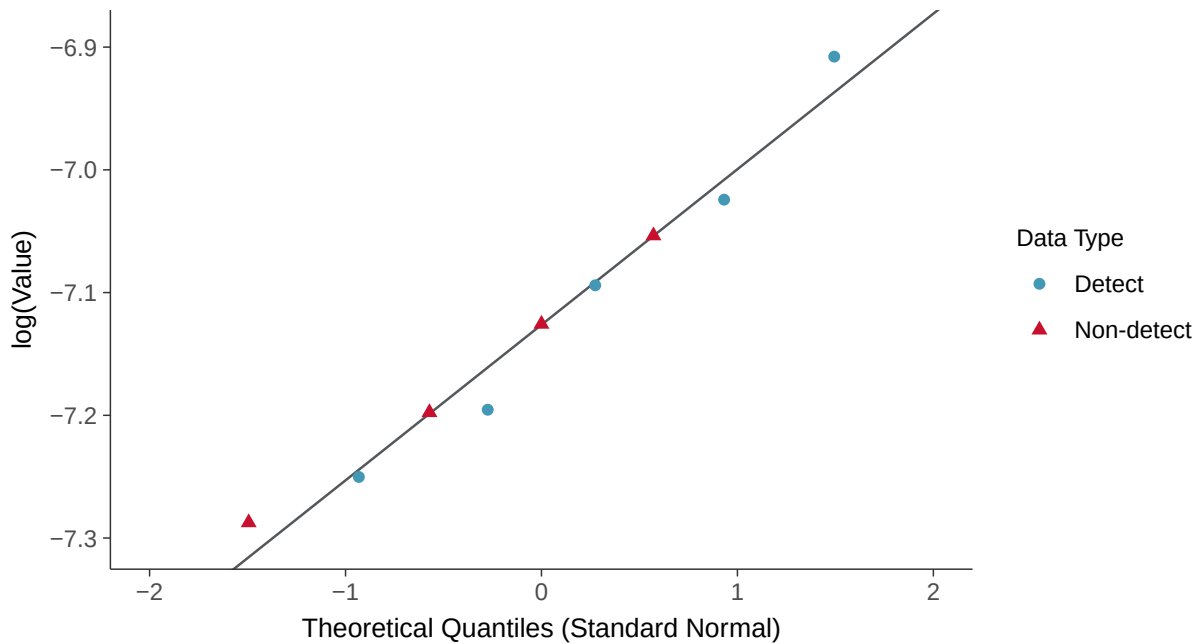
Normal Q-Q plot using ROS Imputed Estimates

Arsenic, W-9 (mg/l)



Lognormal Q-Q plot using ROS Imputed Estimates

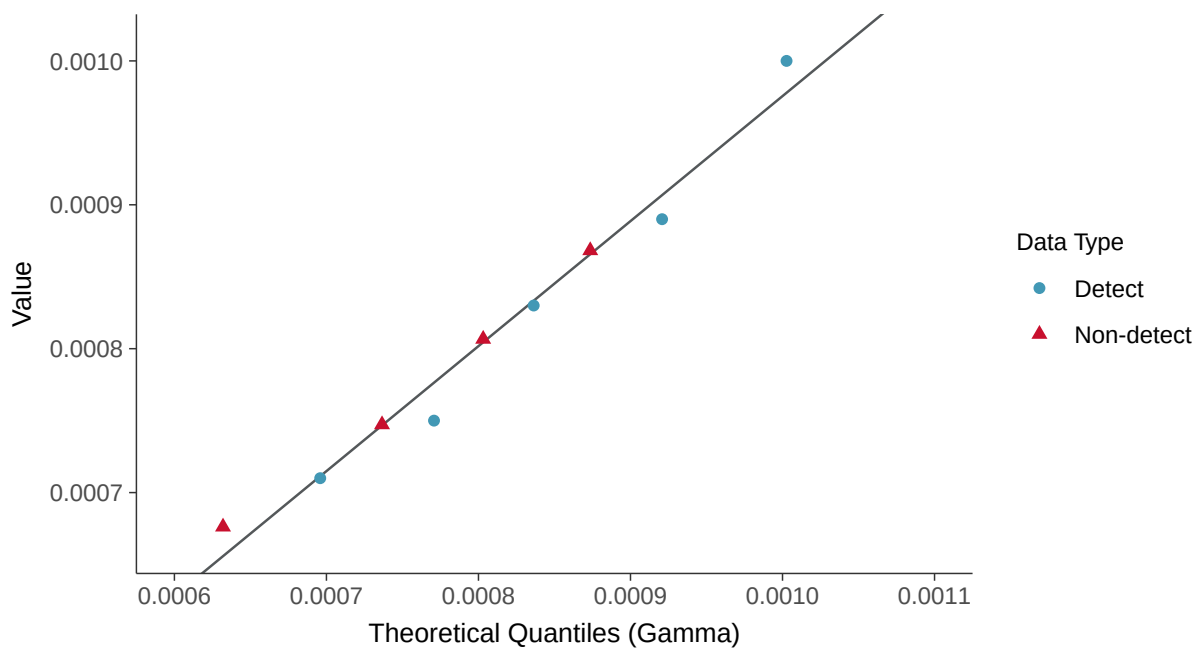
Arsenic, W-9 (mg/l)





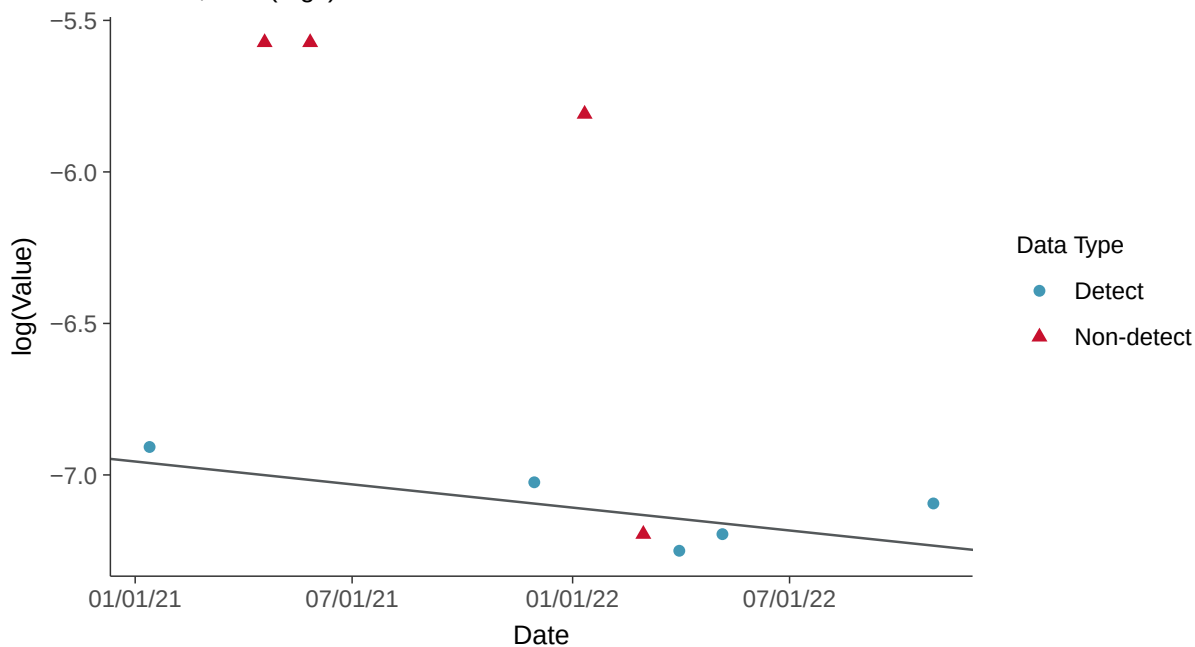
Gamma Q-Q plot using ROS Imputed Estimates

Arsenic, W-9 (mg/l)



Trend Regression: Lognormal MLE

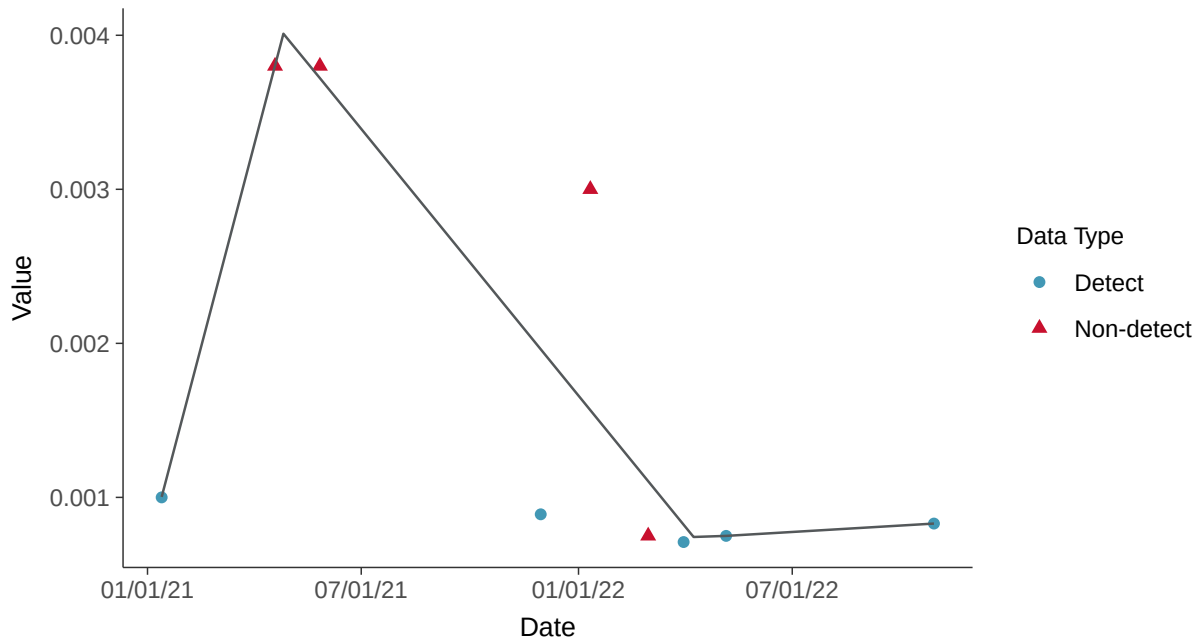
Arsenic, W-9 (mg/l)



Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Trend Regression: Piecewise Linear-Linear-Linear

Arsenic, W-9 (mg/l)

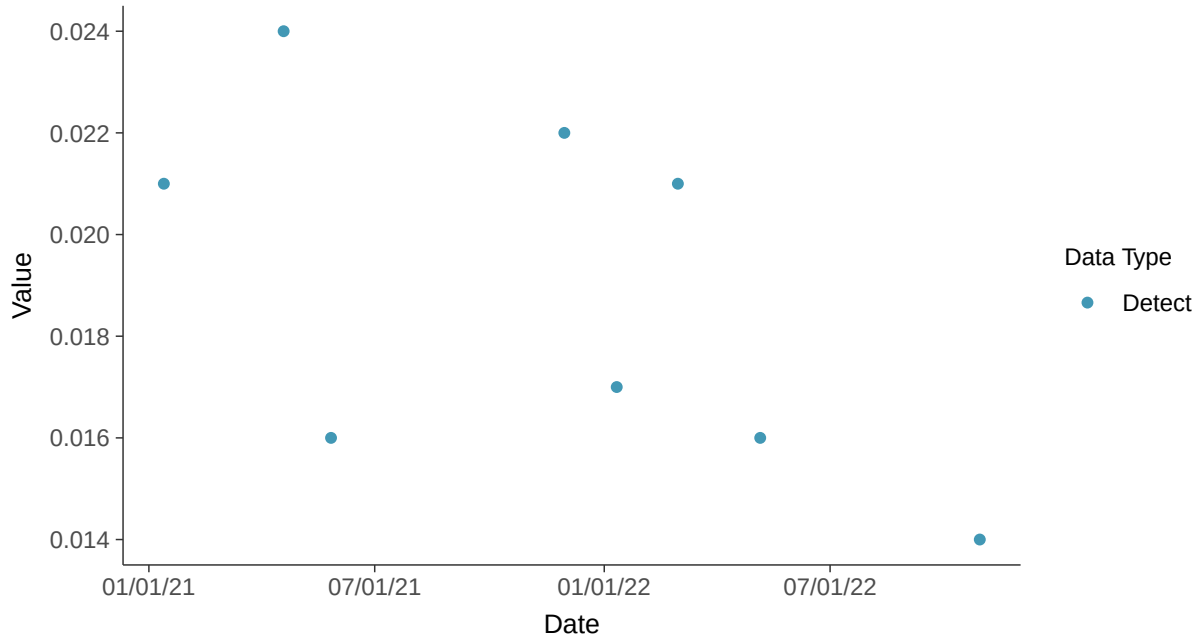


Appendix IV: Barium, W-9

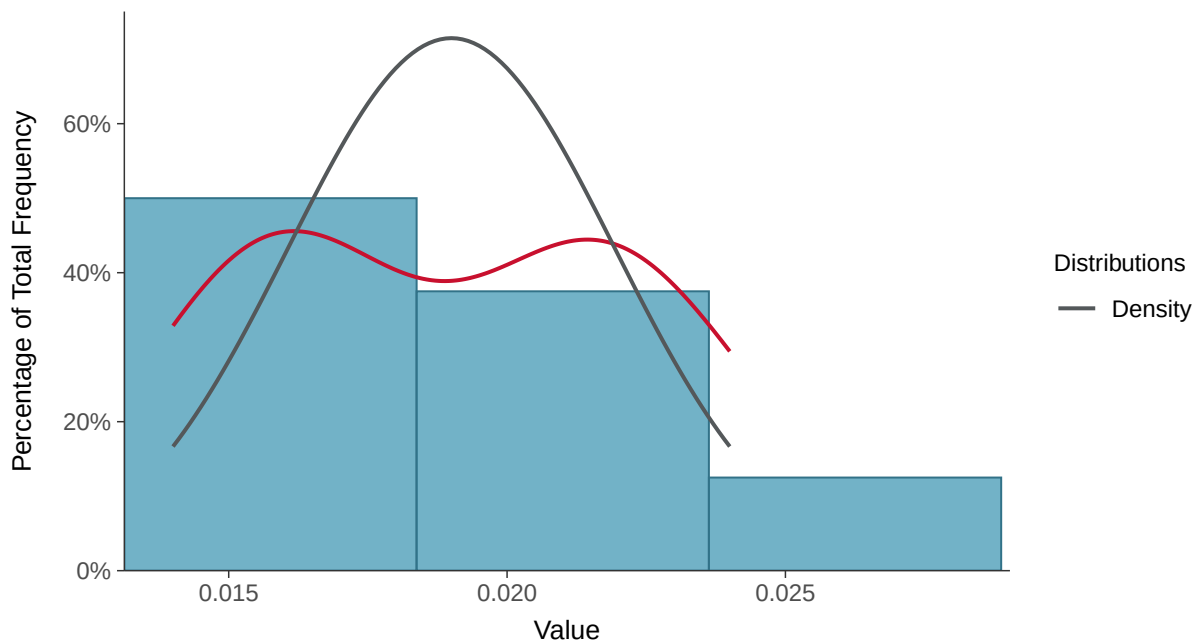
ID: 10_2_103

Scatter Plot

Barium, W-9 (mg/l)

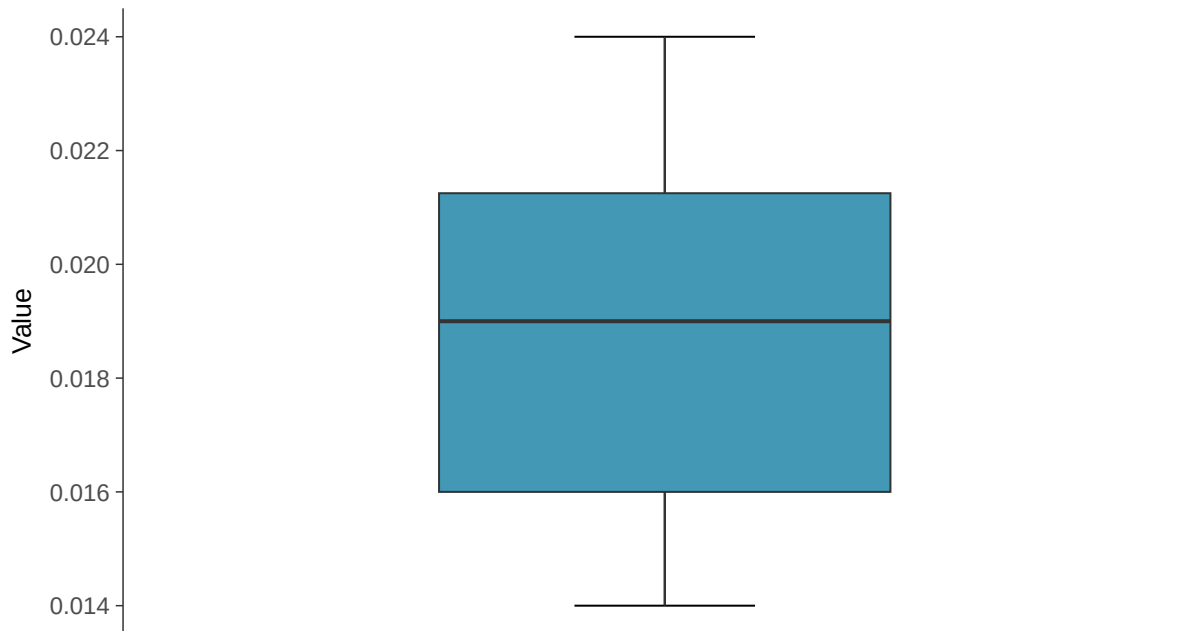
**Histogram**

Barium, W-9 (mg/l)



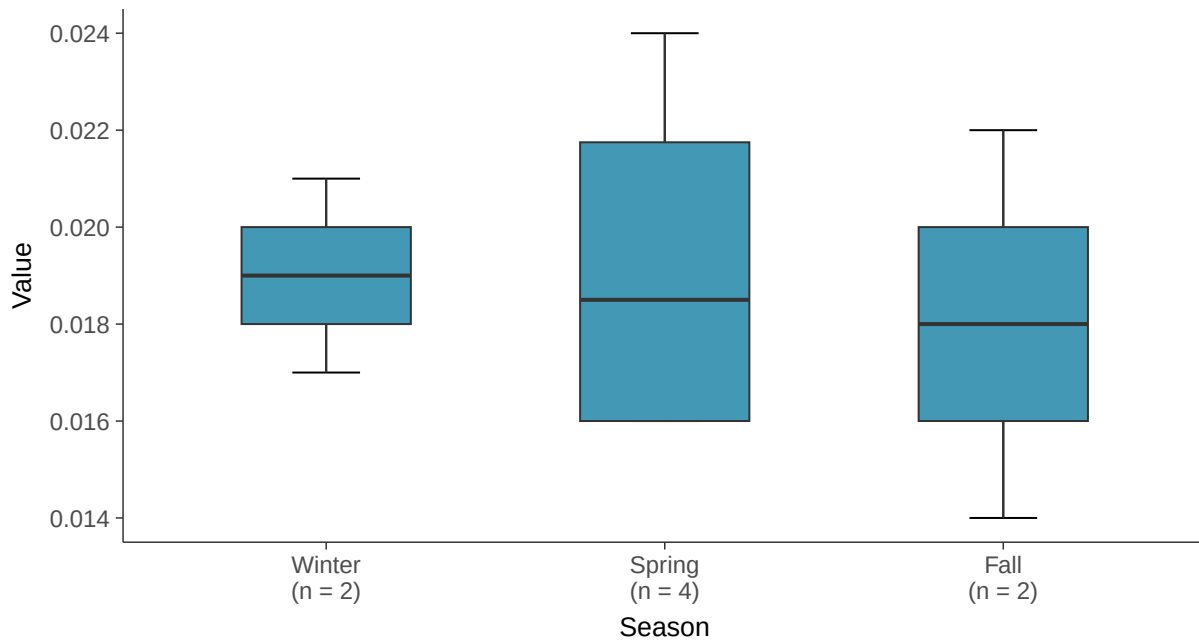
Boxplot

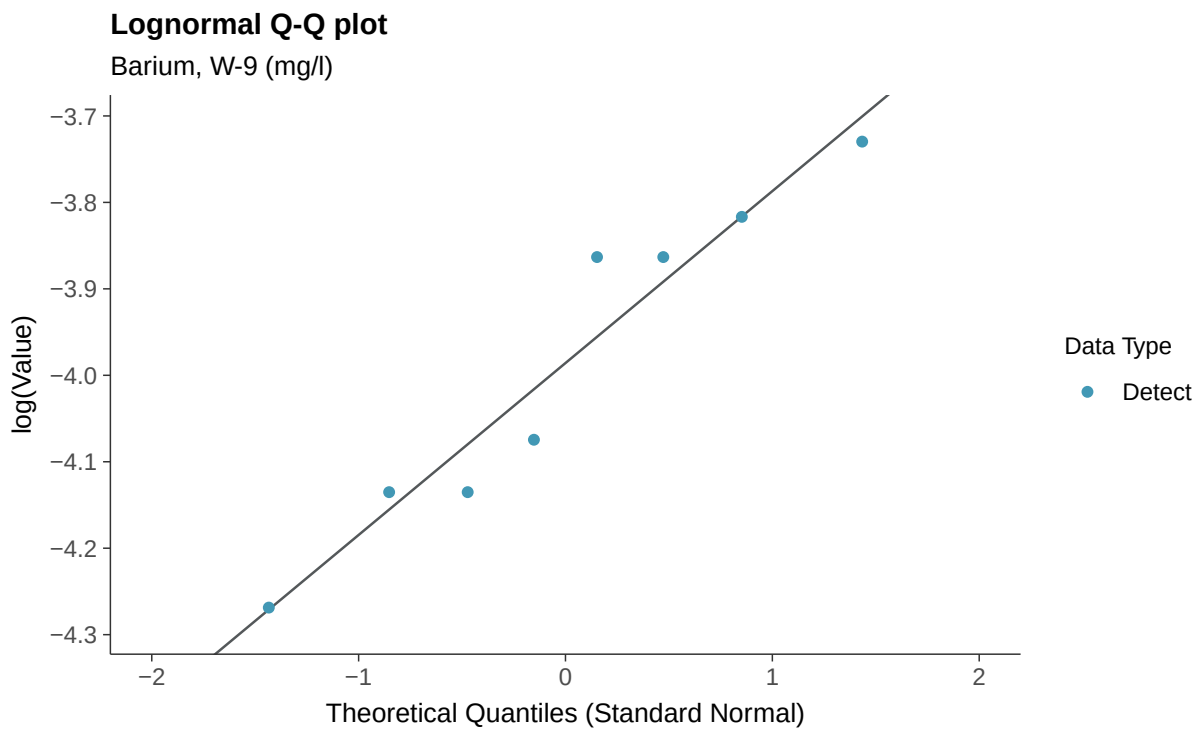
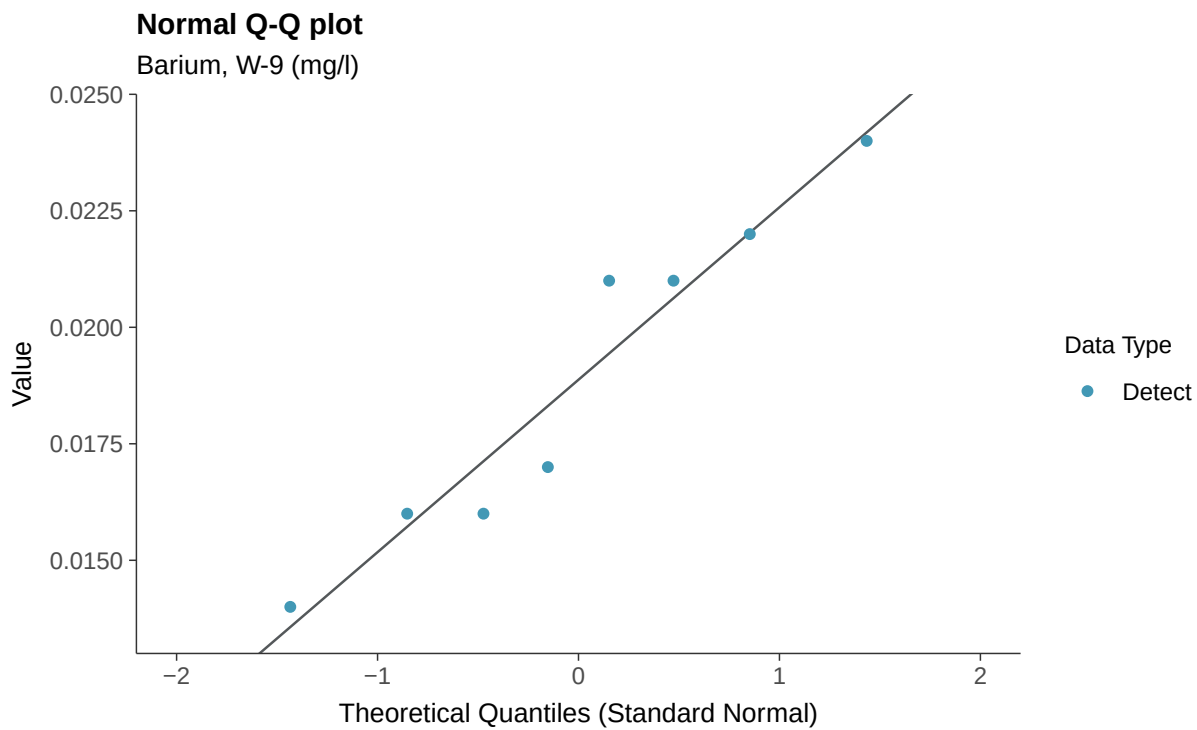
Barium, W-9 (mg/l)

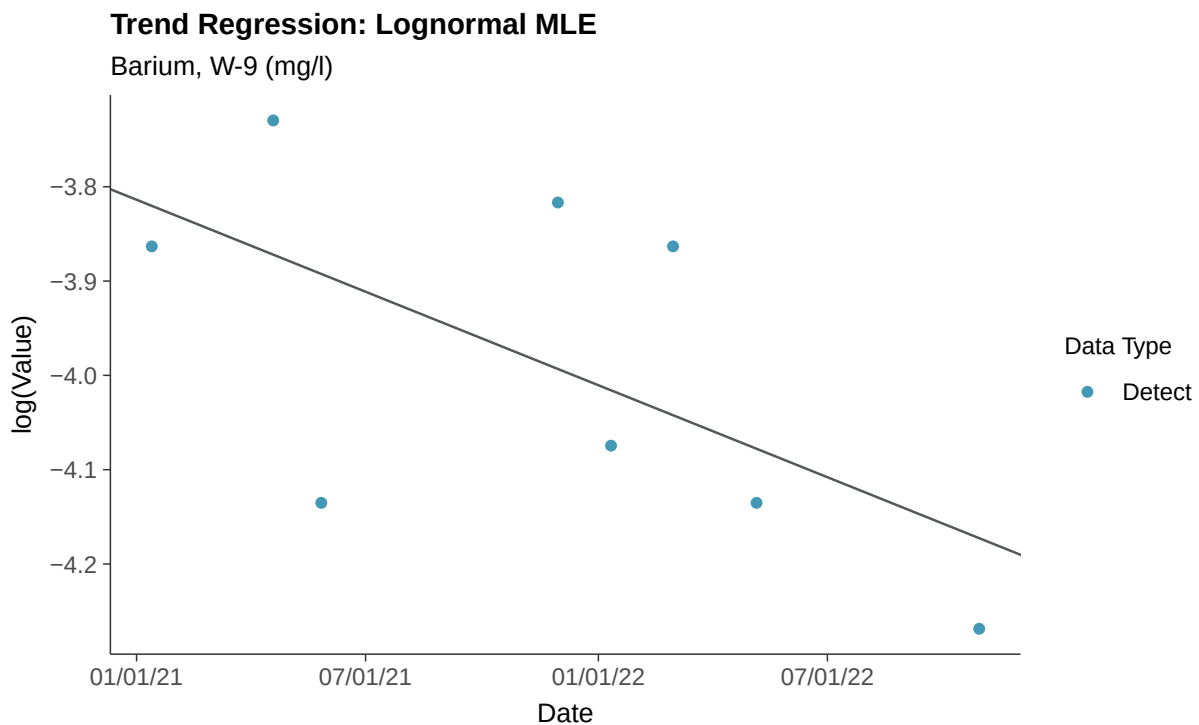
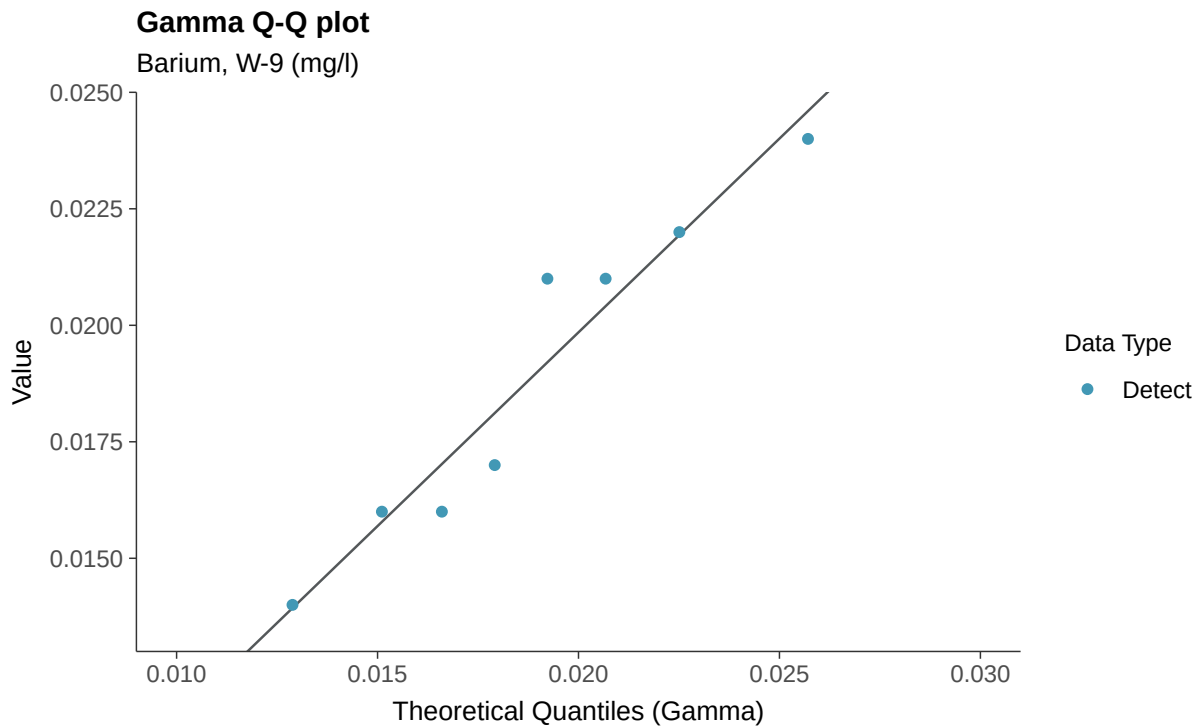


Boxplot by Season

Barium, W-9 (mg/l)



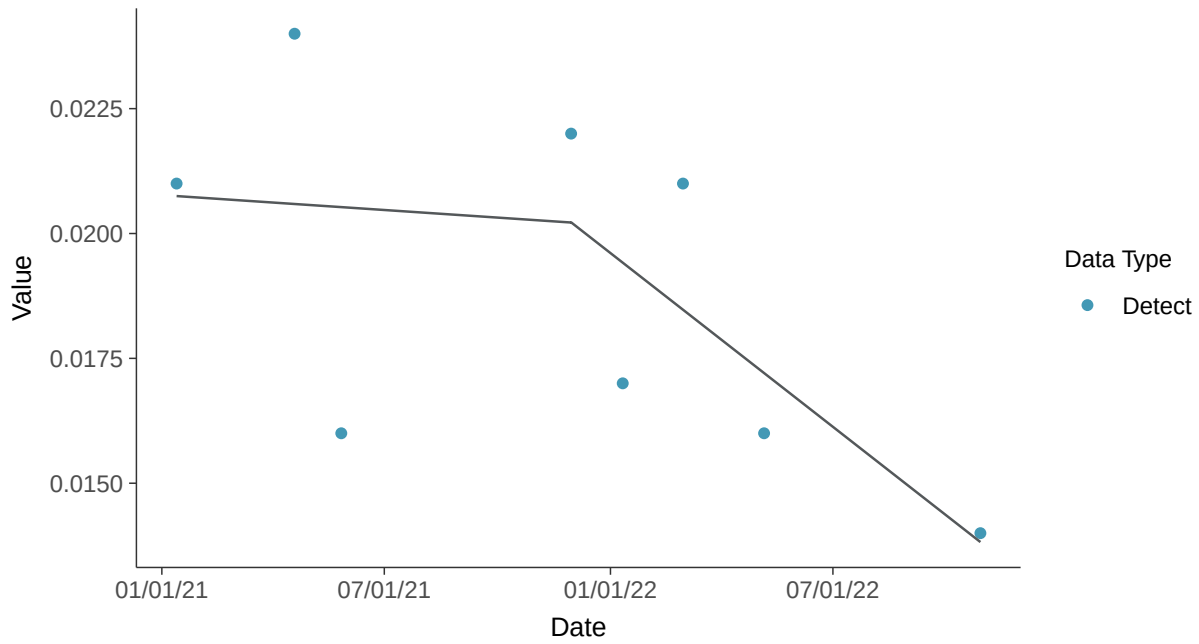




Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Trend Regression: Piecewise Linear-Linear

Barium, W-9 (mg/l)

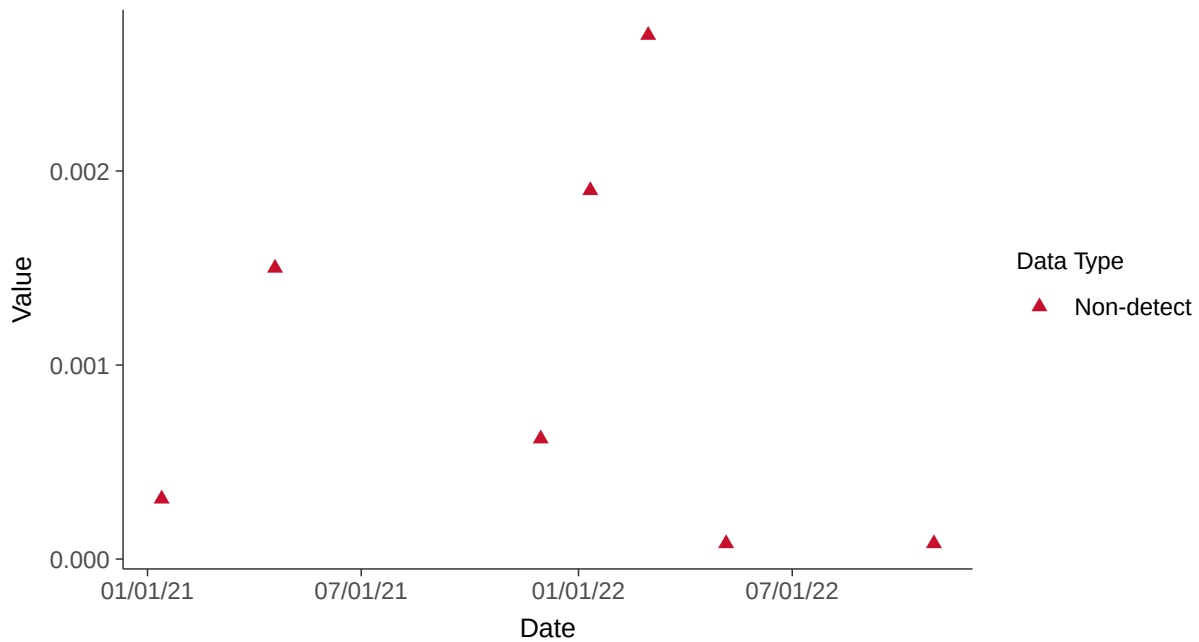


Appendix IV: Beryllium, W-9

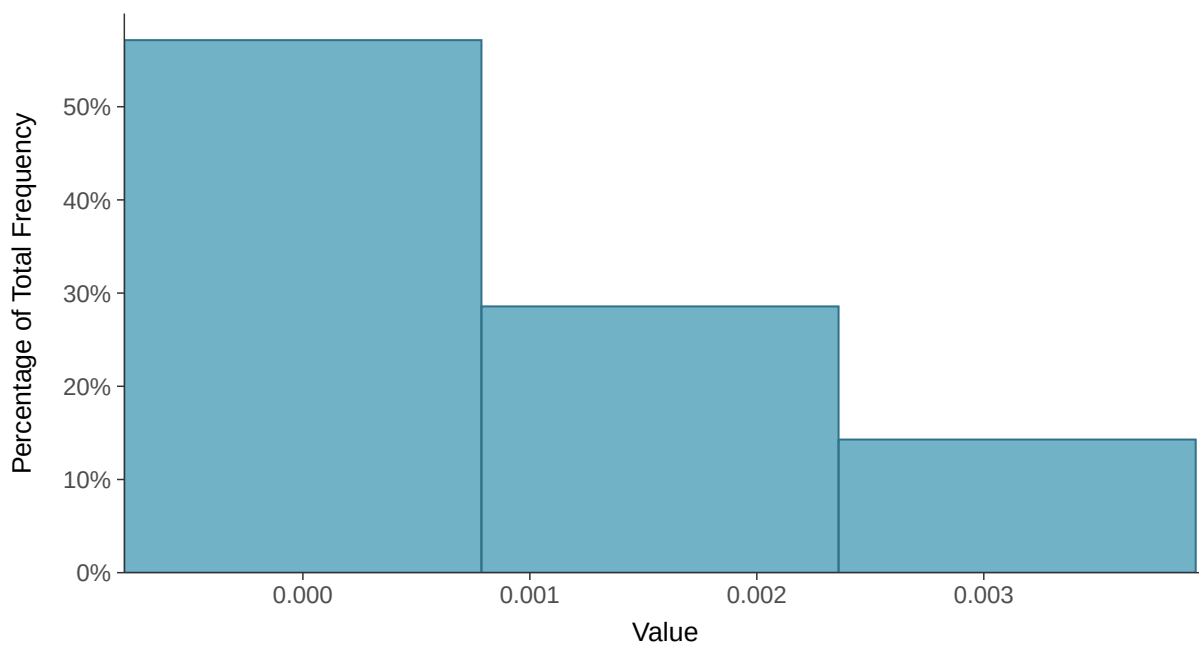
ID: 10_2_104

Scatter Plot

Beryllium, W-9 (mg/l)

**Histogram**

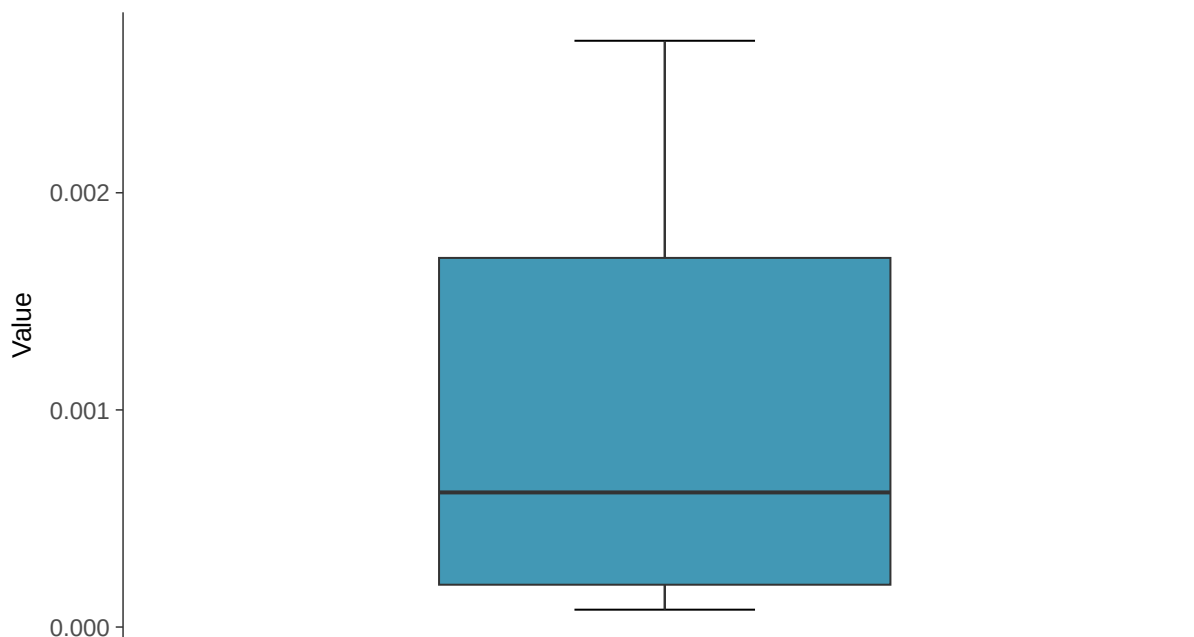
Beryllium, W-9 (mg/l)





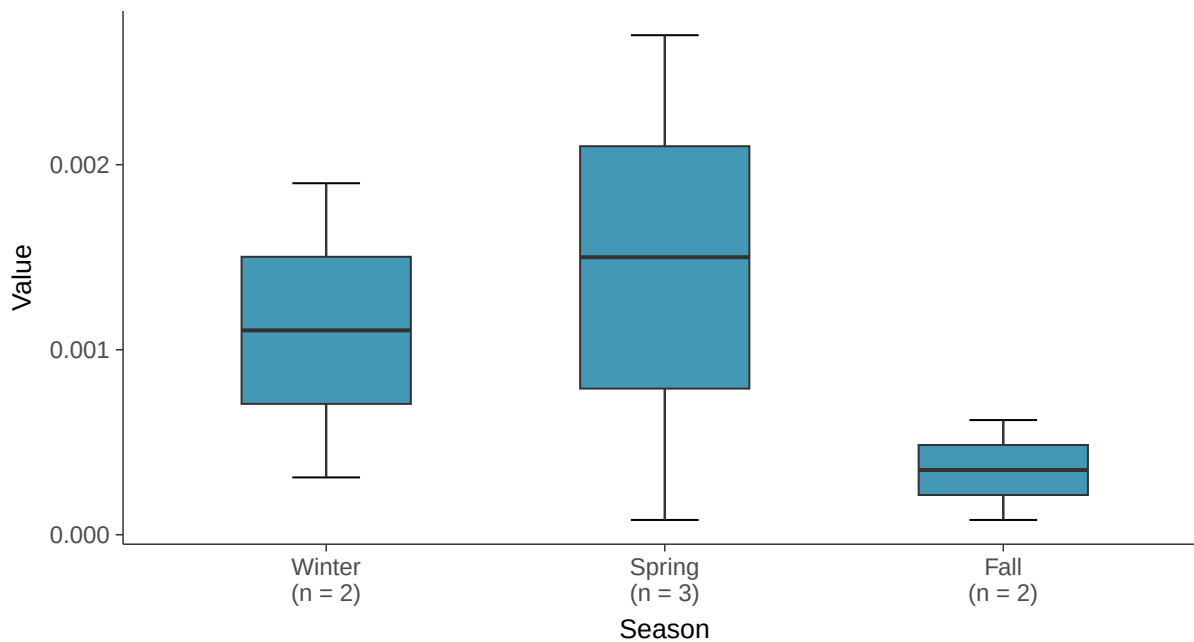
Boxplot

Beryllium, W-9 (mg/l)



Boxplot by Season

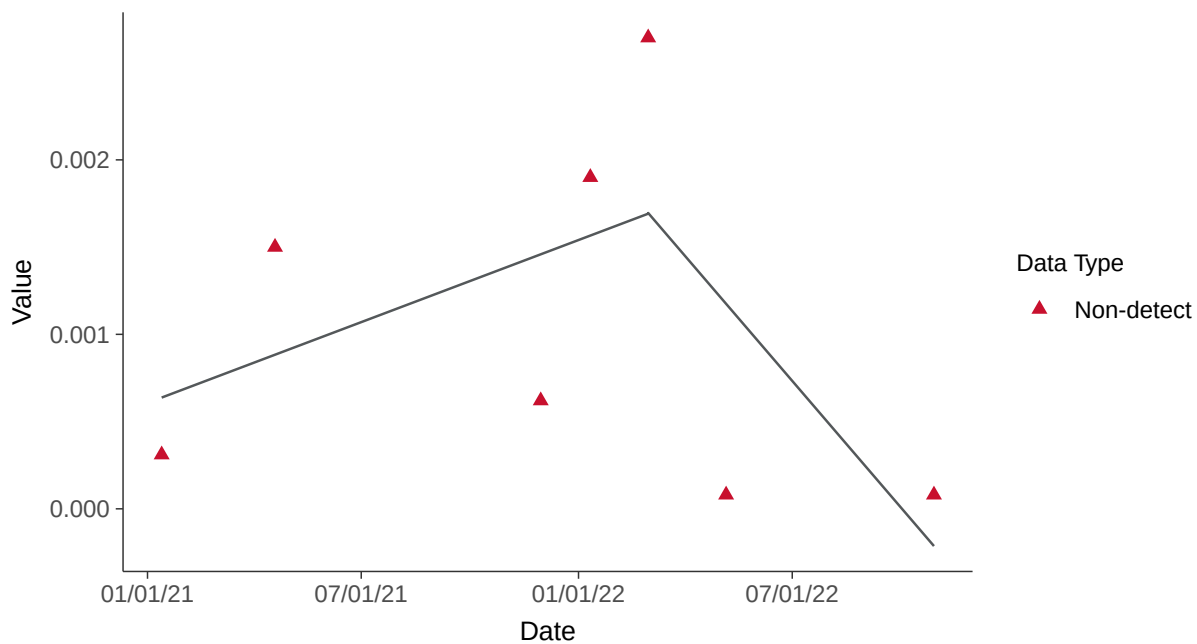
Beryllium, W-9 (mg/l)





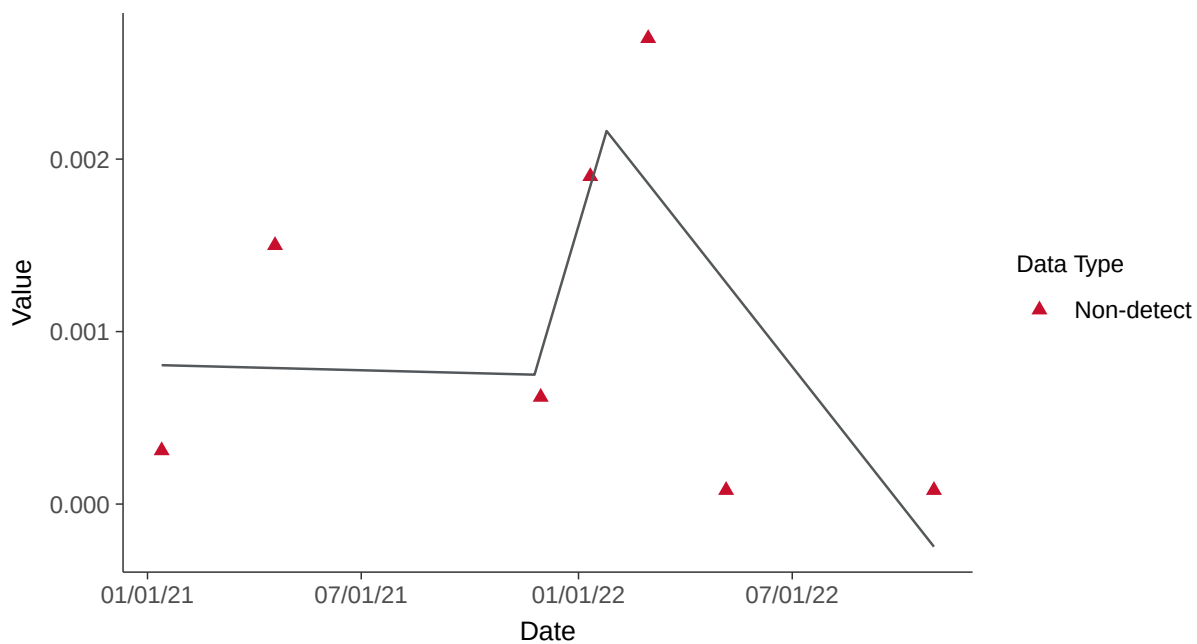
Trend Regression: Piecewise Linear-Linear

Beryllium, W-9 (mg/l)



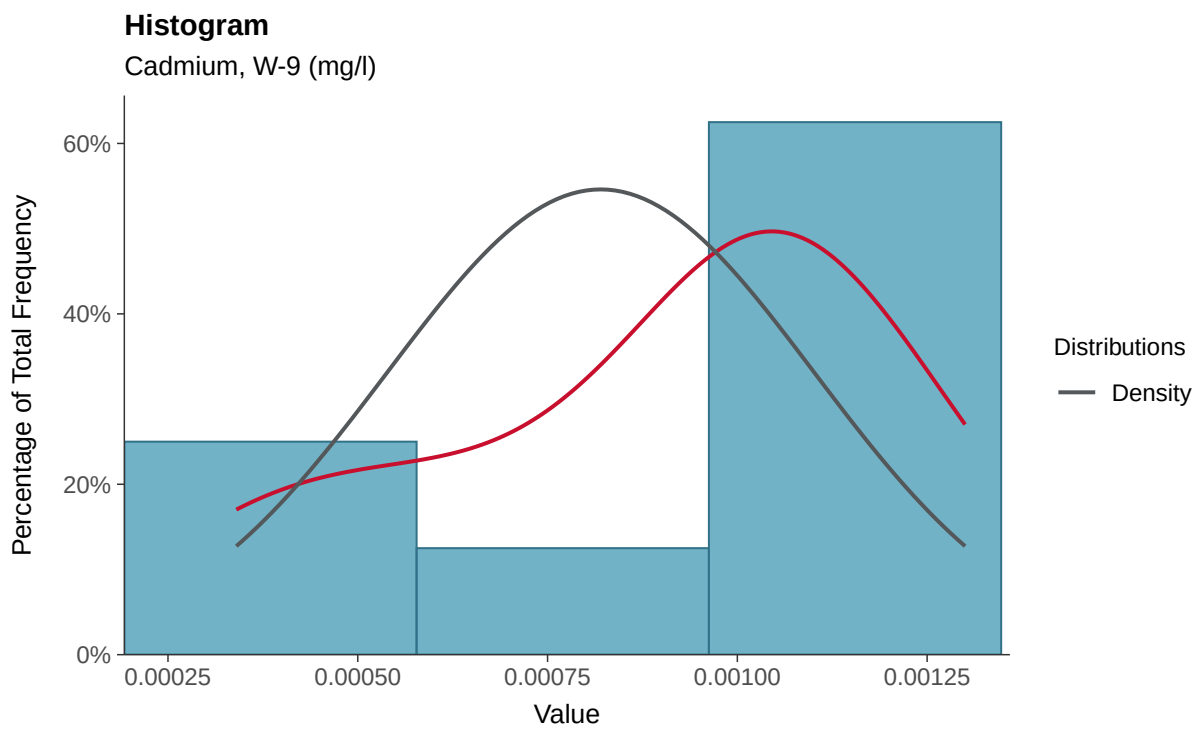
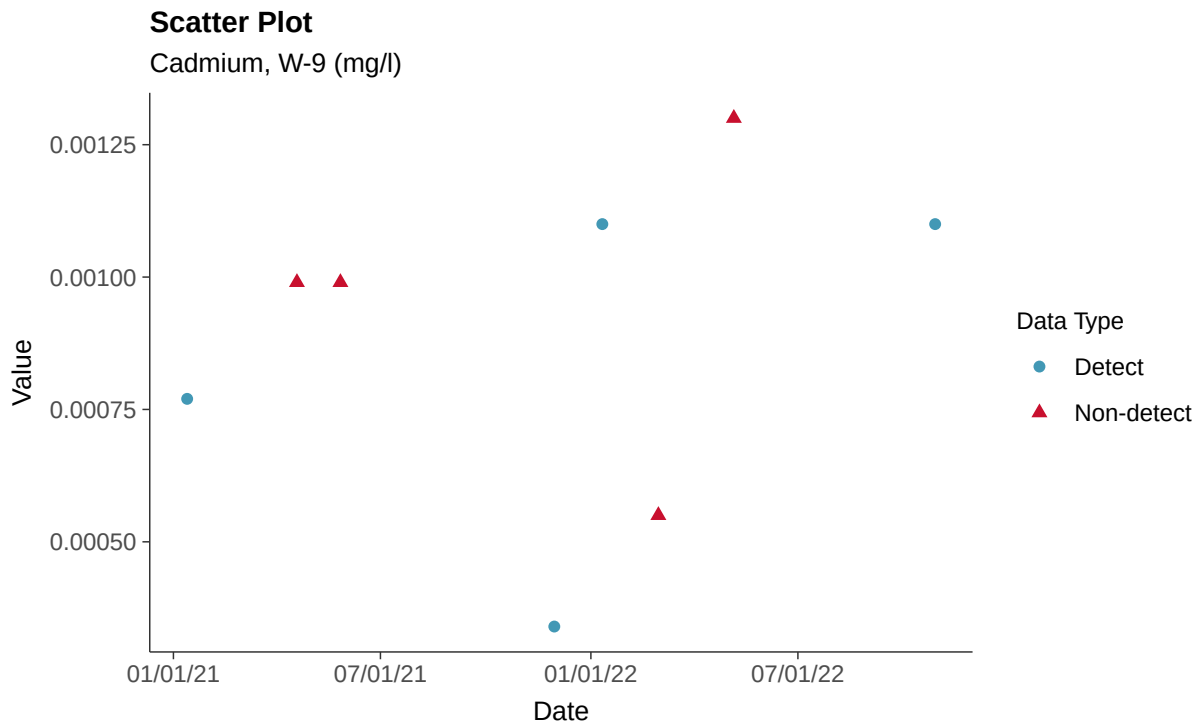
Trend Regression: Piecewise Linear-Linear-Linear

Beryllium, W-9 (mg/l)



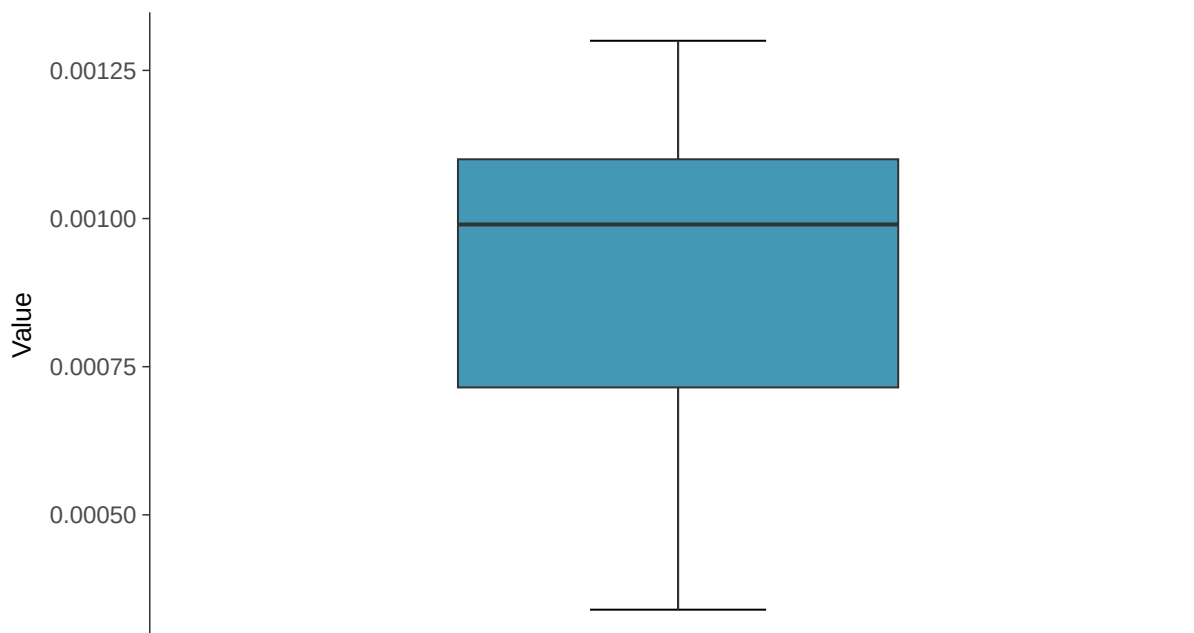
Appendix IV: Cadmium, W-9

ID: 10_2_106



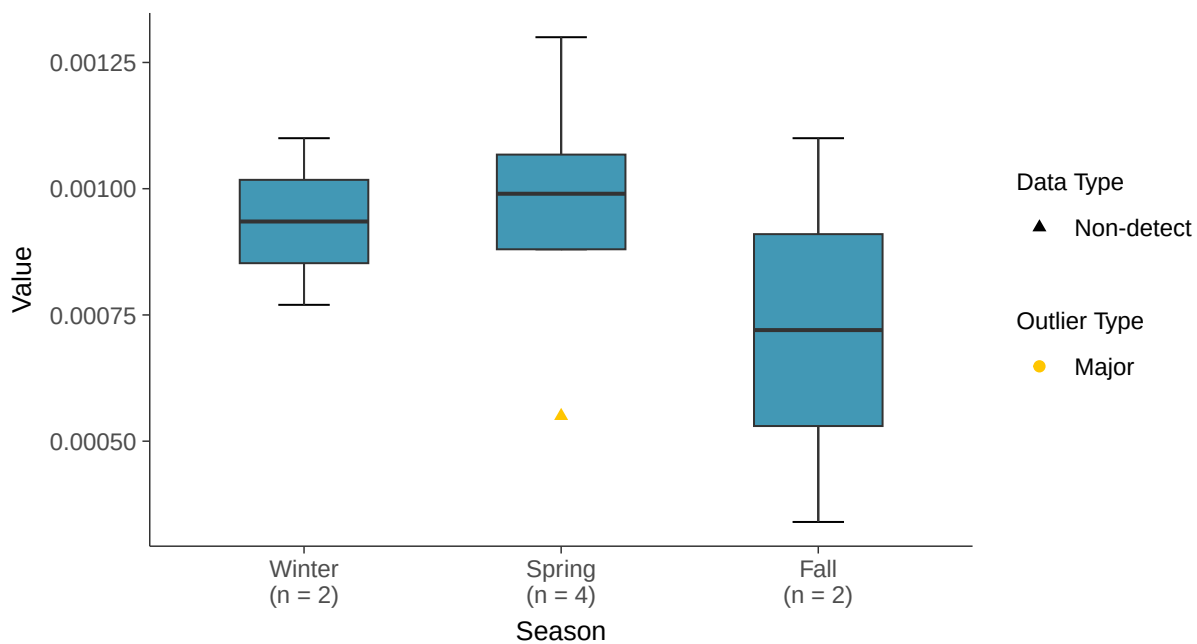
Boxplot

Cadmium, W-9 (mg/l)



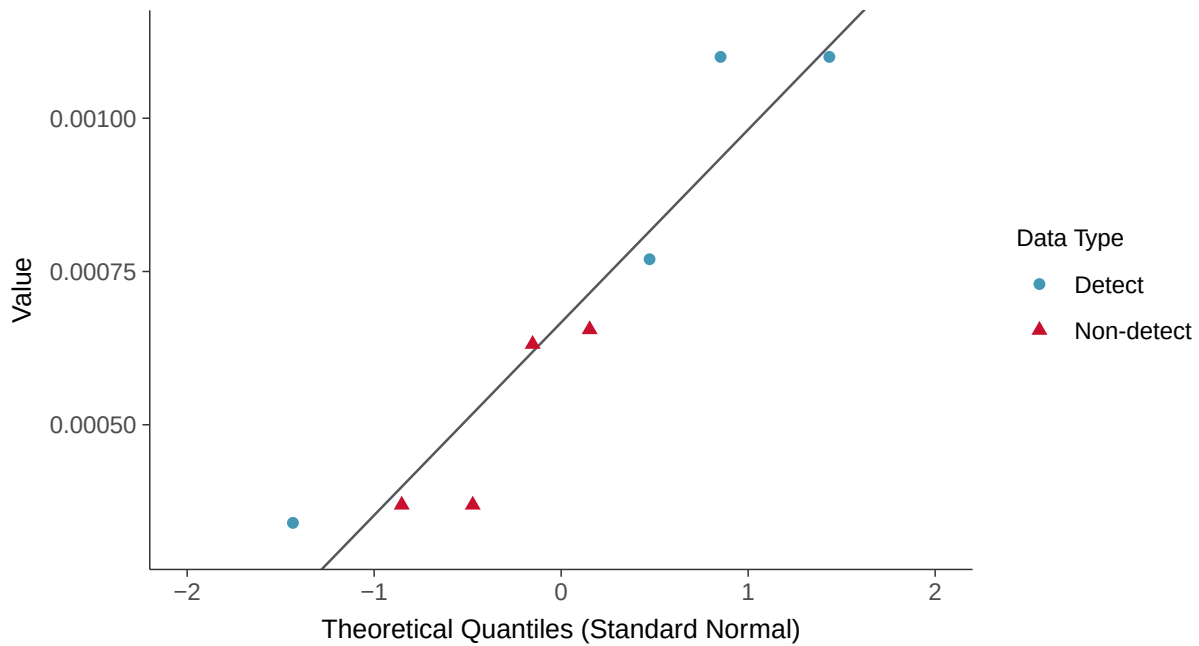
Boxplot by Season

Cadmium, W-9 (mg/l)

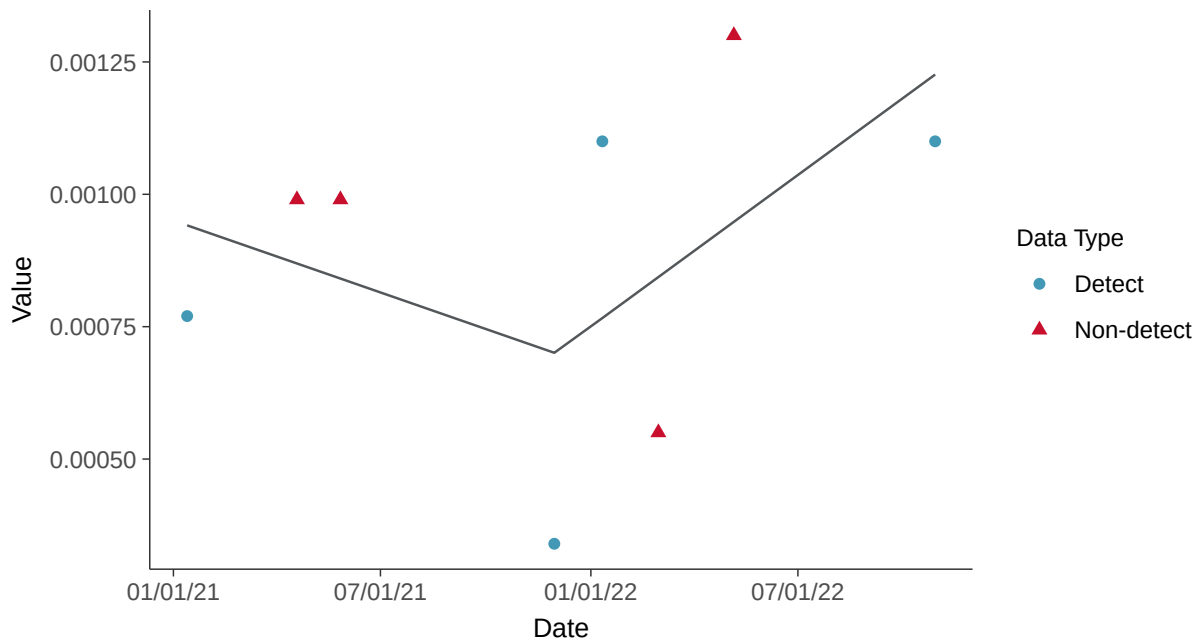


Normal Q-Q plot using ROS Imputed Estimates

Cadmium, W-9 (mg/l)

**Trend Regression: Piecewise Linear-Linear**

Cadmium, W-9 (mg/l)

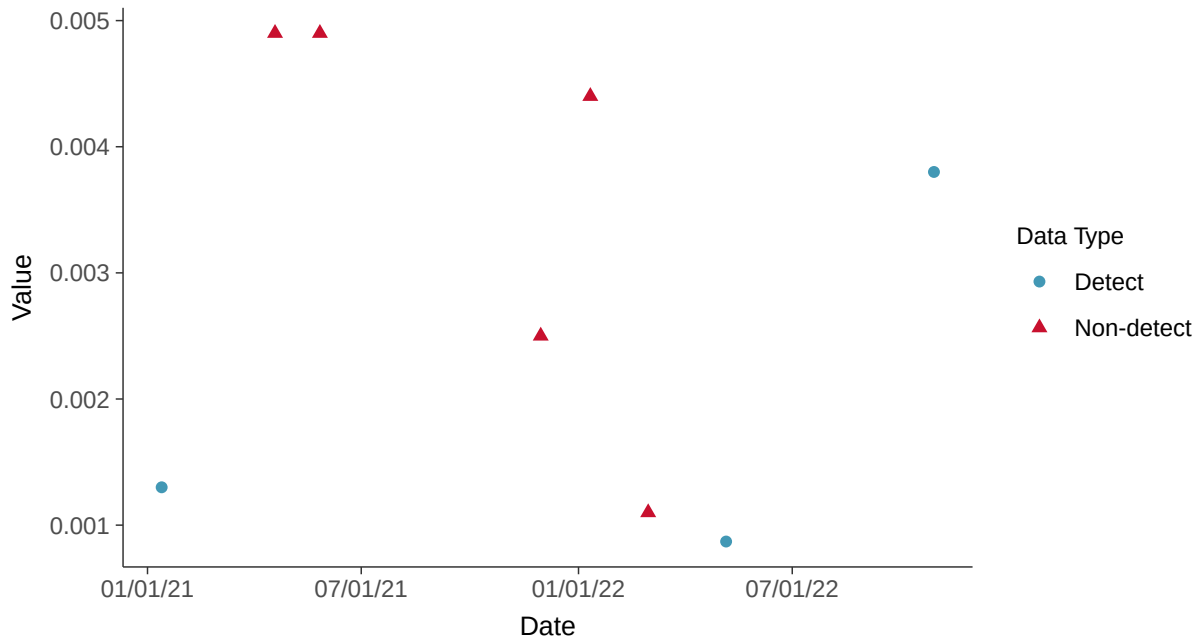


Appendix IV: Chromium, Total, W-9

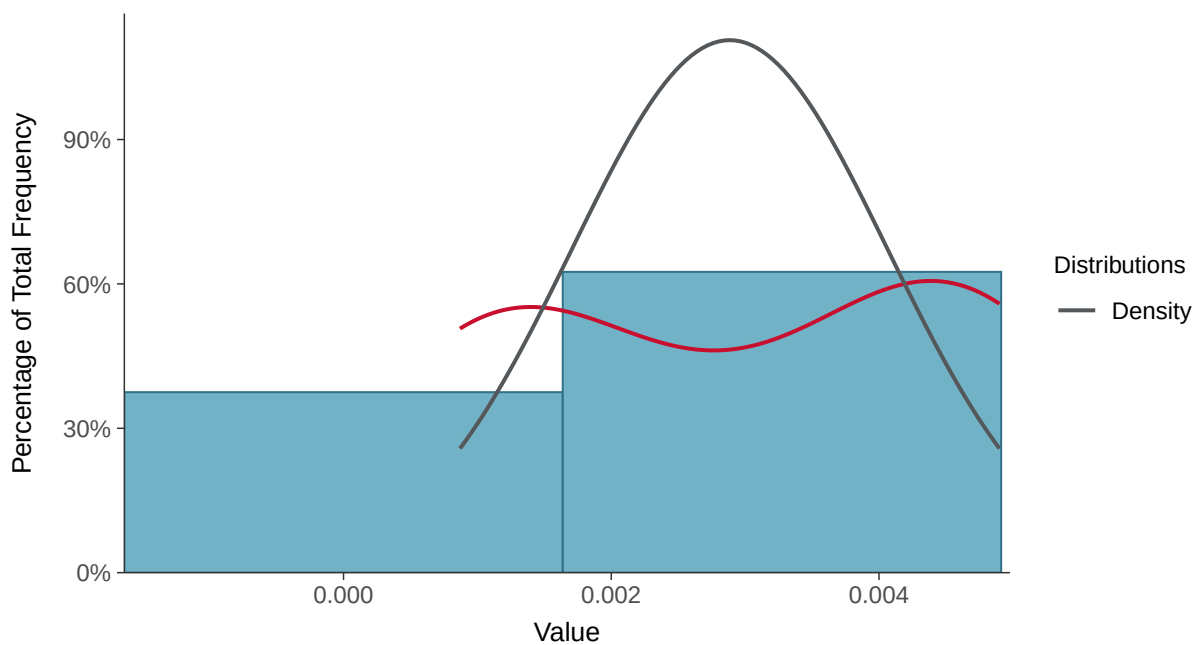
ID: 10_2_109

Scatter Plot

Chromium, Total, W-9 (mg/l)

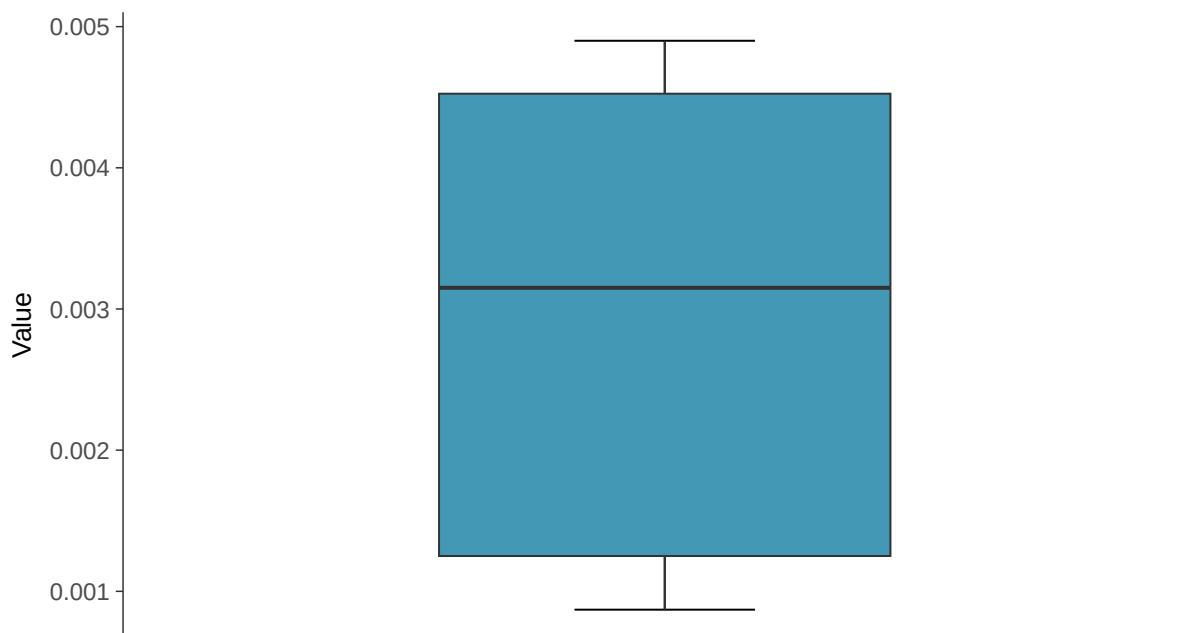
**Histogram**

Chromium, Total, W-9 (mg/l)



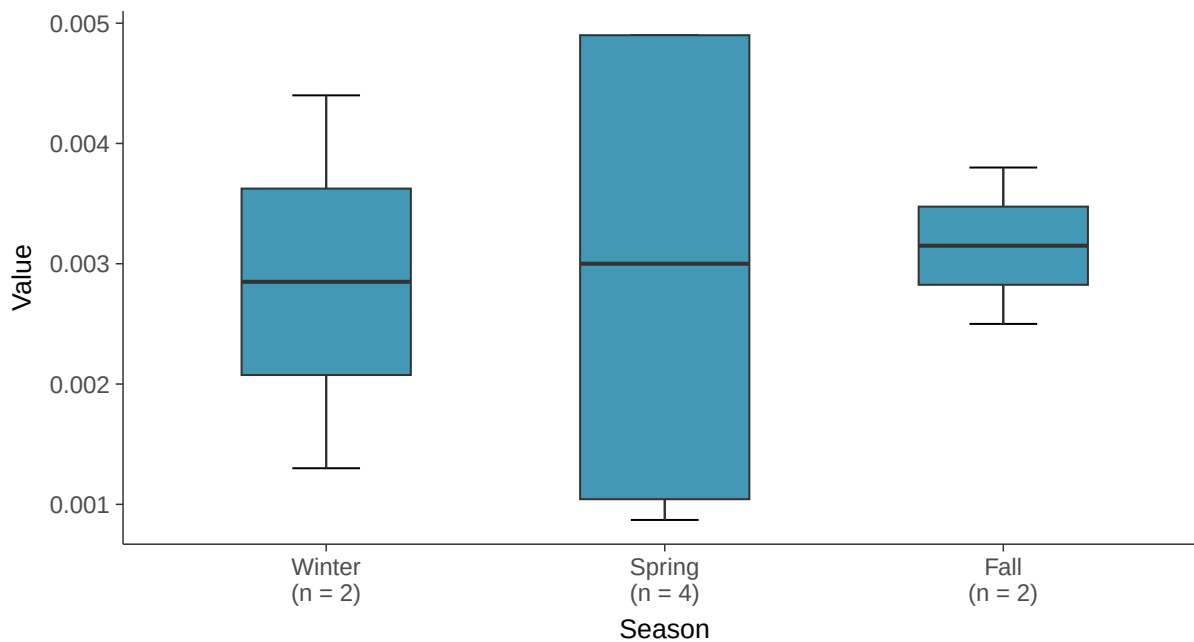
Boxplot

Chromium, Total, W-9 (mg/l)



Boxplot by Season

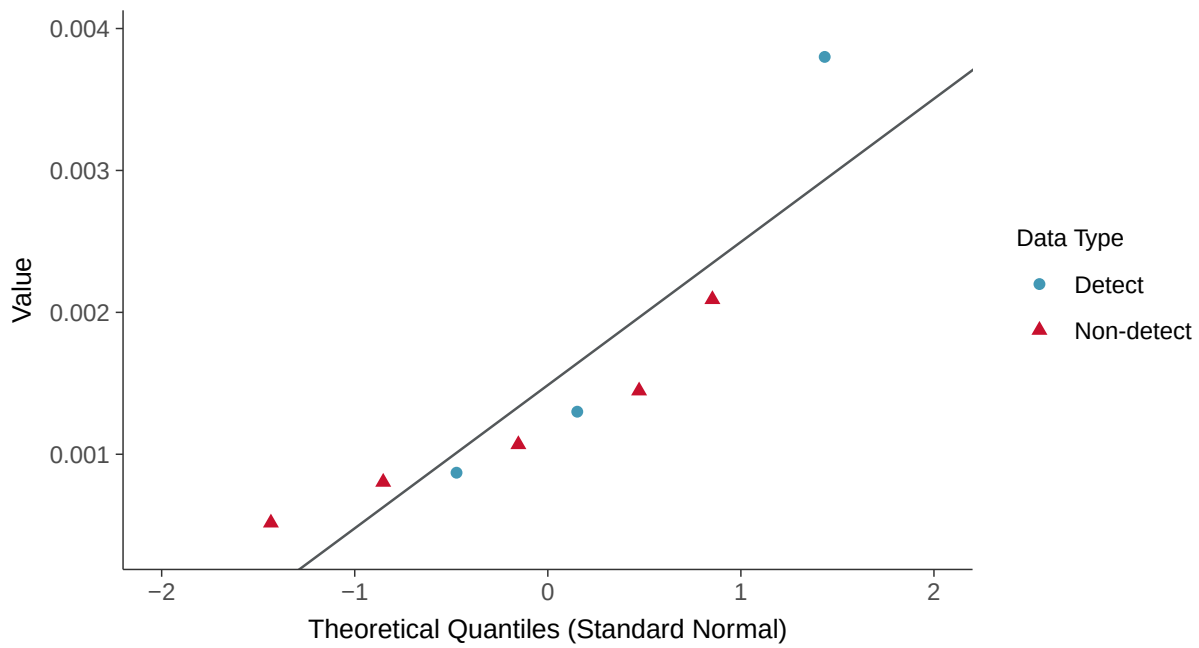
Chromium, Total, W-9 (mg/l)





Normal Q-Q plot using ROS Imputed Estimates

Chromium, Total, W-9 (mg/l)

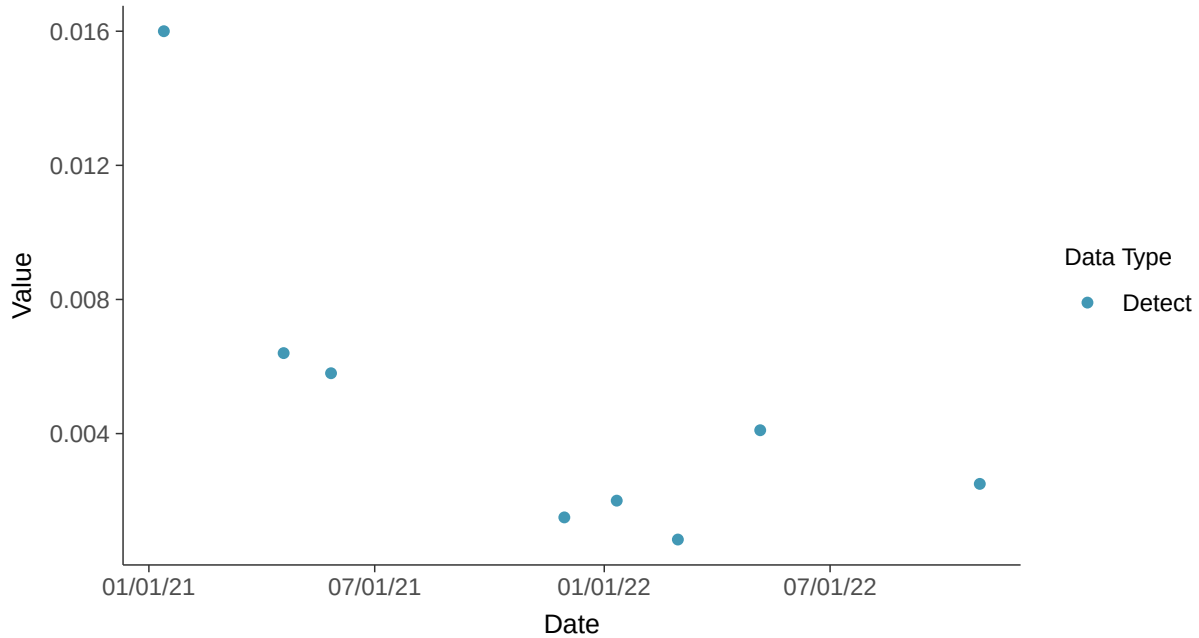


Appendix IV: Cobalt, W-9

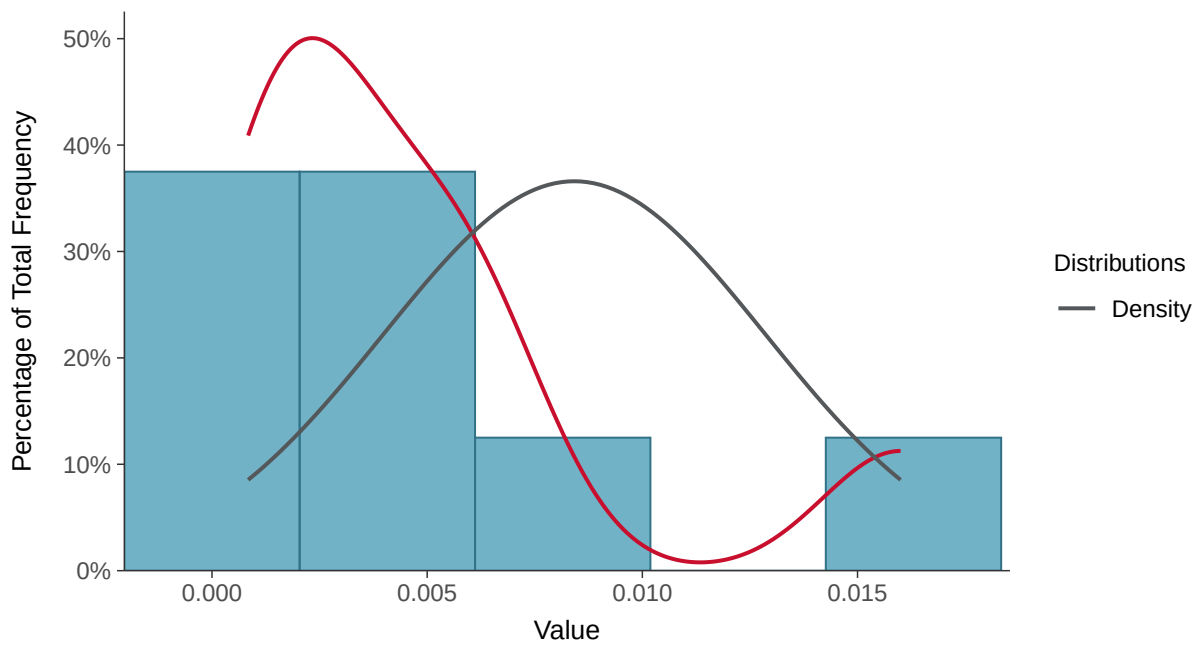
ID: 10_2_110

Scatter Plot

Cobalt, W-9 (mg/l)

**Histogram**

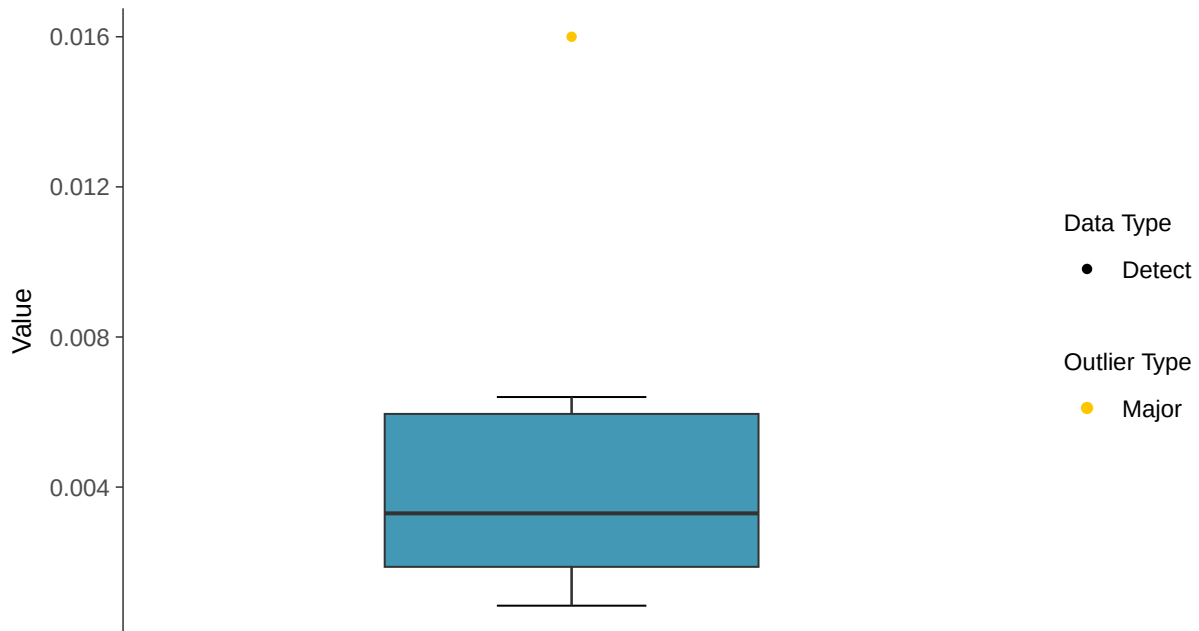
Cobalt, W-9 (mg/l)



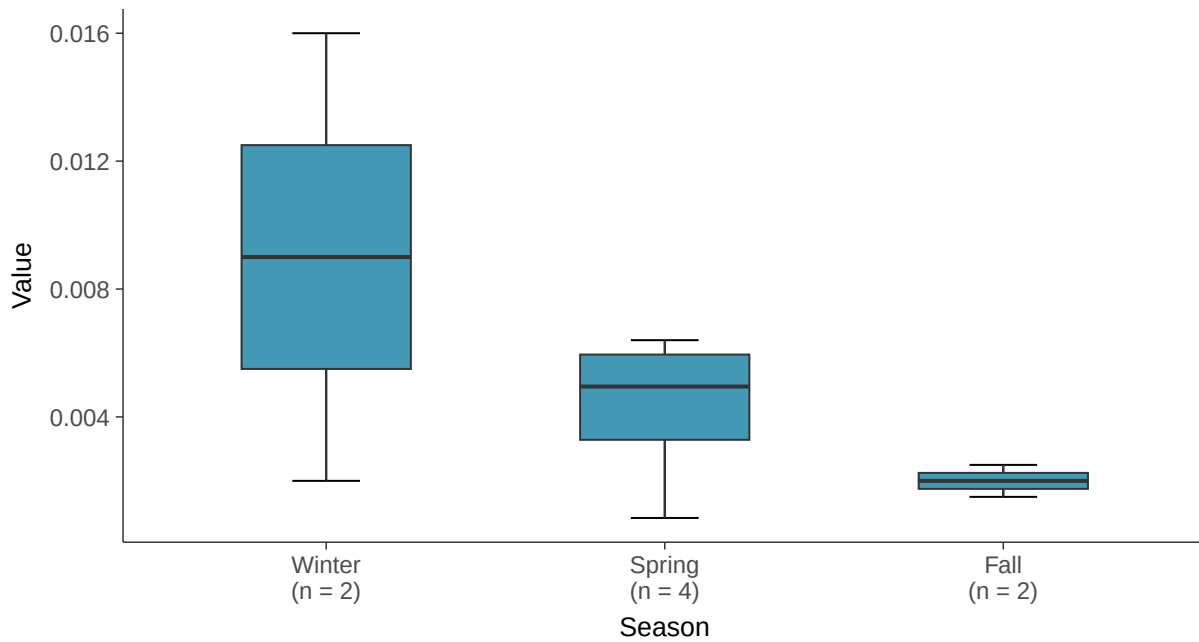
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Cobalt, W-9 (mg/l)

**Boxplot by Season**

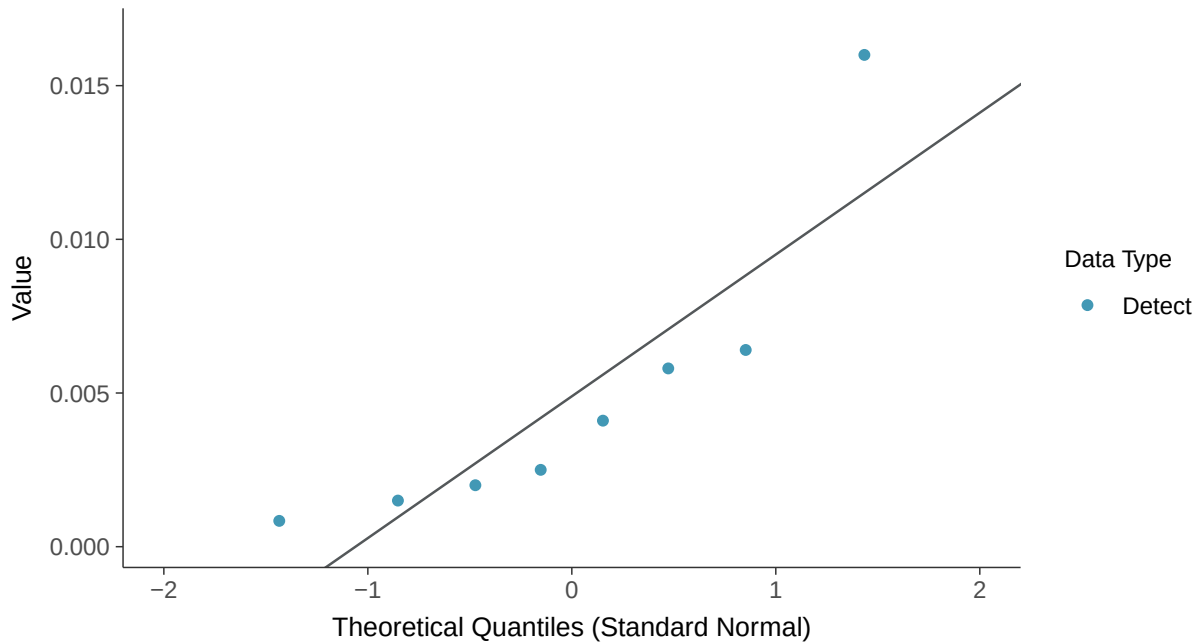
Cobalt, W-9 (mg/l)





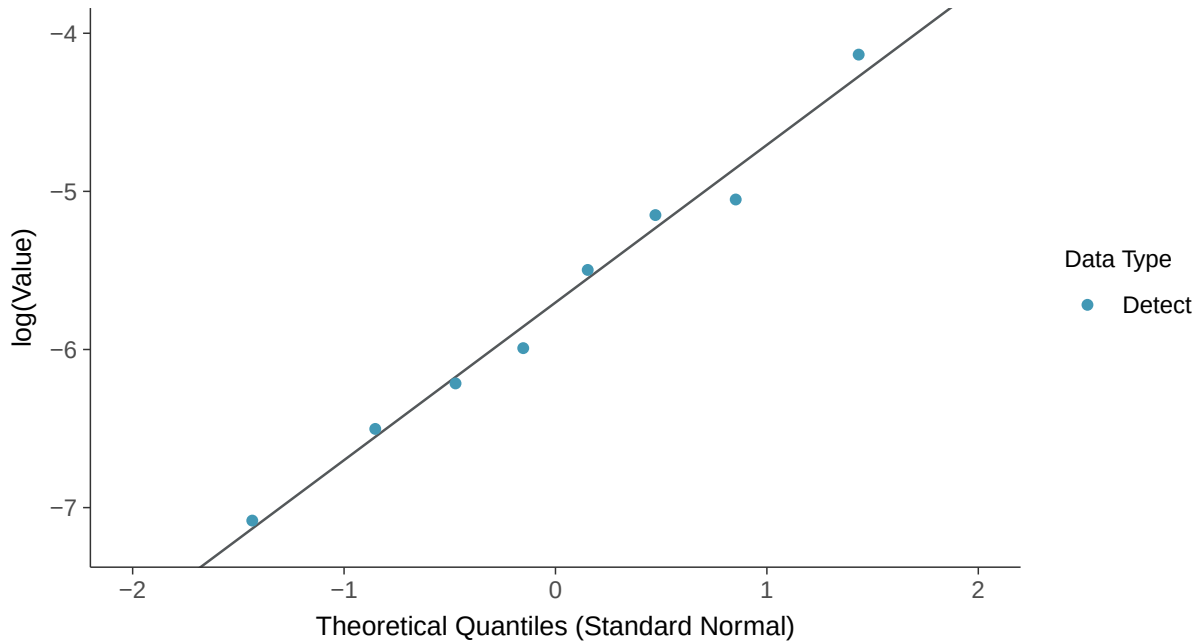
Normal Q-Q plot

Cobalt, W-9 (mg/l)



Lognormal Q-Q plot

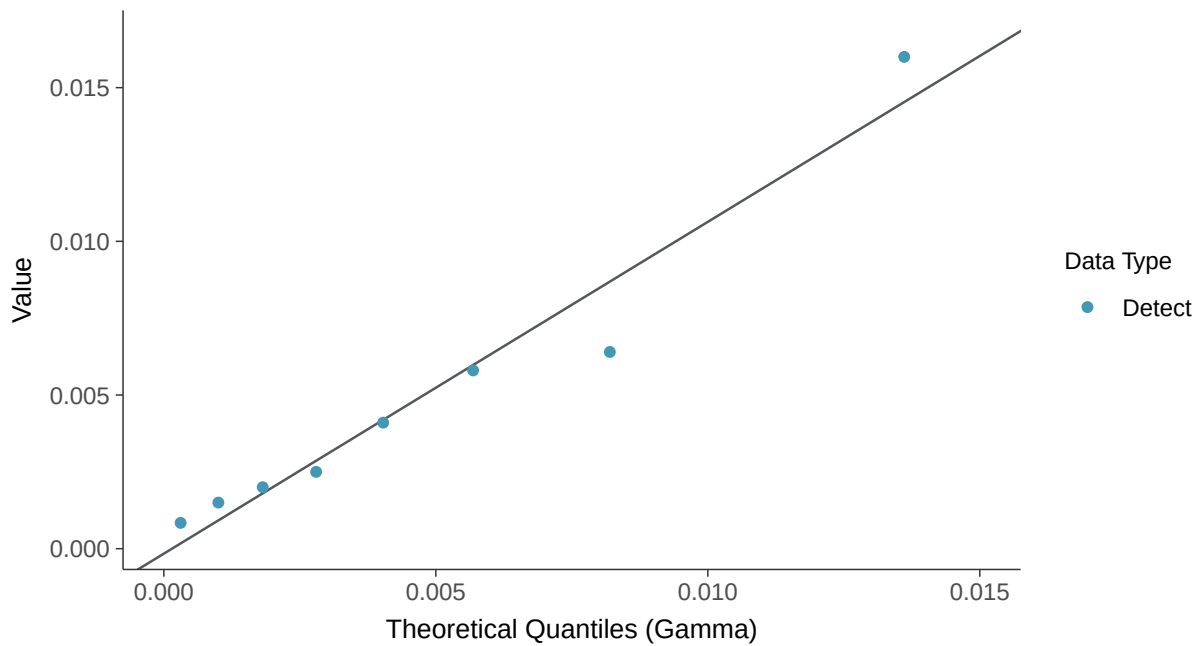
Cobalt, W-9 (mg/l)





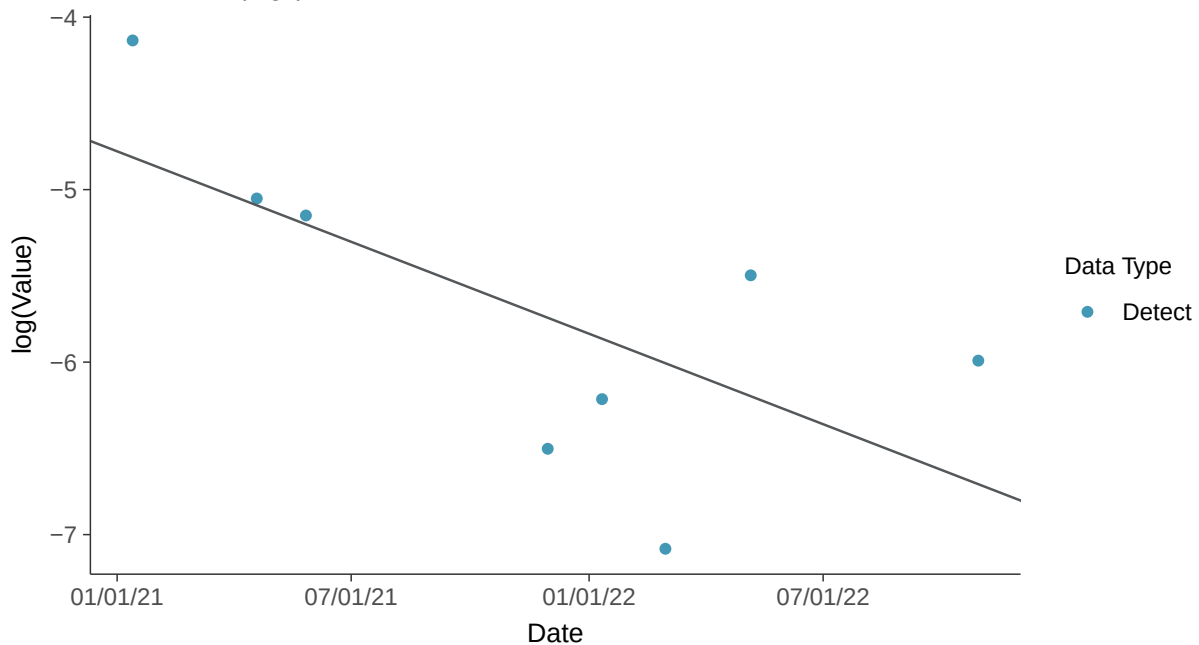
Gamma Q-Q plot

Cobalt, W-9 (mg/l)



Trend Regression: Lognormal MLE

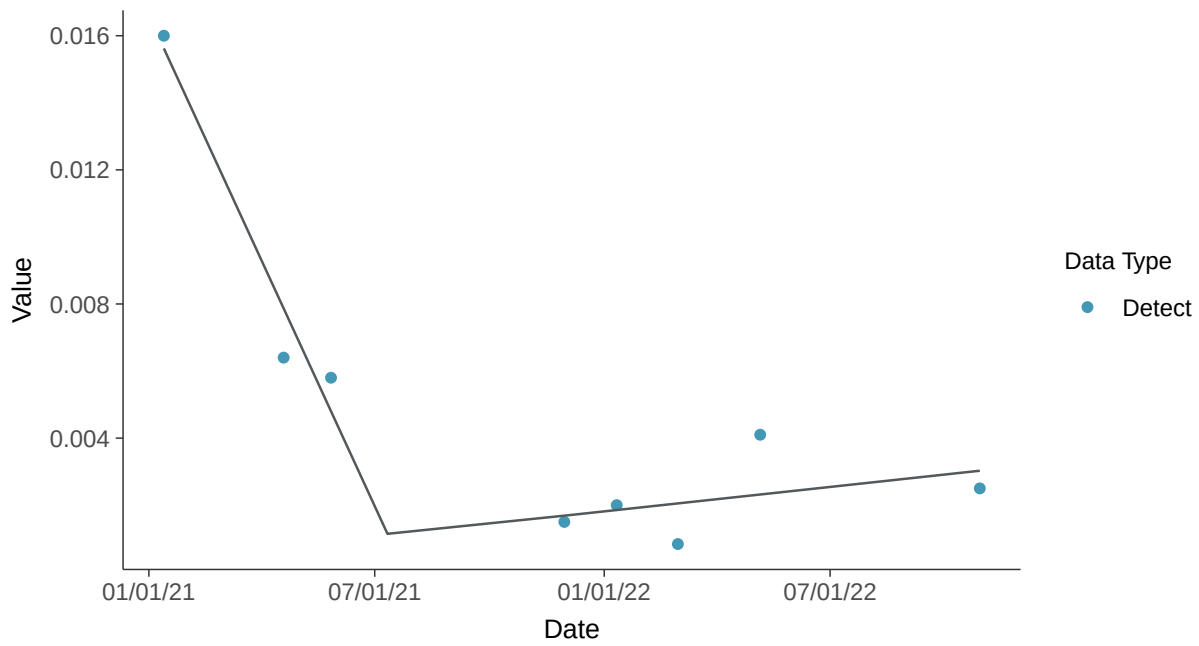
Cobalt, W-9 (mg/l)





Trend Regression: Piecewise Linear-Linear

Cobalt, W-9 (mg/l)

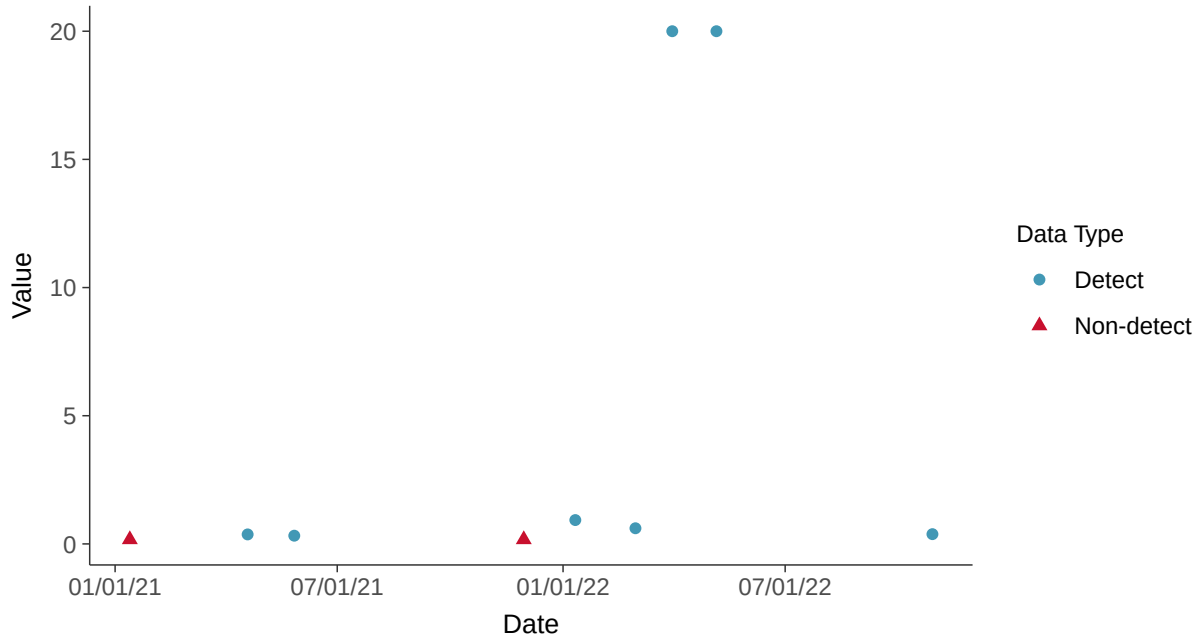


Appendix IV: Fluoride (App IV), W-9

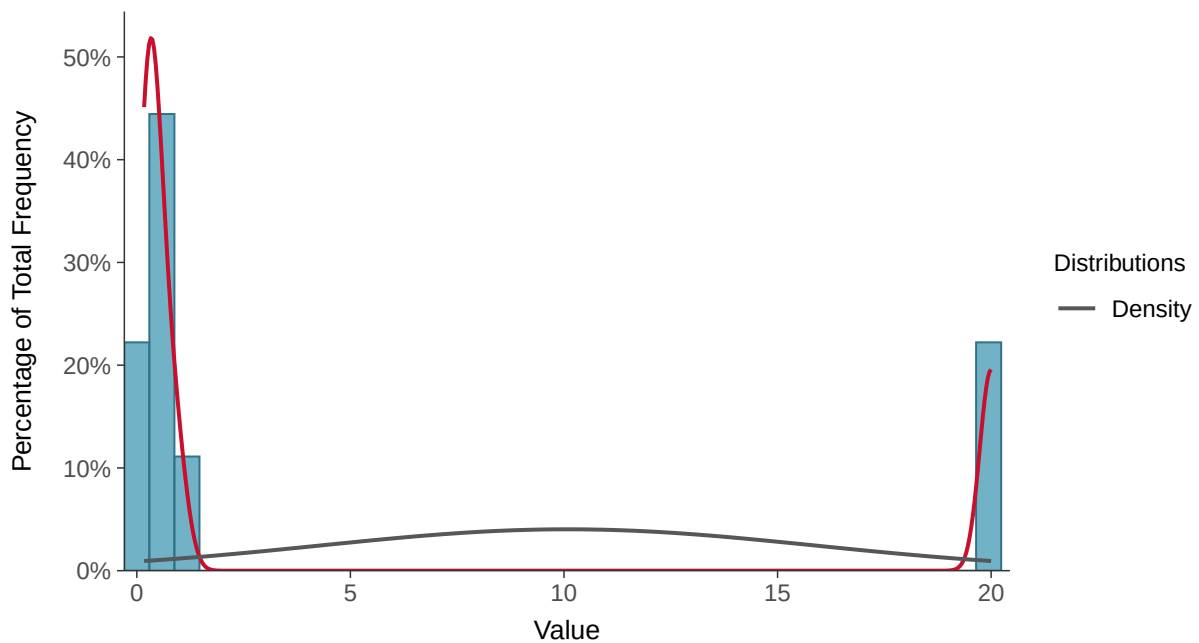
ID: 10_2_112

Scatter Plot

Fluoride (App IV), W-9 (mg/l)

**Histogram**

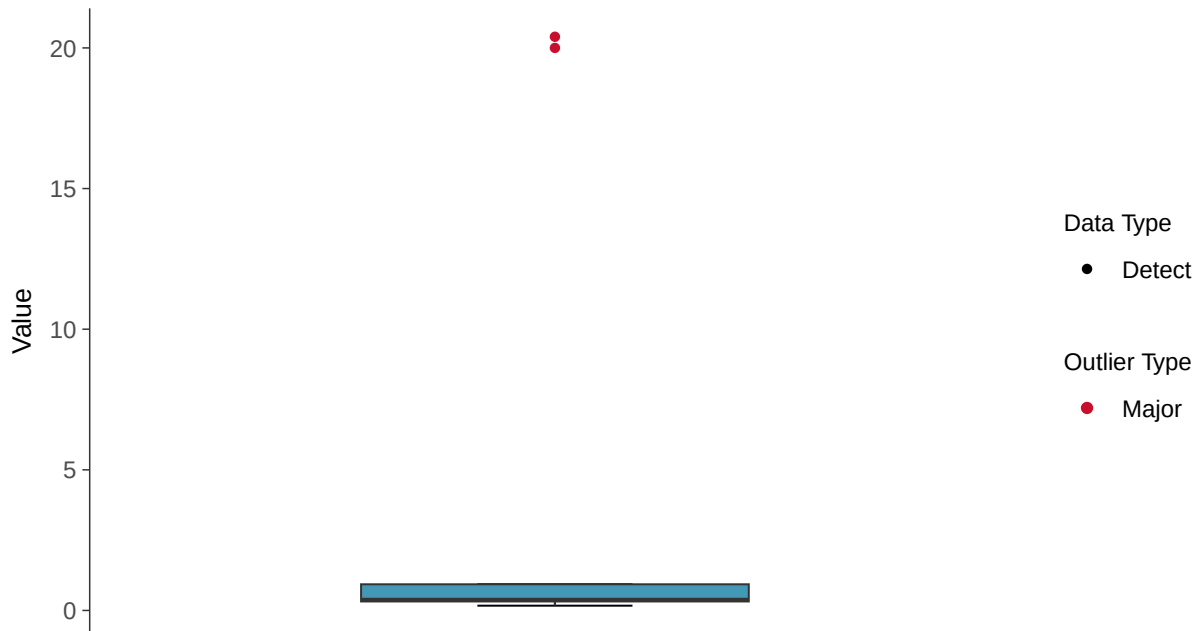
Fluoride (App IV), W-9 (mg/l)



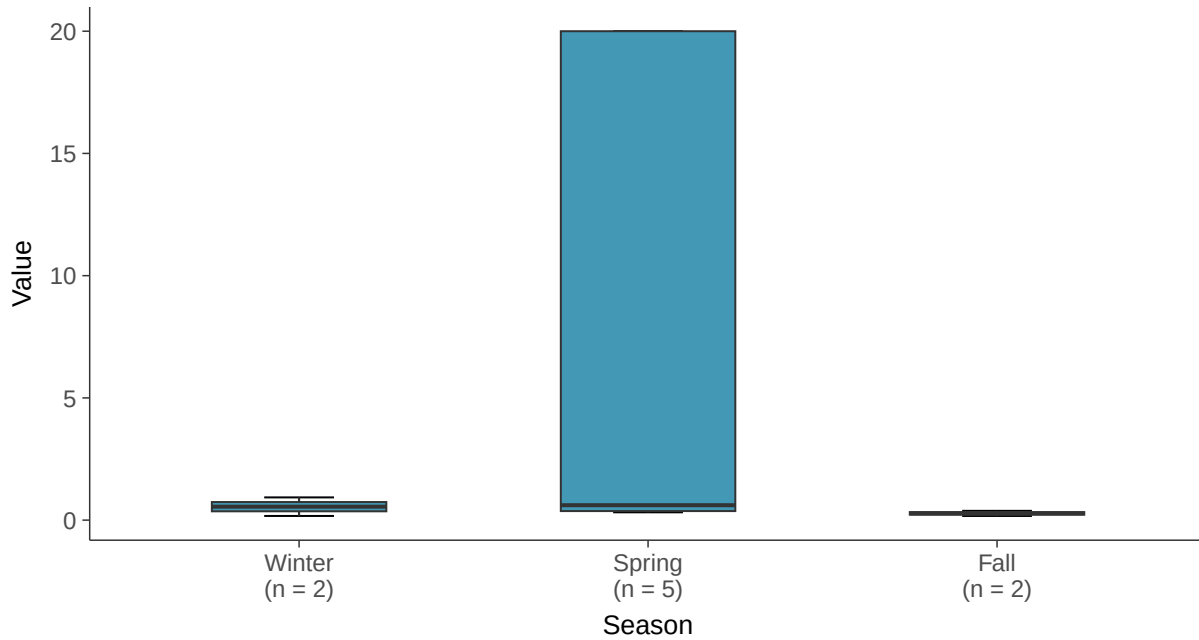
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Fluoride (App IV), W-9 (mg/l)

**Boxplot by Season**

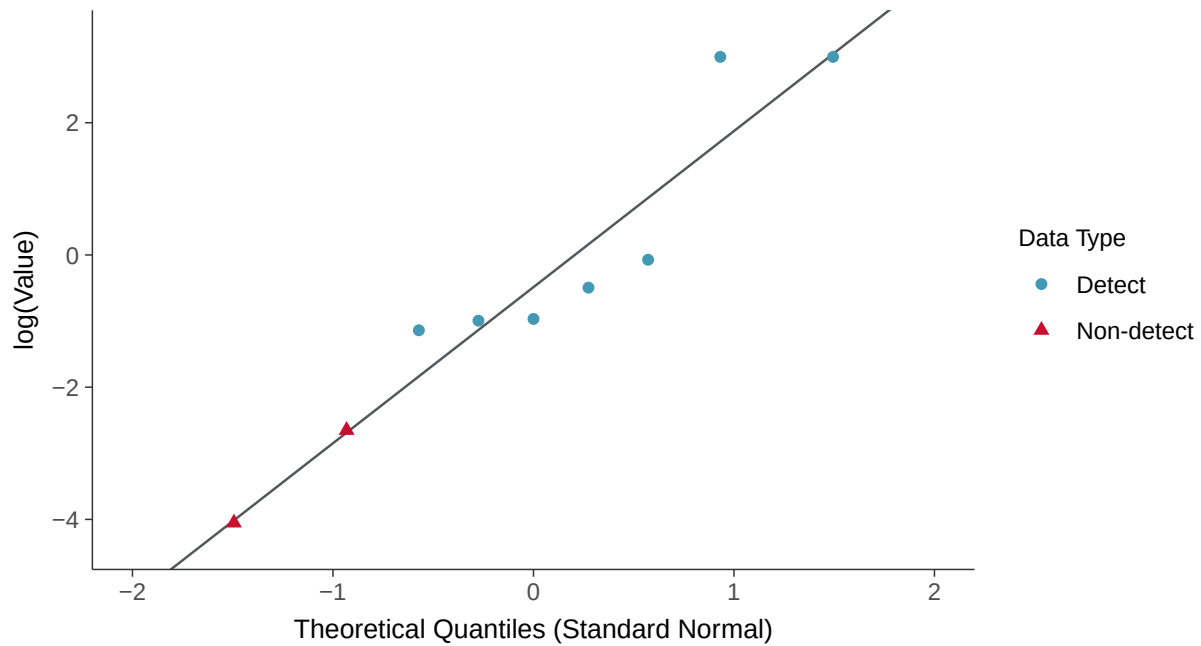
Fluoride (App IV), W-9 (mg/l)



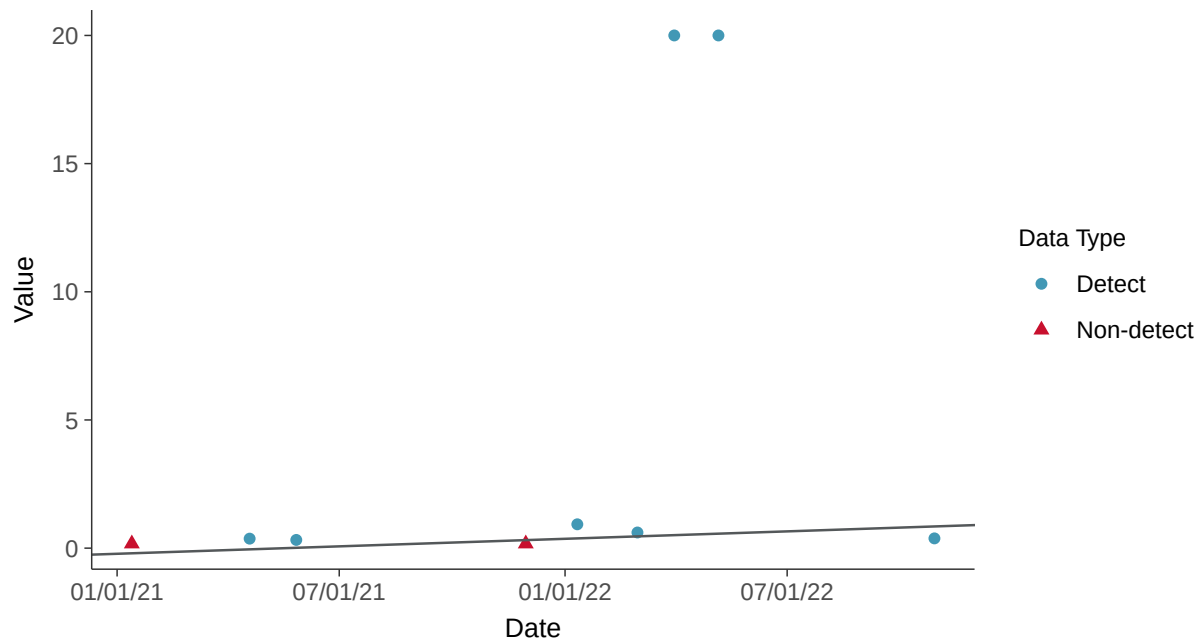
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Lognormal Q-Q plot using ROS Imputed Estimates

Fluoride (App IV), W-9 (mg/l)

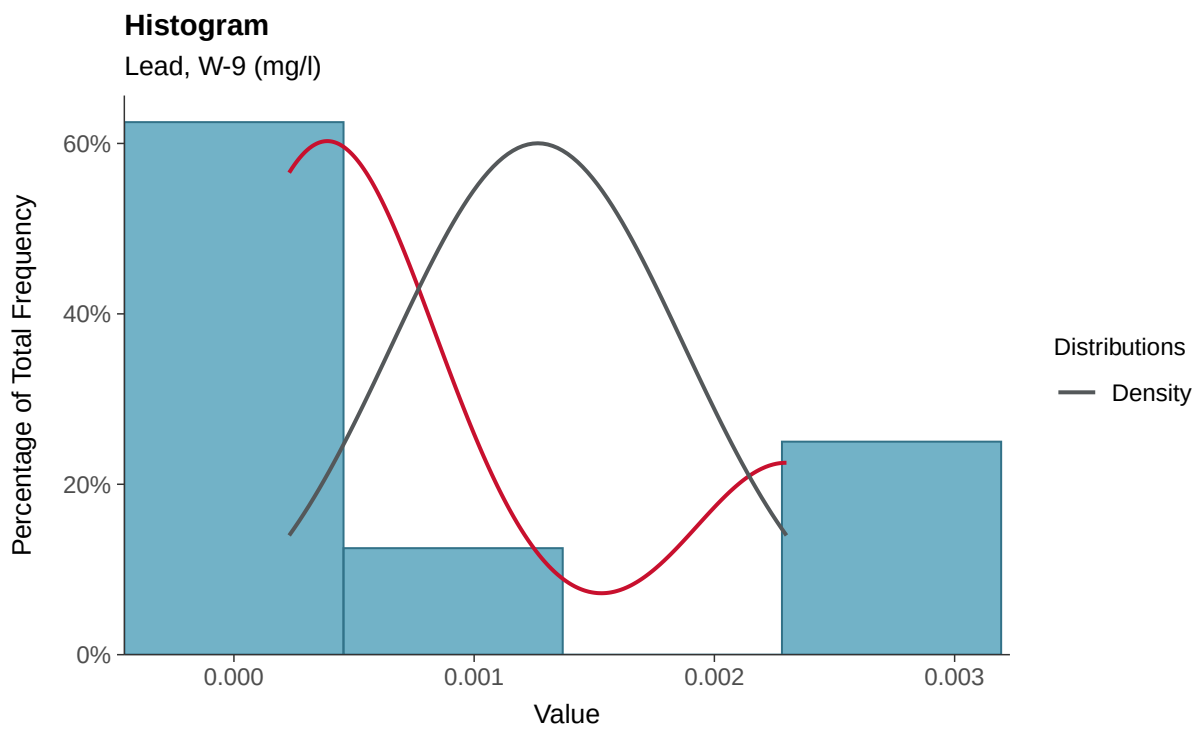
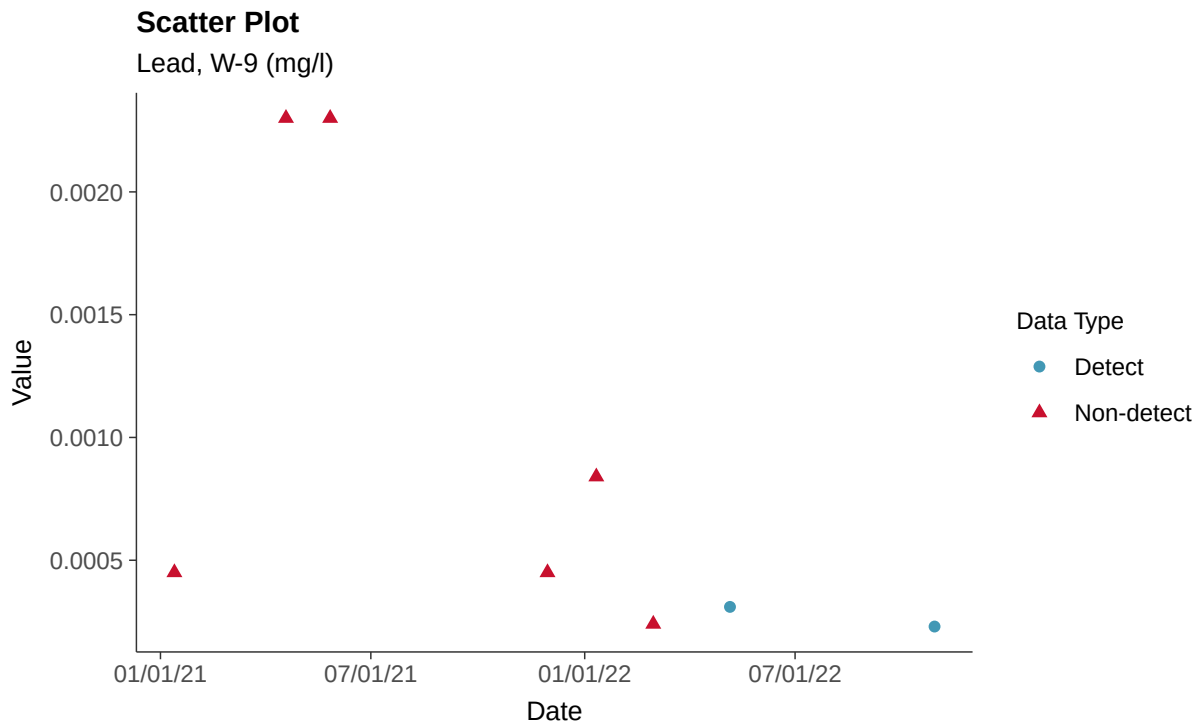
**Trend Regression: Mann-Kendall/Theil-Sen Estimate**

Fluoride (App IV), W-9 (mg/l)



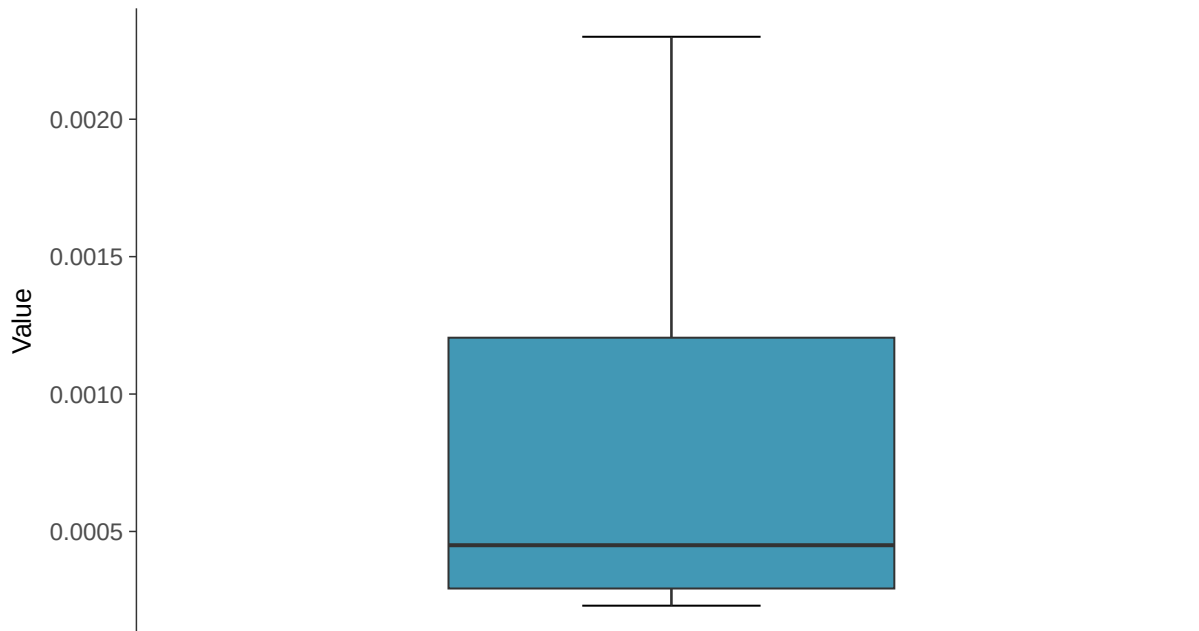
Appendix IV: Lead, W-9

ID: 10_2_113



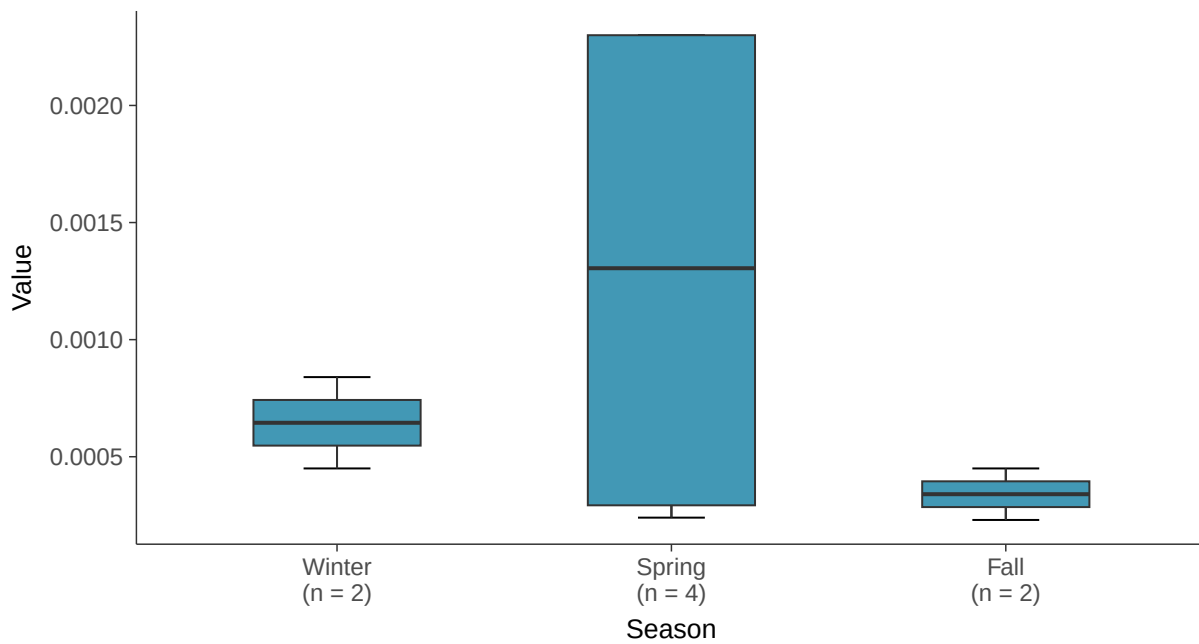
Boxplot

Lead, W-9 (mg/l)



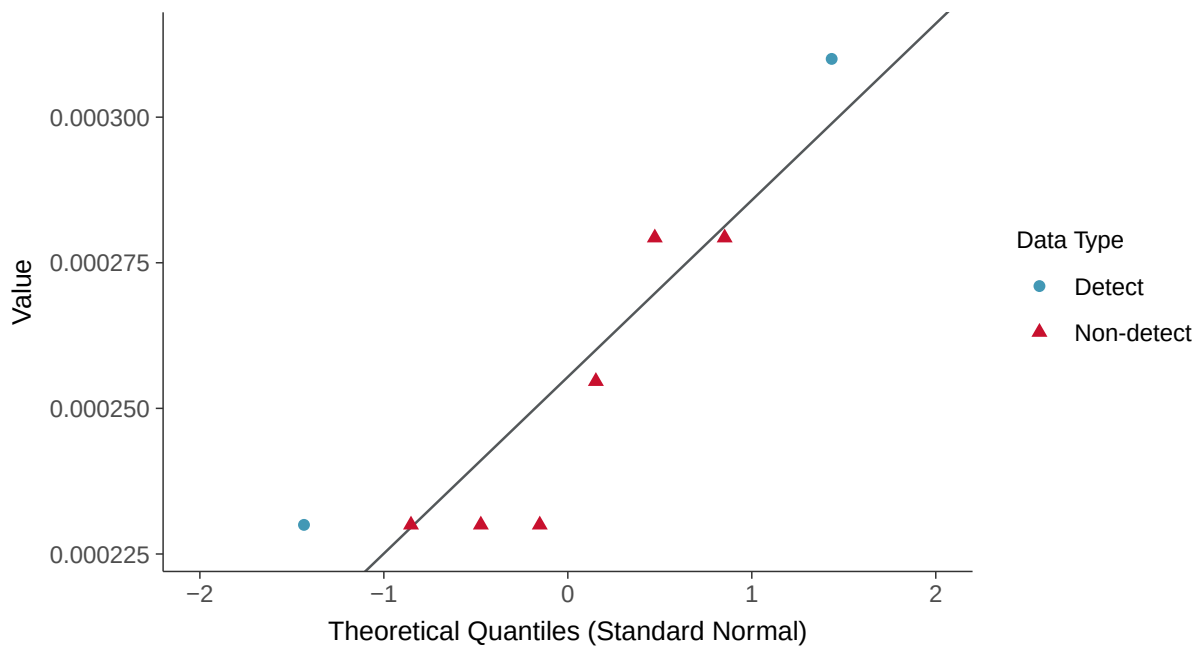
Boxplot by Season

Lead, W-9 (mg/l)



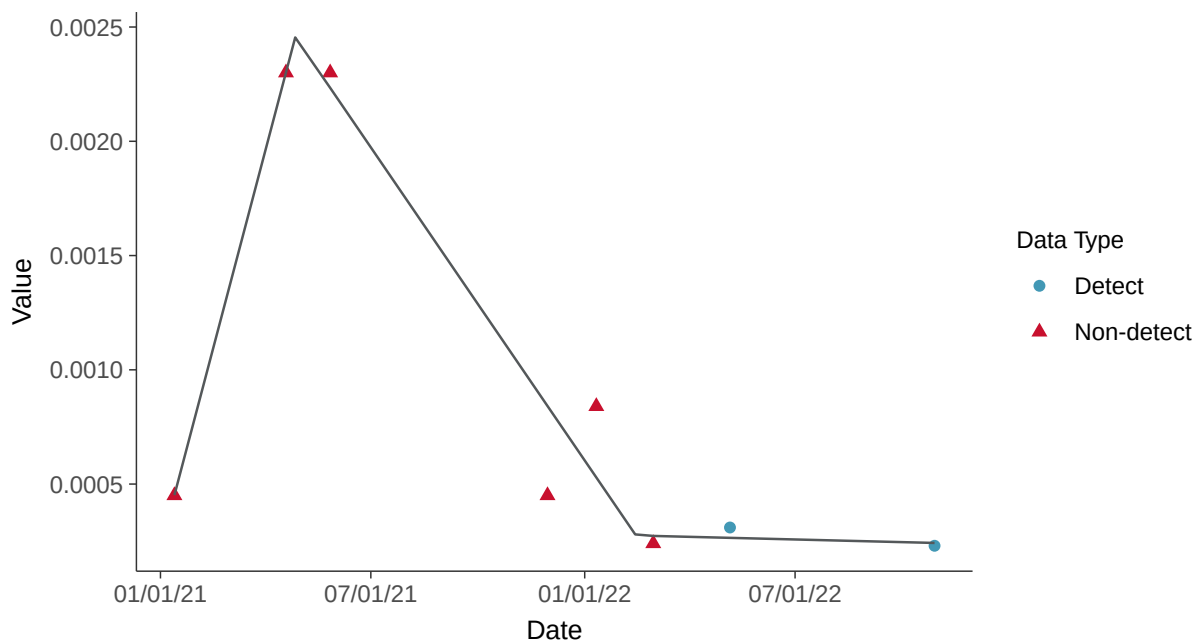
Normal Q-Q plot using ROS Imputed Estimates

Lead, W-9 (mg/l)



Trend Regression: Piecewise Linear-Linear-Linear

Lead, W-9 (mg/l)

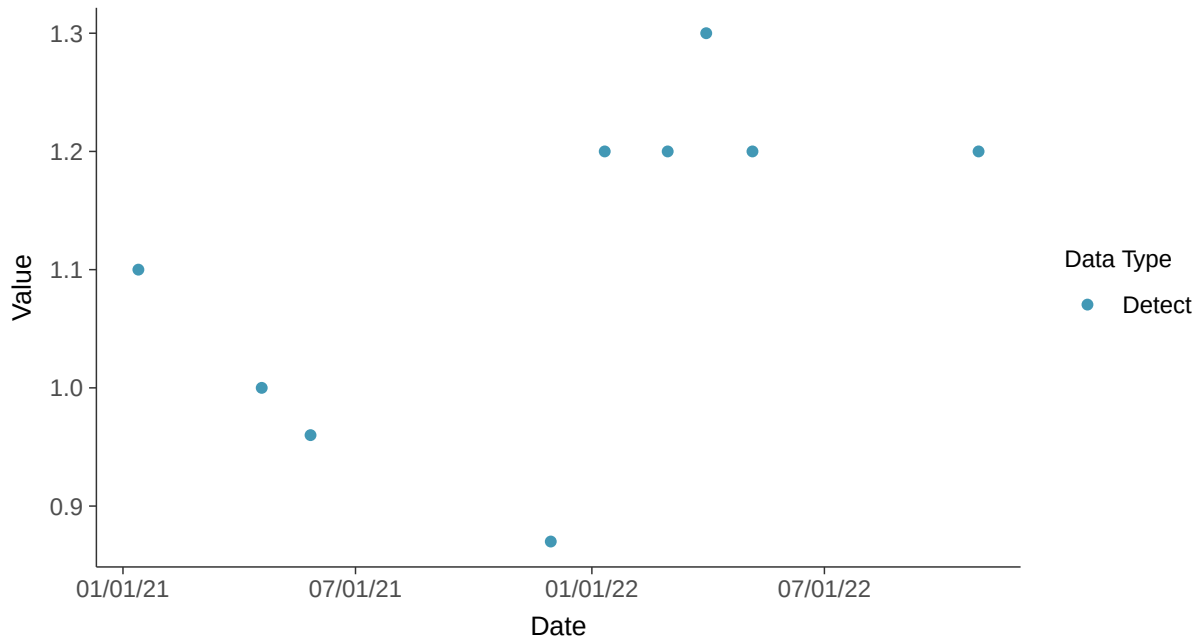


Appendix IV: Lithium, W-9

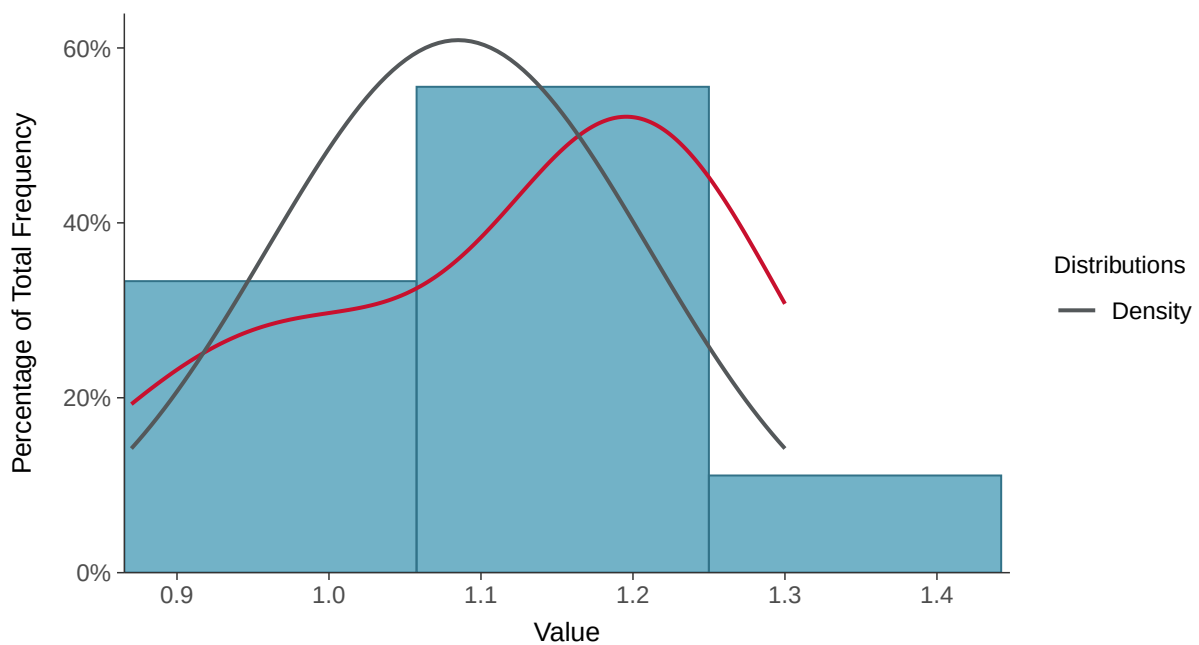
ID: 10_2_114

Scatter Plot

Lithium, W-9 (mg/l)

**Histogram**

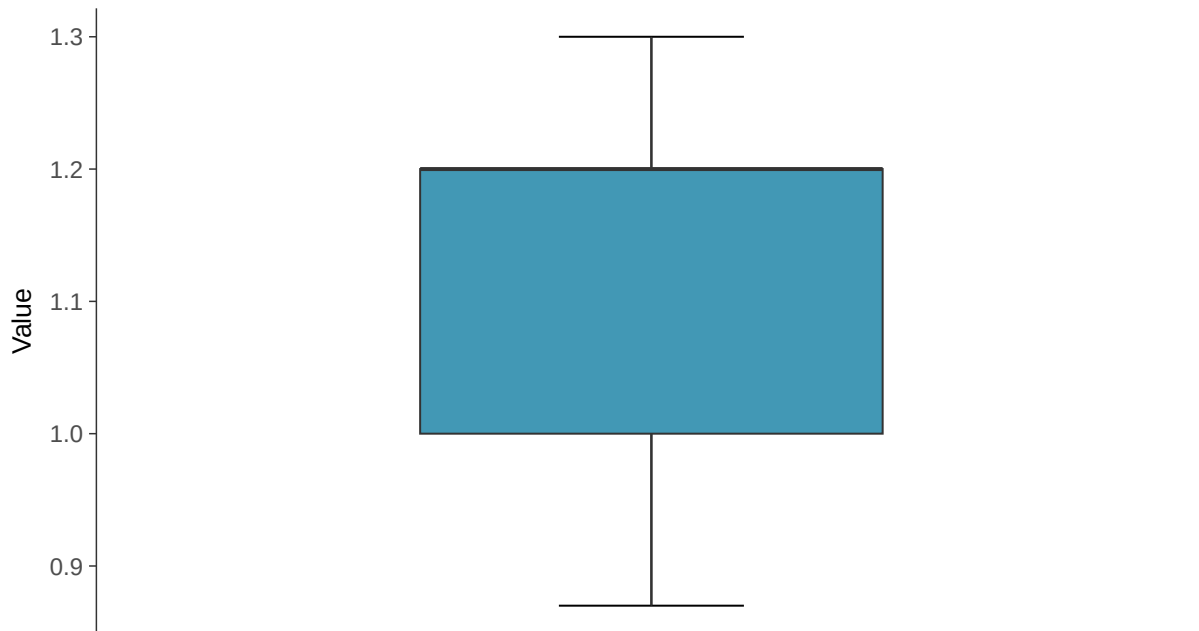
Lithium, W-9 (mg/l)



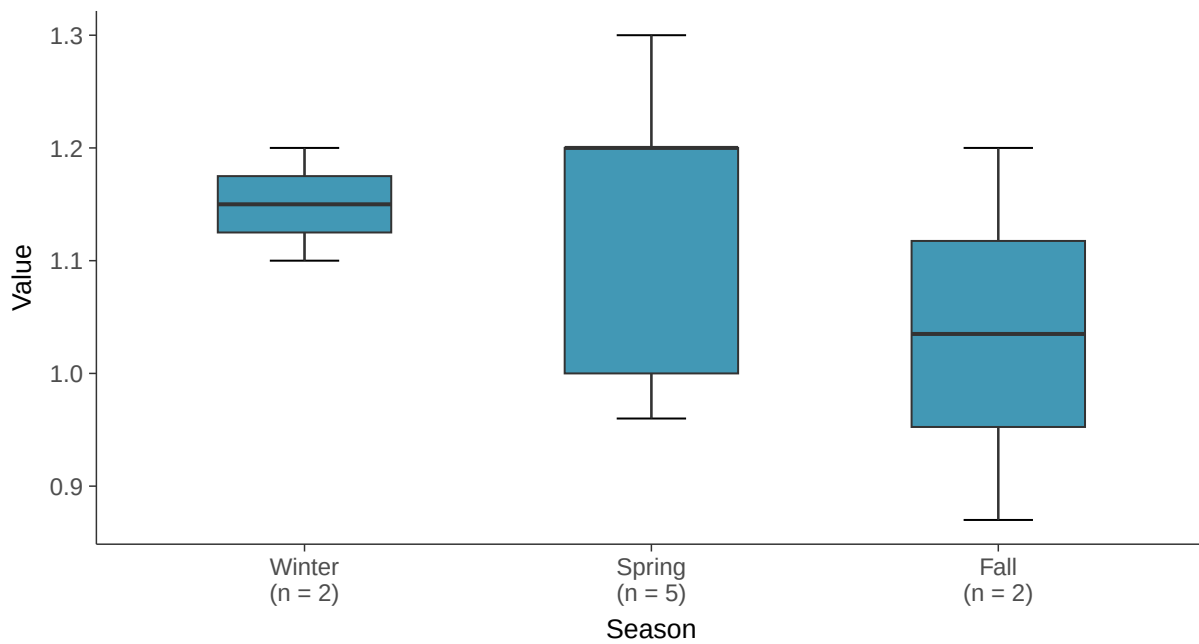
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Lithium, W-9 (mg/l)

**Boxplot by Season**

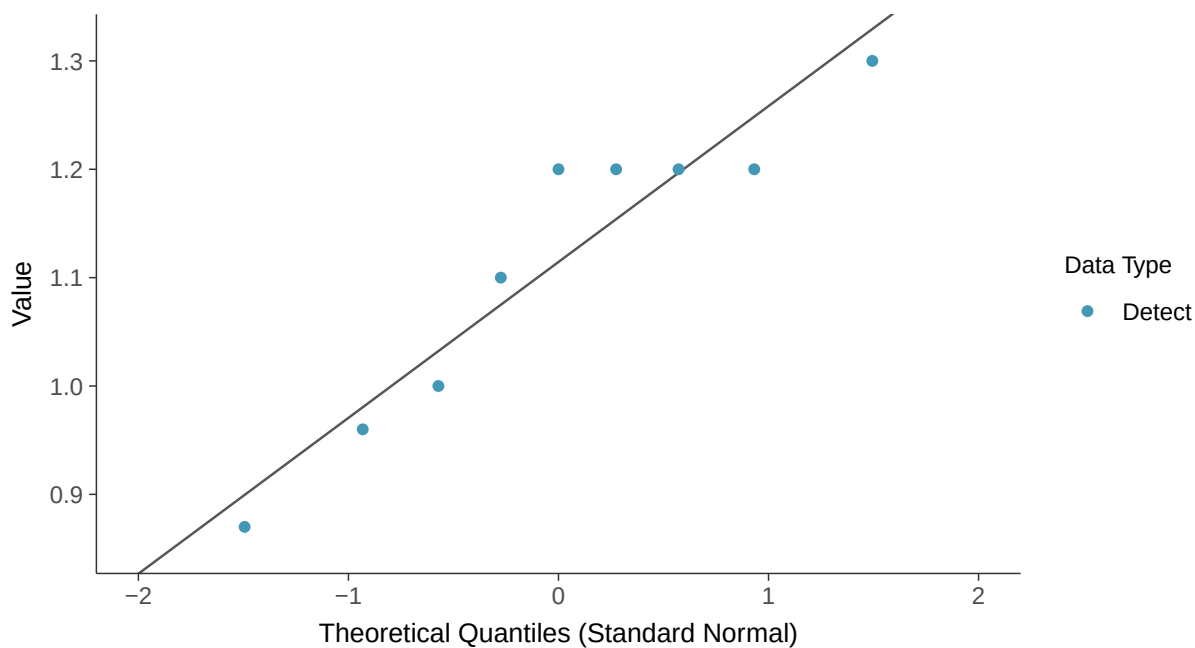
Lithium, W-9 (mg/l)





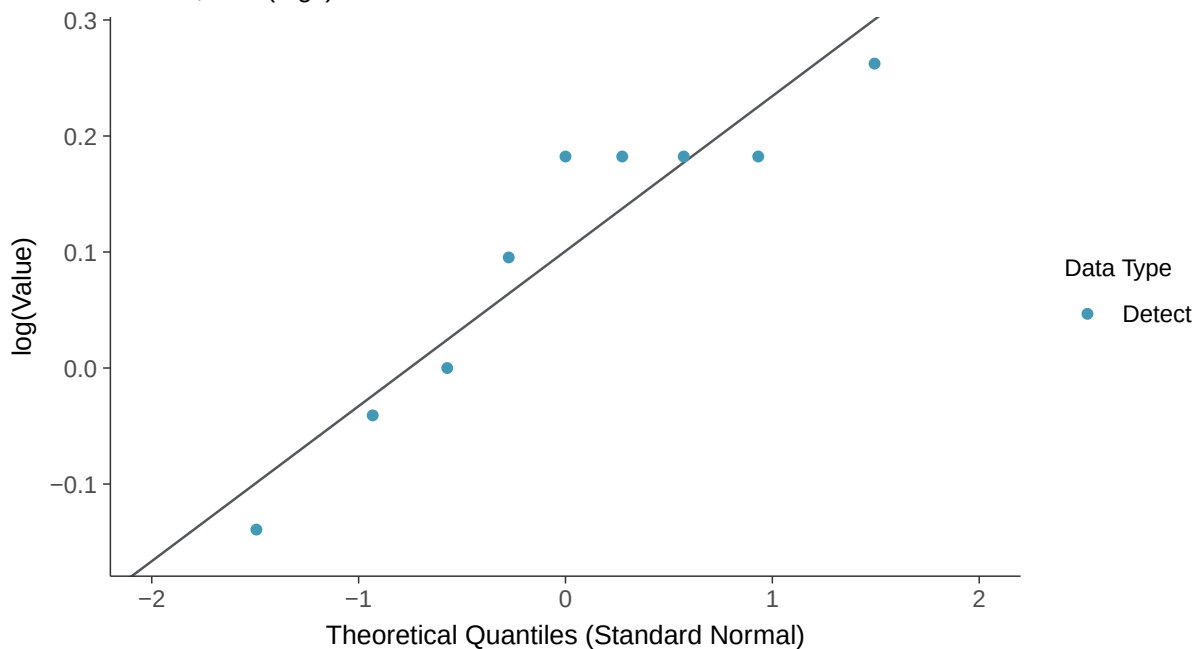
Normal Q-Q plot

Lithium, W-9 (mg/l)



Lognormal Q-Q plot

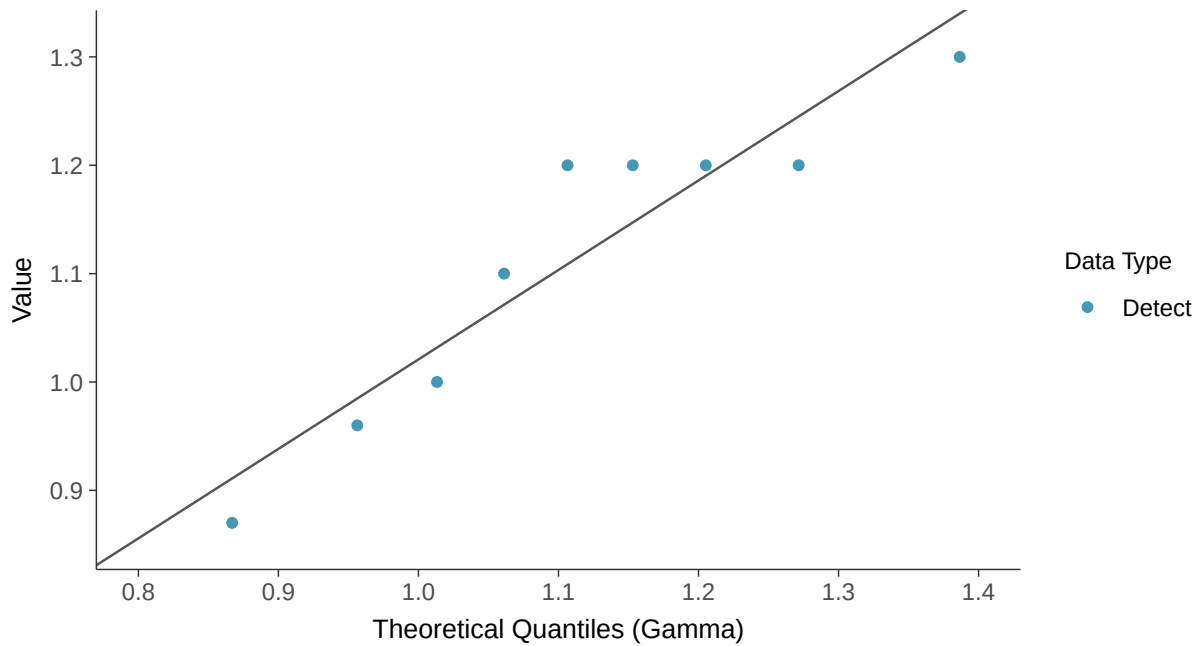
Lithium, W-9 (mg/l)





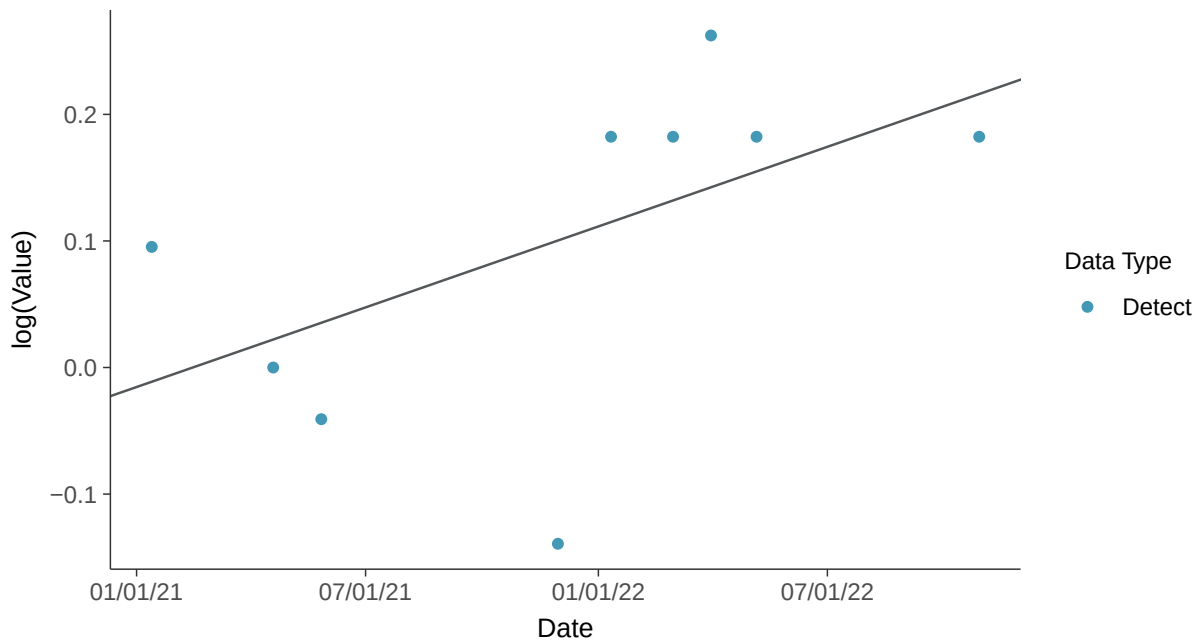
Gamma Q-Q plot

Lithium, W-9 (mg/l)



Trend Regression: Lognormal MLE

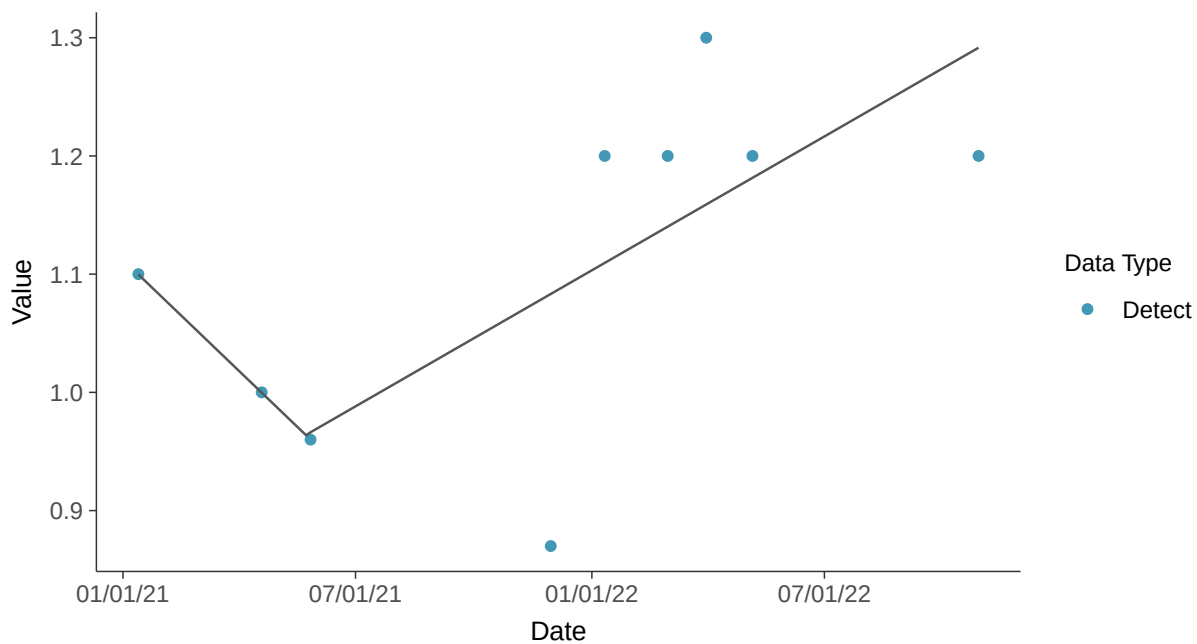
Lithium, W-9 (mg/l)





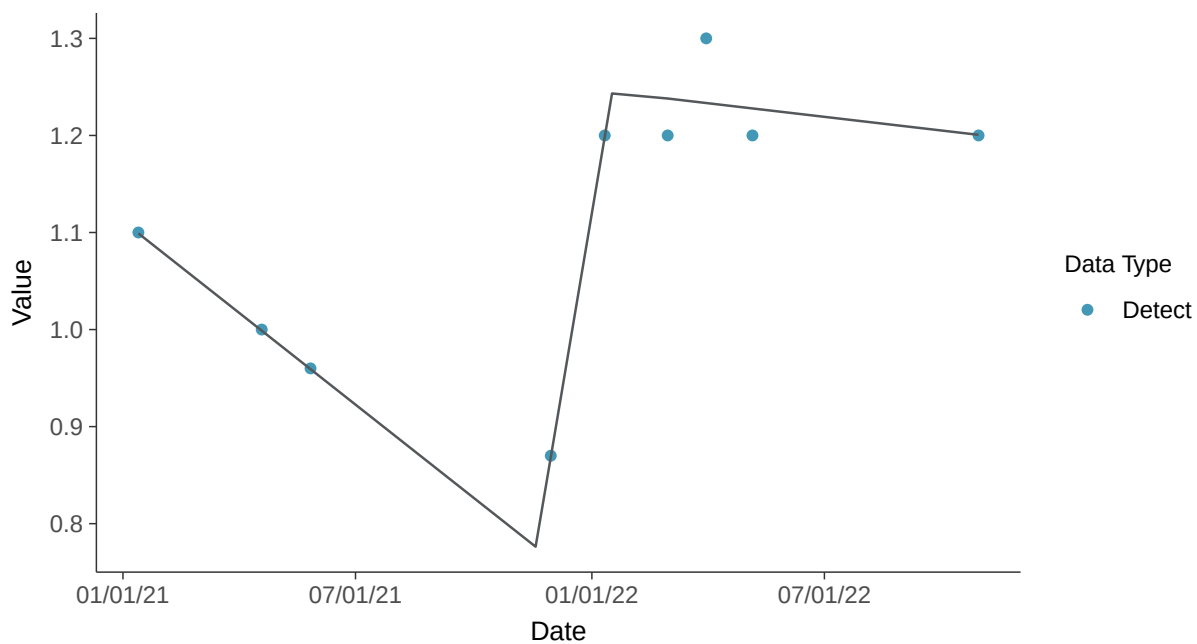
Trend Regression: Piecewise Linear-Linear

Lithium, W-9 (mg/l)



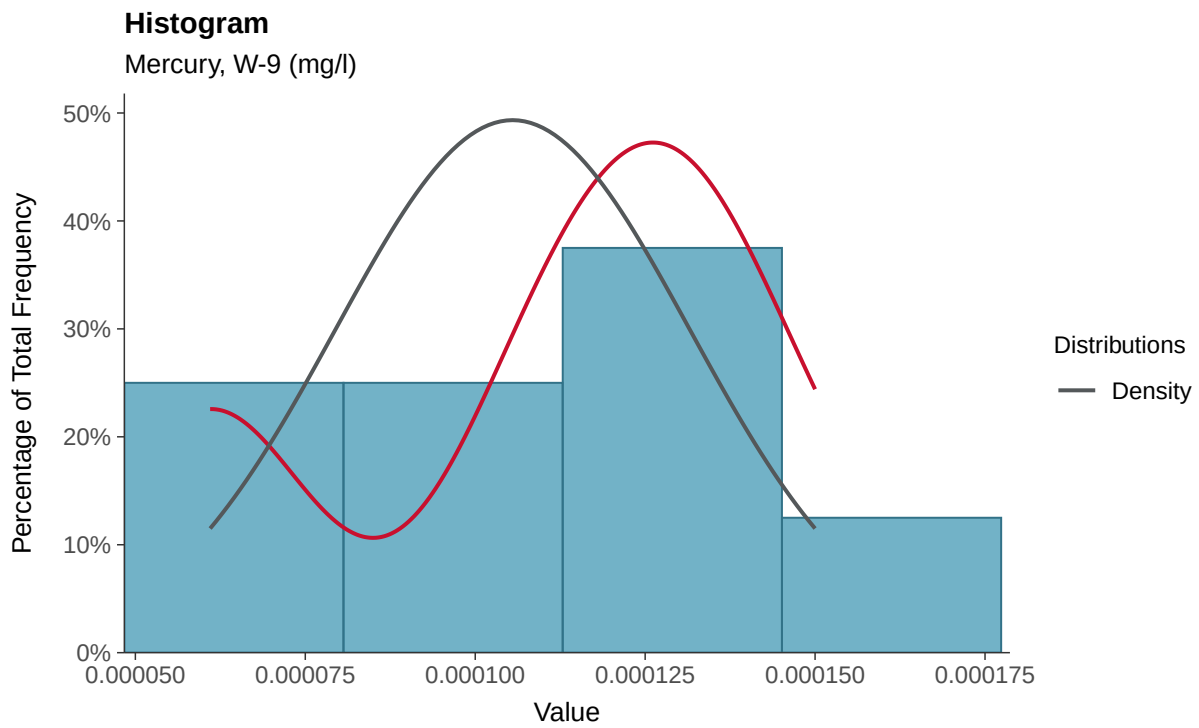
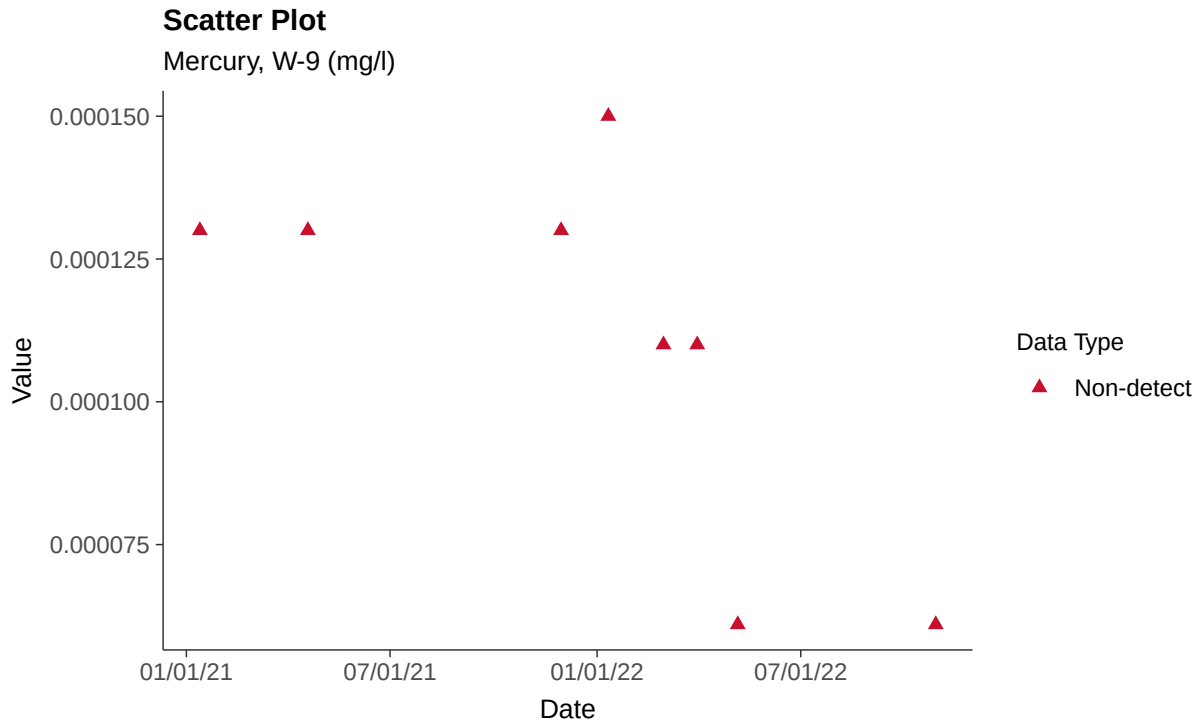
Trend Regression: Piecewise Linear-Linear-Linear

Lithium, W-9 (mg/l)



Appendix IV: Mercury, W-9

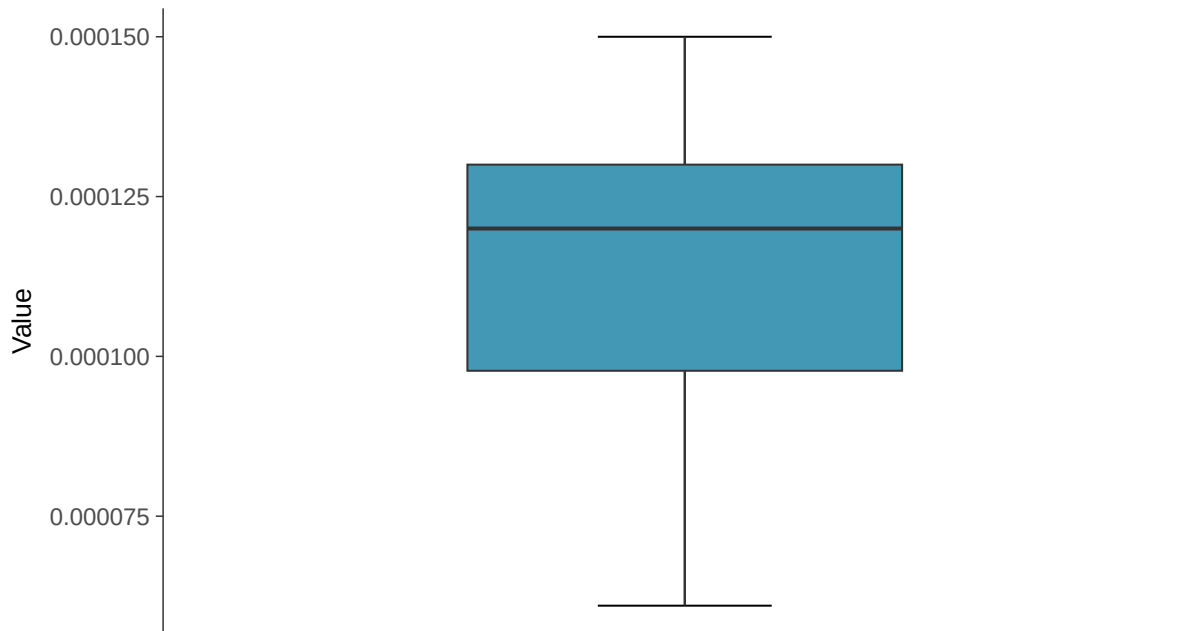
ID: 10_2_115





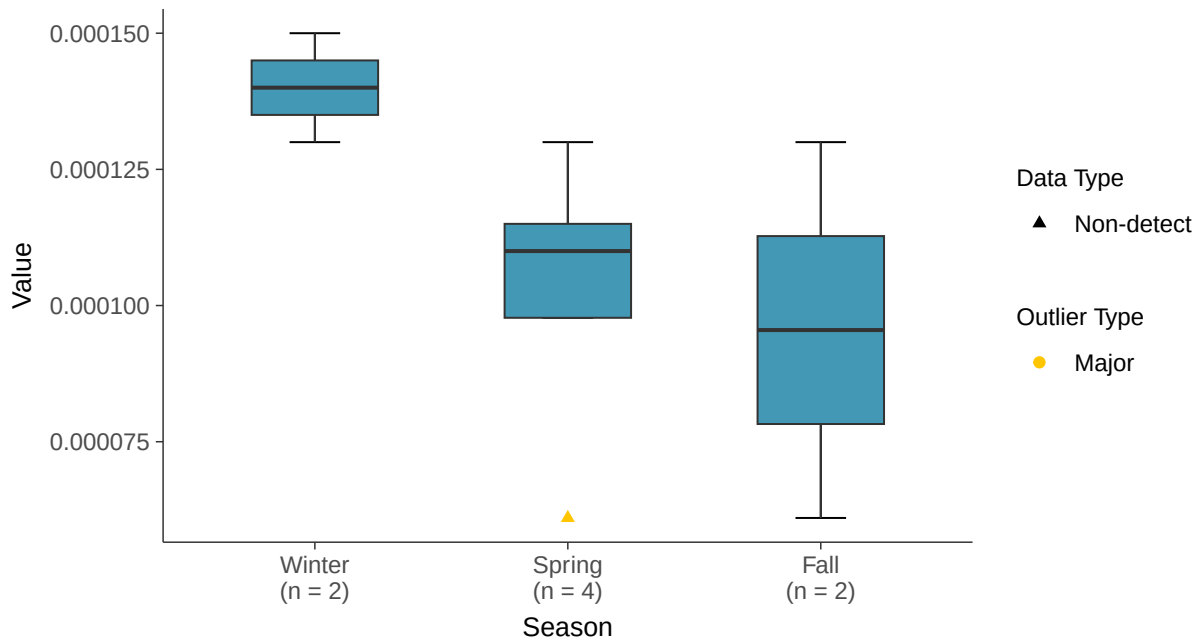
Boxplot

Mercury, W-9 (mg/l)



Boxplot by Season

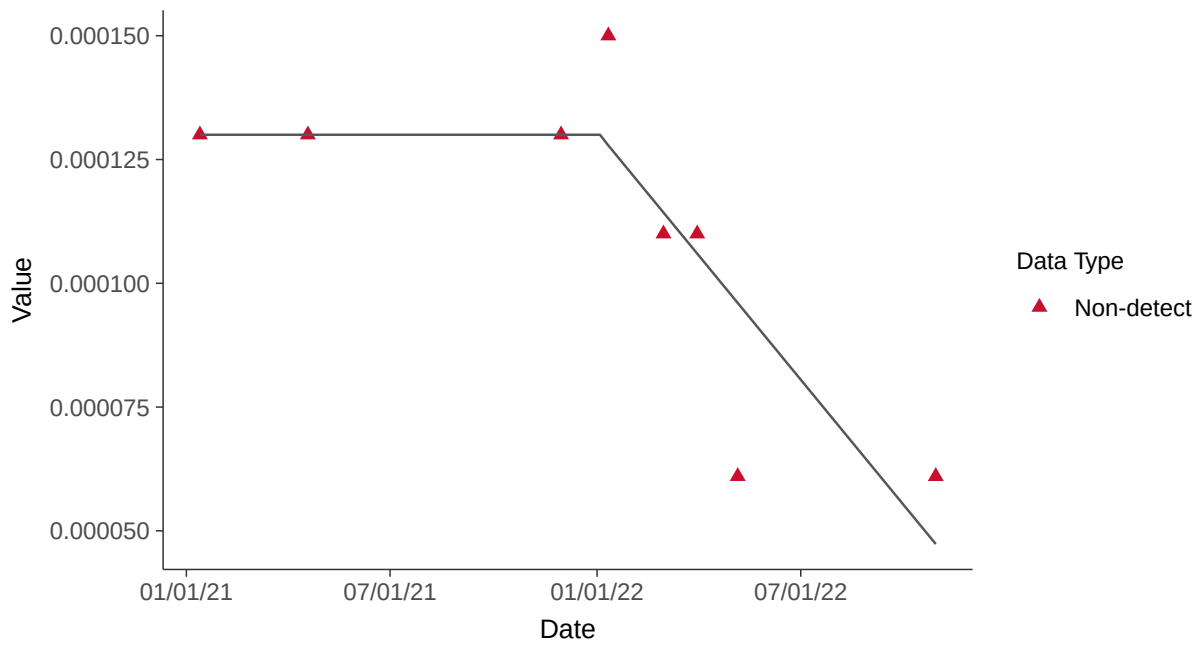
Mercury, W-9 (mg/l)





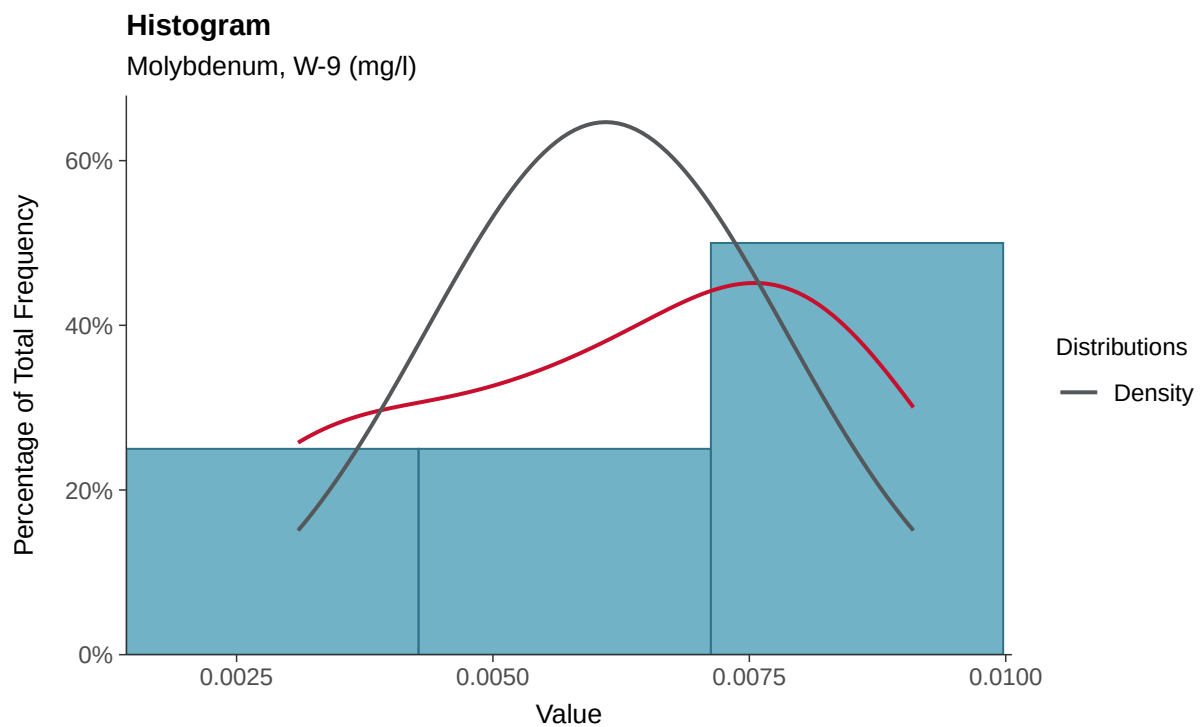
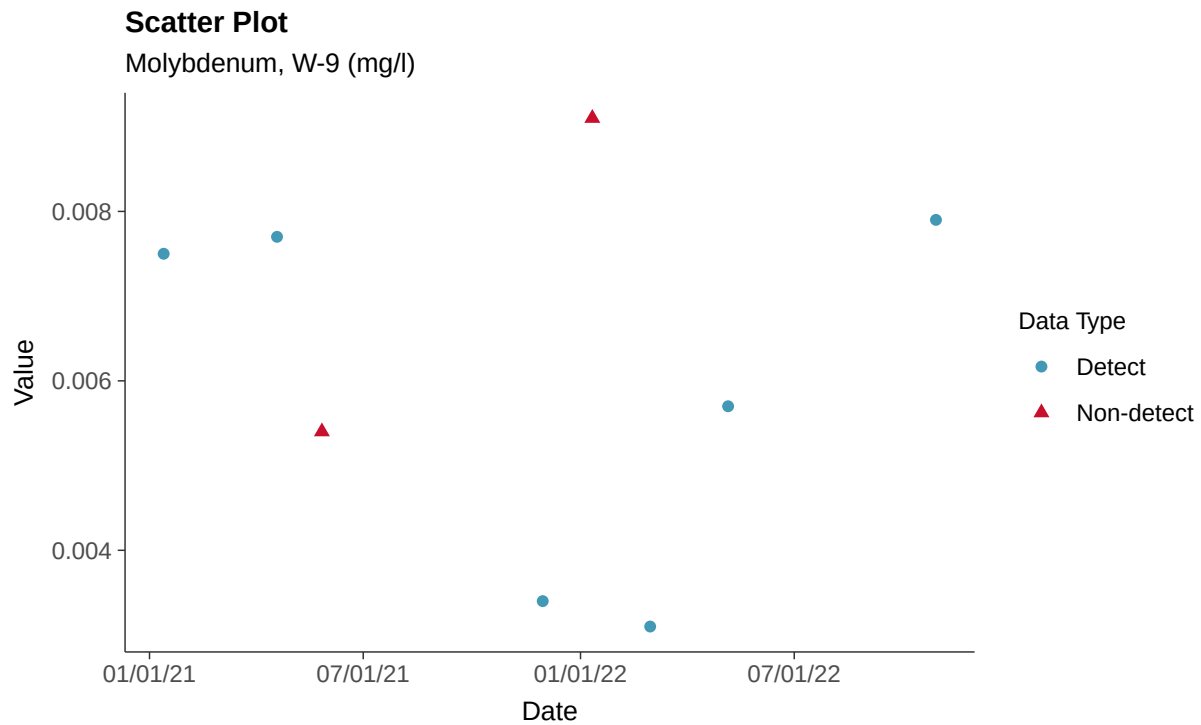
Trend Regression: Piecewise Linear-Linear

Mercury, W-9 (mg/l)



Appendix IV: Molybdenum, W-9

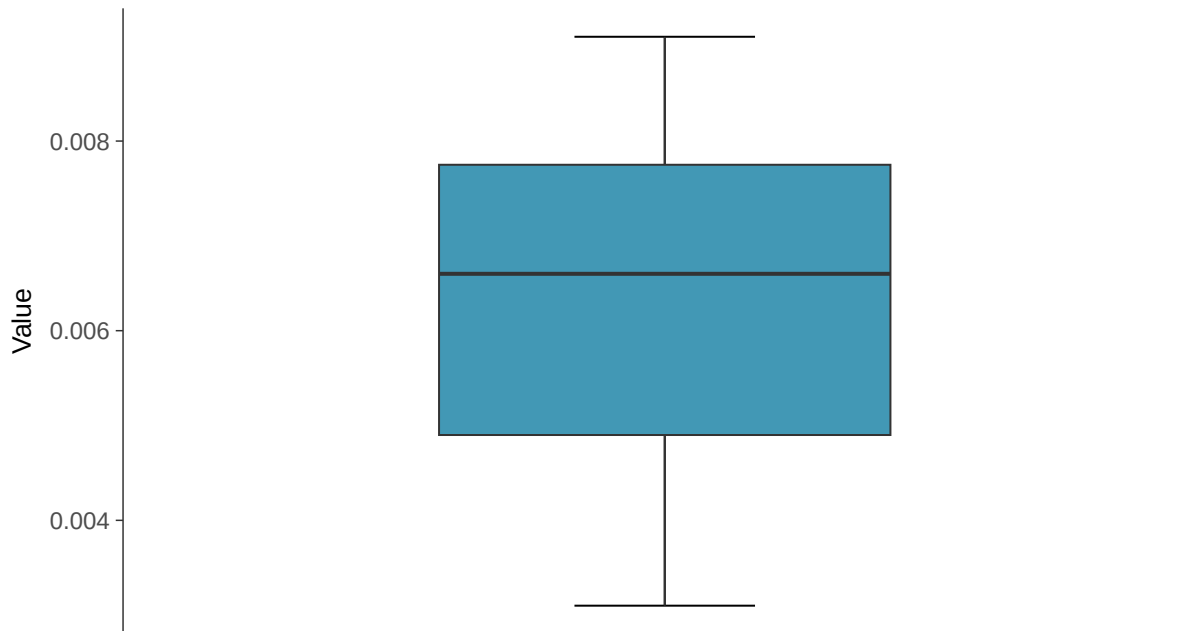
ID: 10_2_116





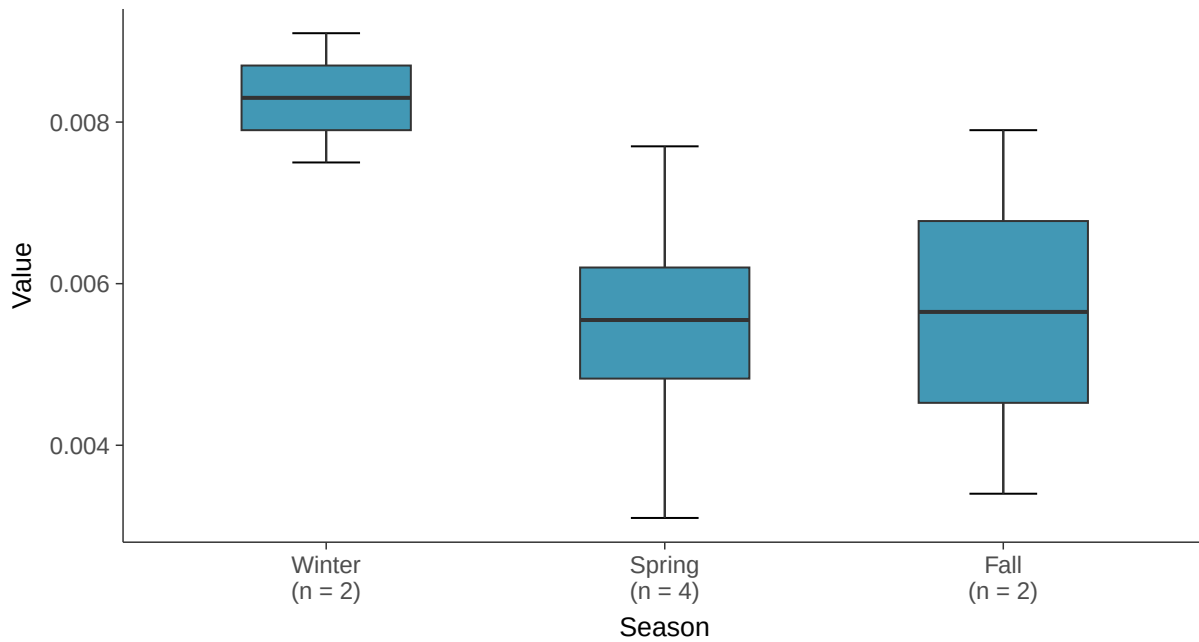
Boxplot

Molybdenum, W-9 (mg/l)



Boxplot by Season

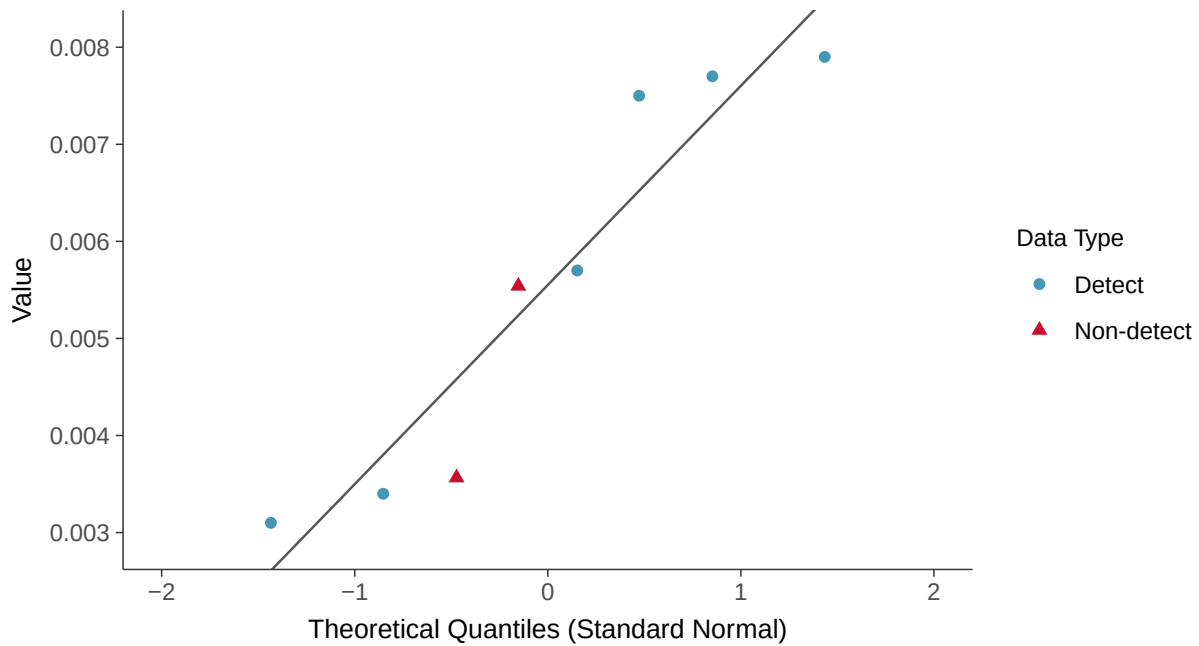
Molybdenum, W-9 (mg/l)



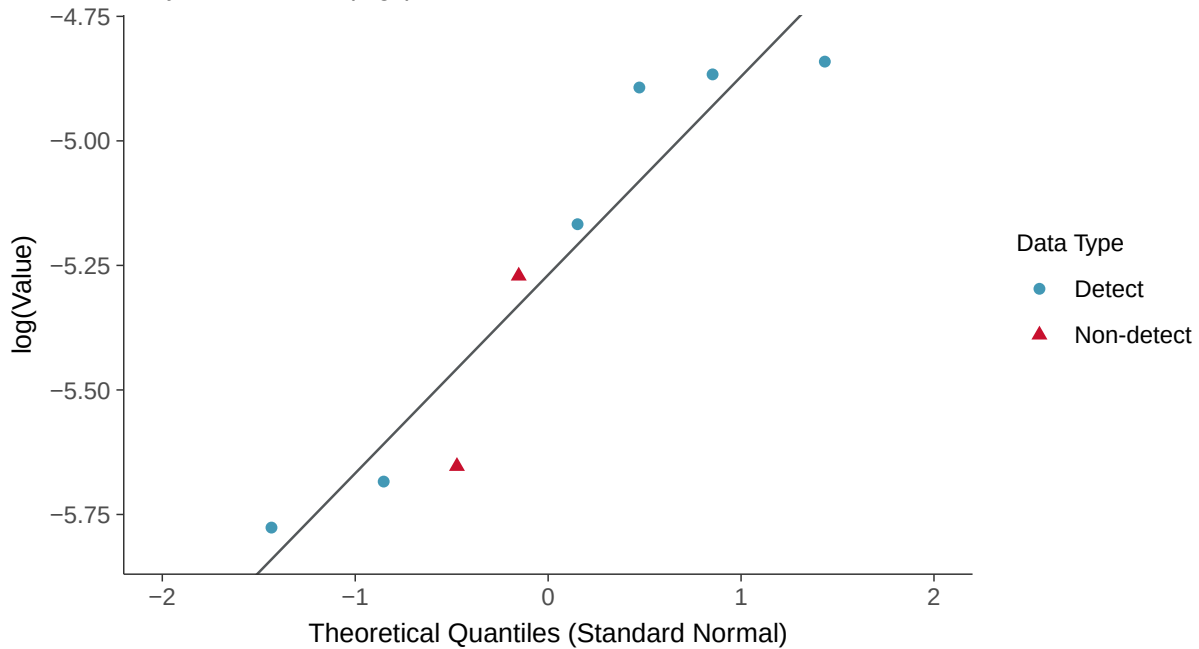
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Normal Q-Q plot using ROS Imputed Estimates

Molybdenum, W-9 (mg/l)

**Lognormal Q-Q plot using ROS Imputed Estimates**

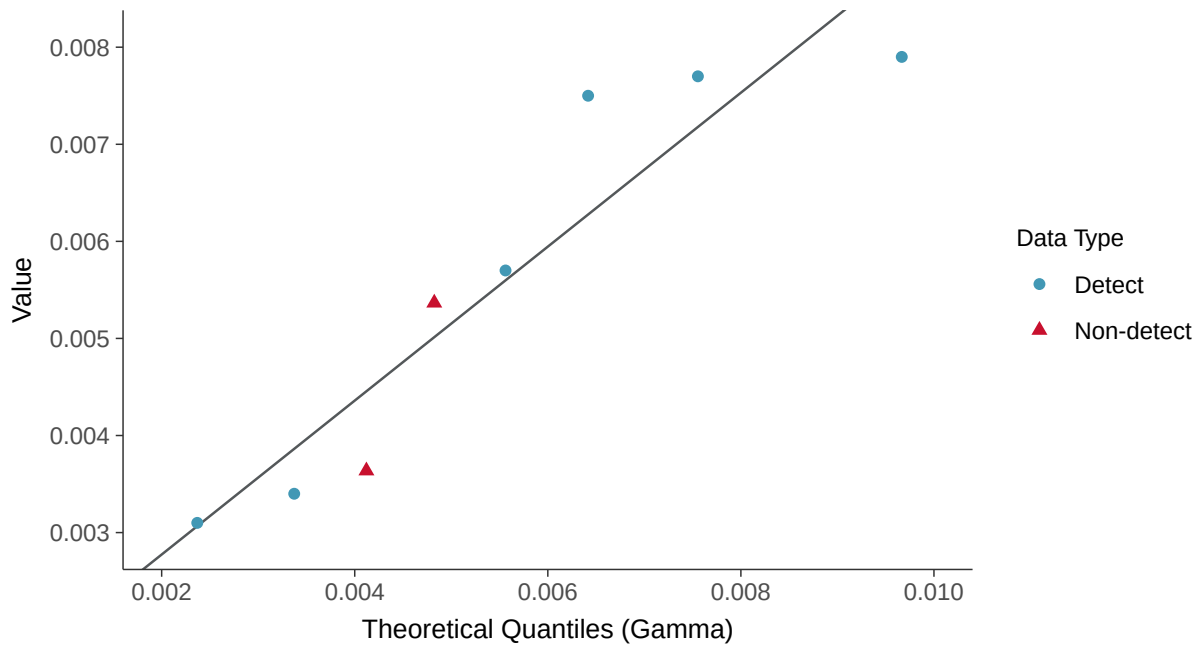
Molybdenum, W-9 (mg/l)



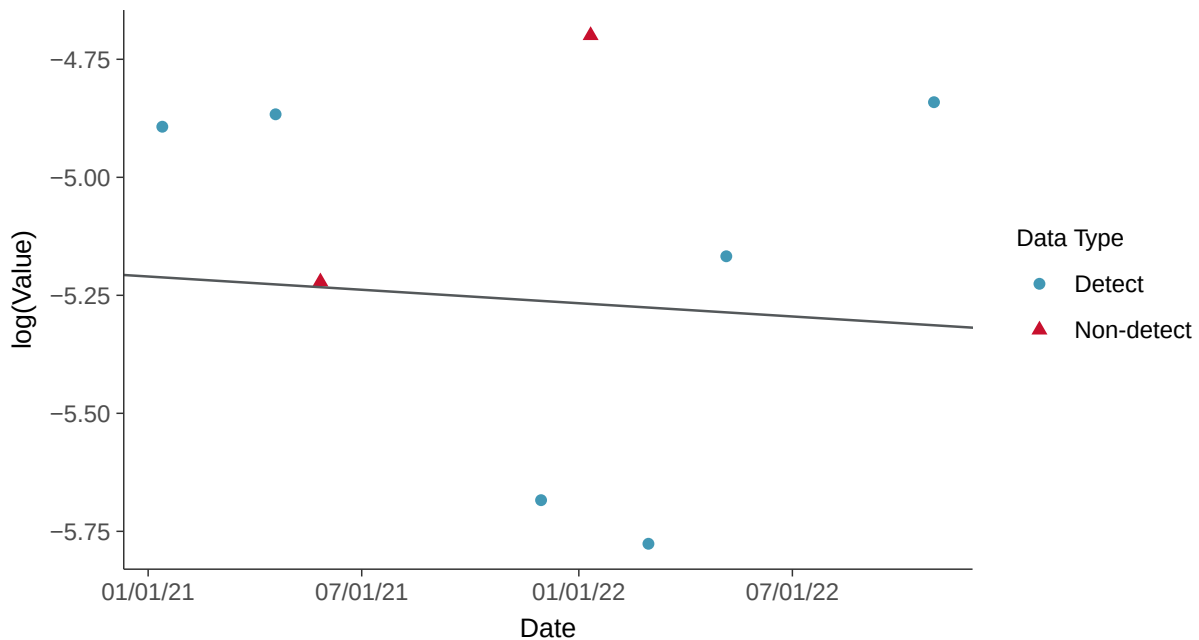
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Gamma Q-Q plot using ROS Imputed Estimates

Molybdenum, W-9 (mg/l)

**Trend Regression: Lognormal MLE**

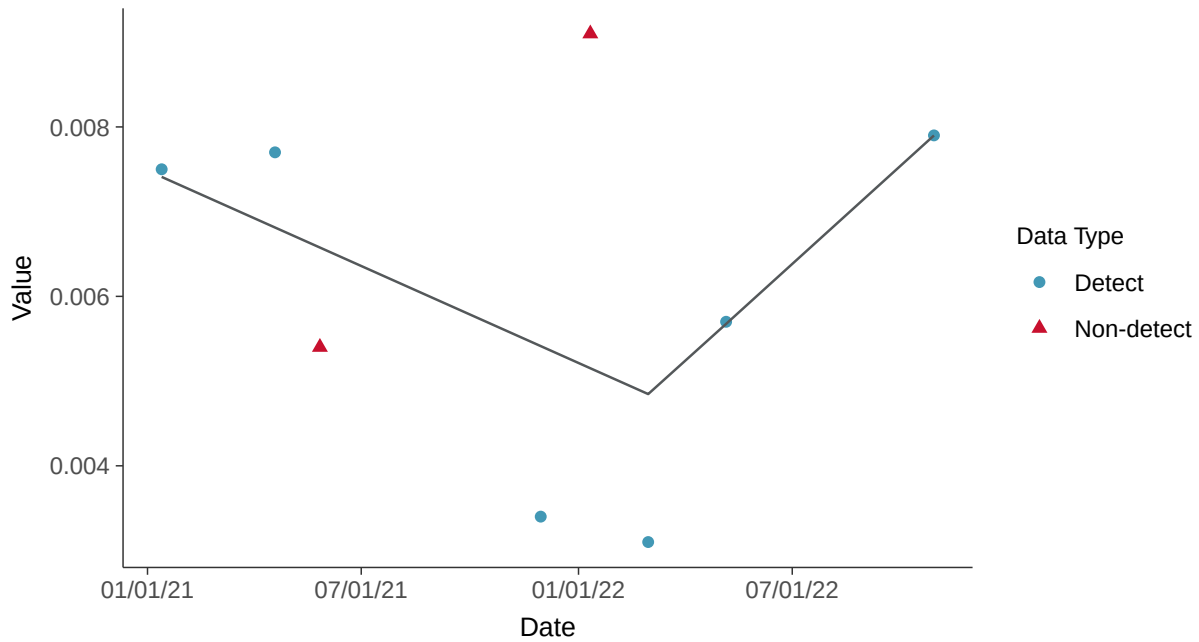
Molybdenum, W-9 (mg/l)



Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Trend Regression: Piecewise Linear-Linear

Molybdenum, W-9 (mg/l)

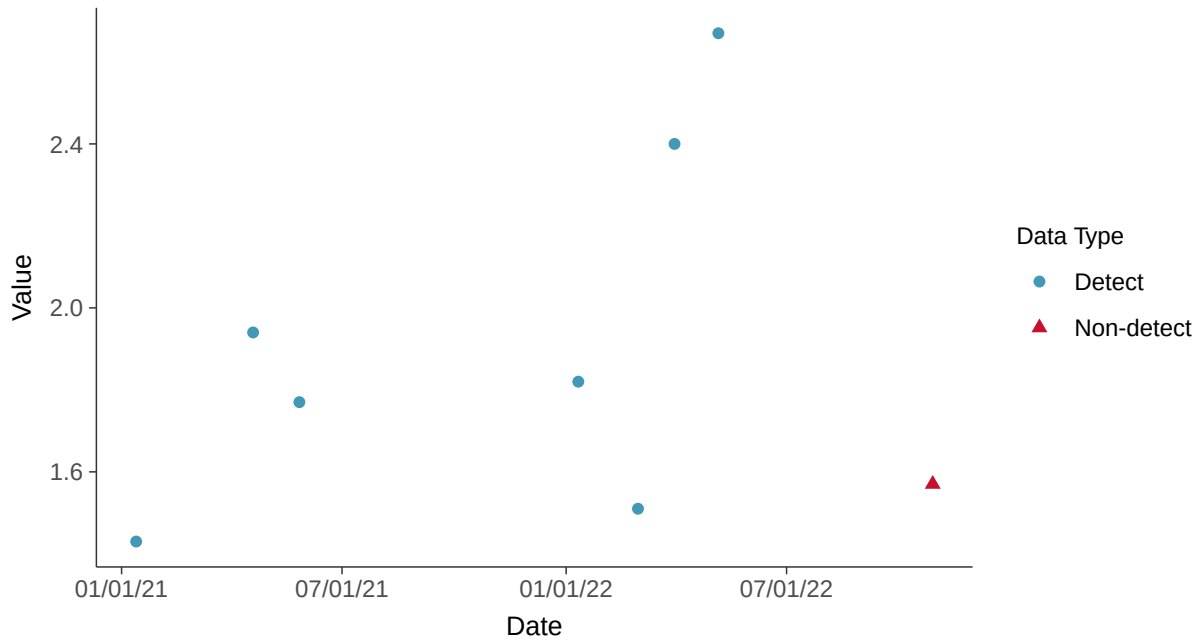


Appendix IV: Radium-226+228, W-9

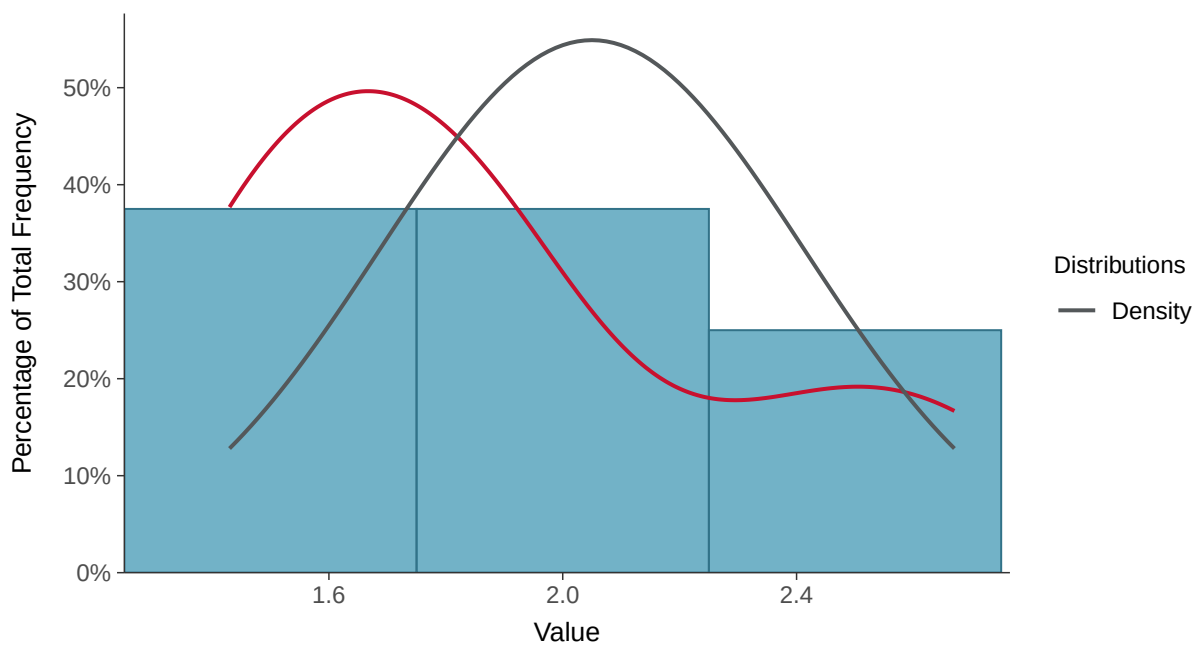
ID: 10_2_120

Scatter Plot

Radium-226+228, W-9 (pci/l)

**Histogram**

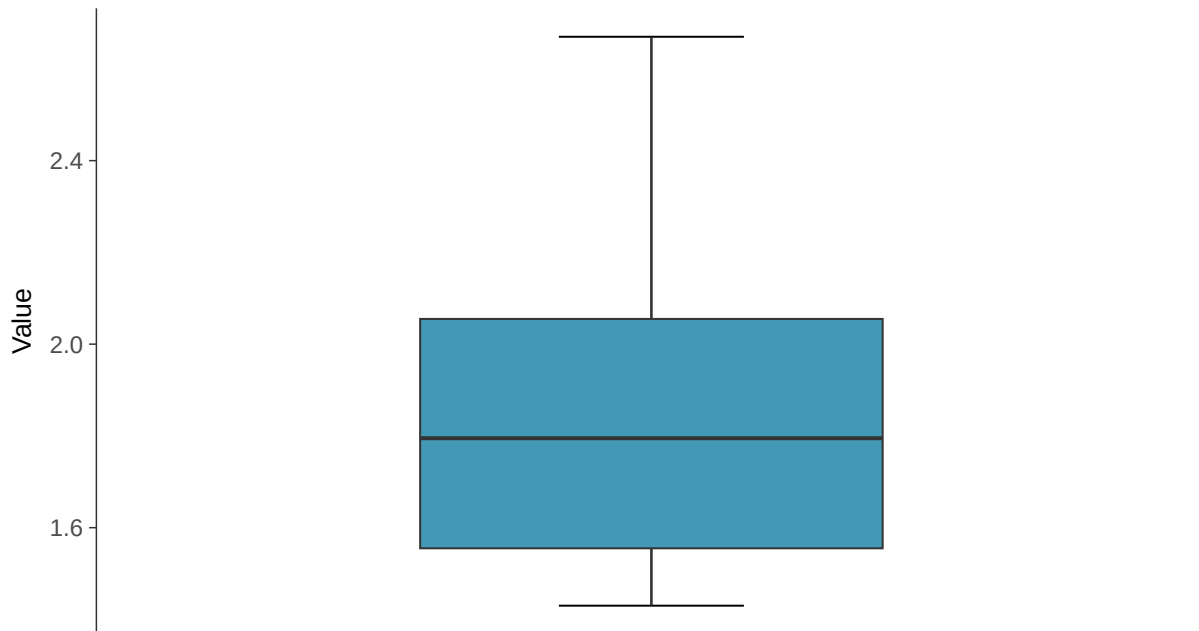
Radium-226+228, W-9 (pci/l)



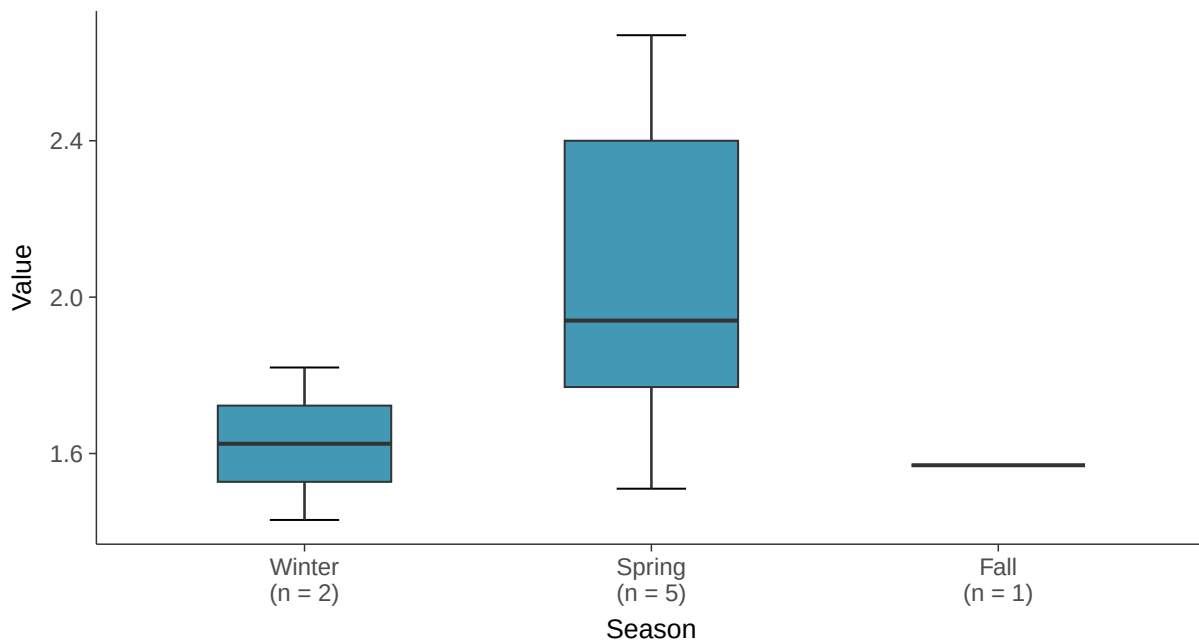
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Radium-226+228, W-9 (pci/l)

**Boxplot by Season**

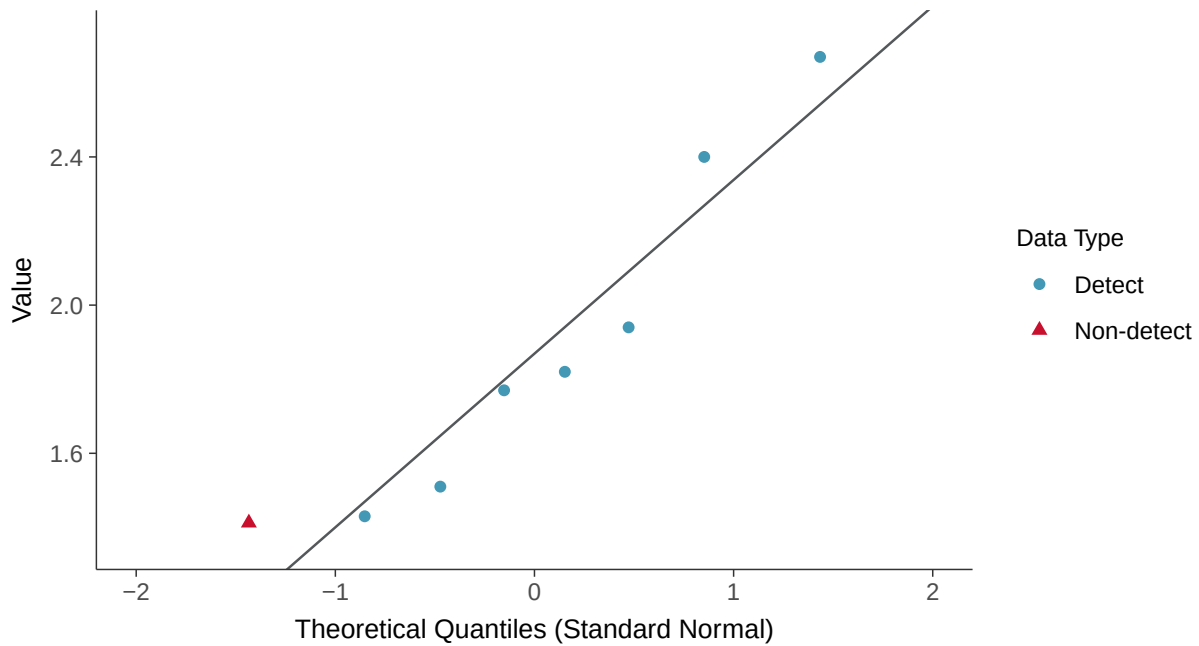
Radium-226+228, W-9 (pci/l)



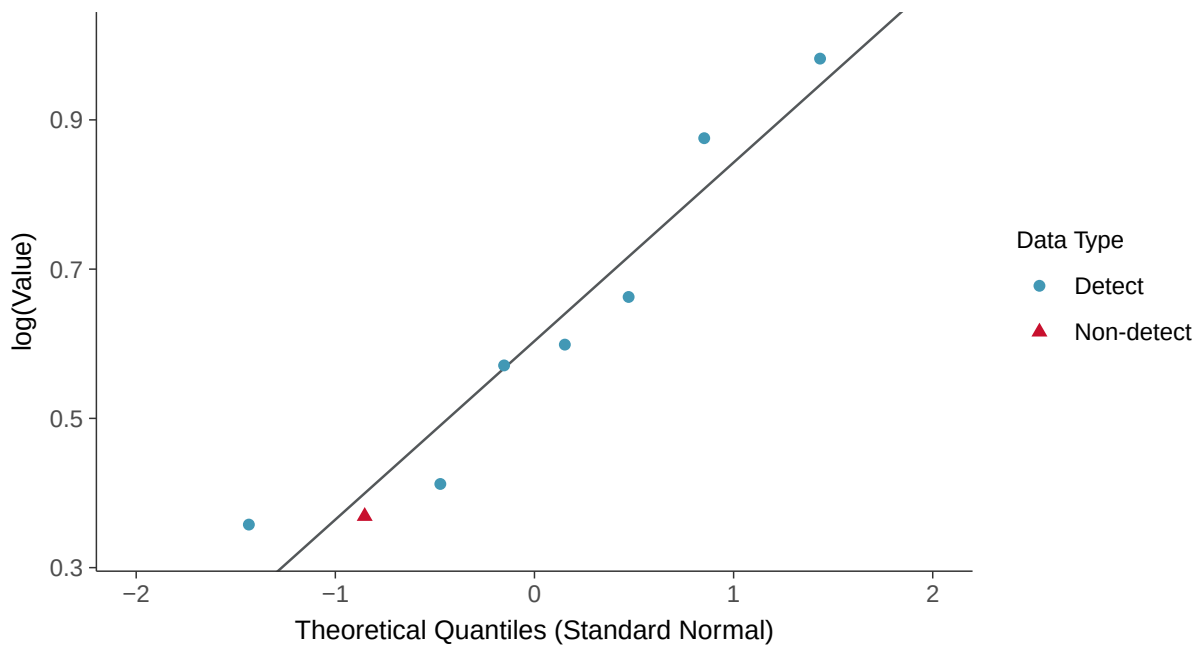
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Normal Q-Q plot using ROS Imputed Estimates

Radium-226+228, W-9 (pci/l)

**Lognormal Q-Q plot using ROS Imputed Estimates**

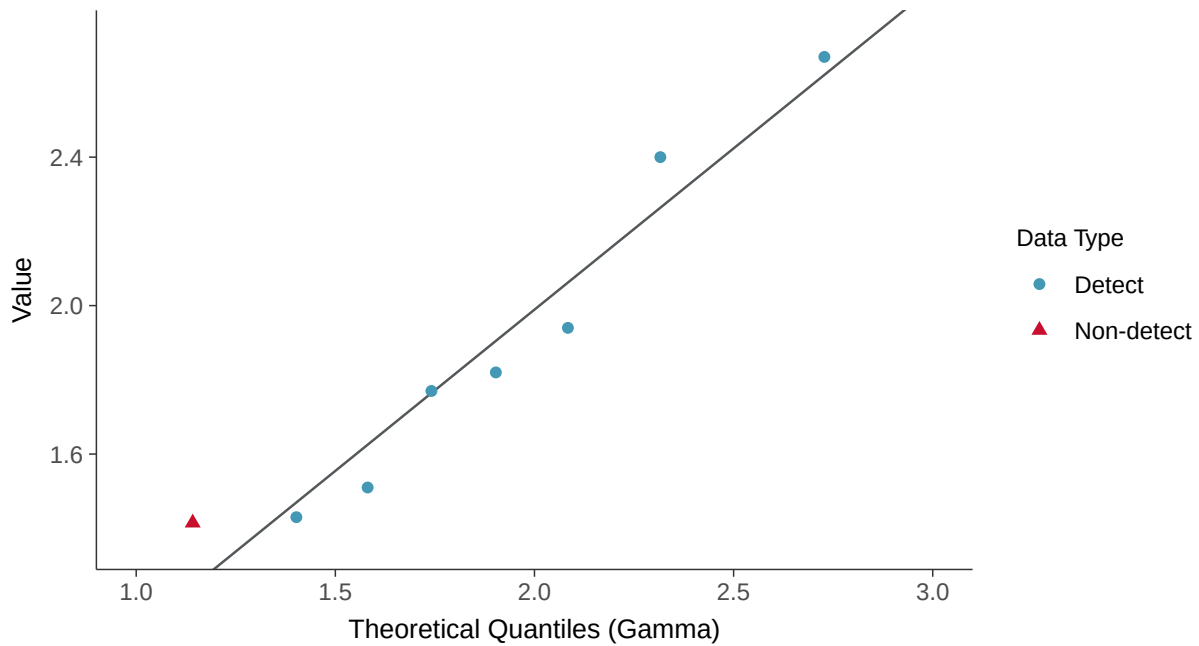
Radium-226+228, W-9 (pci/l)



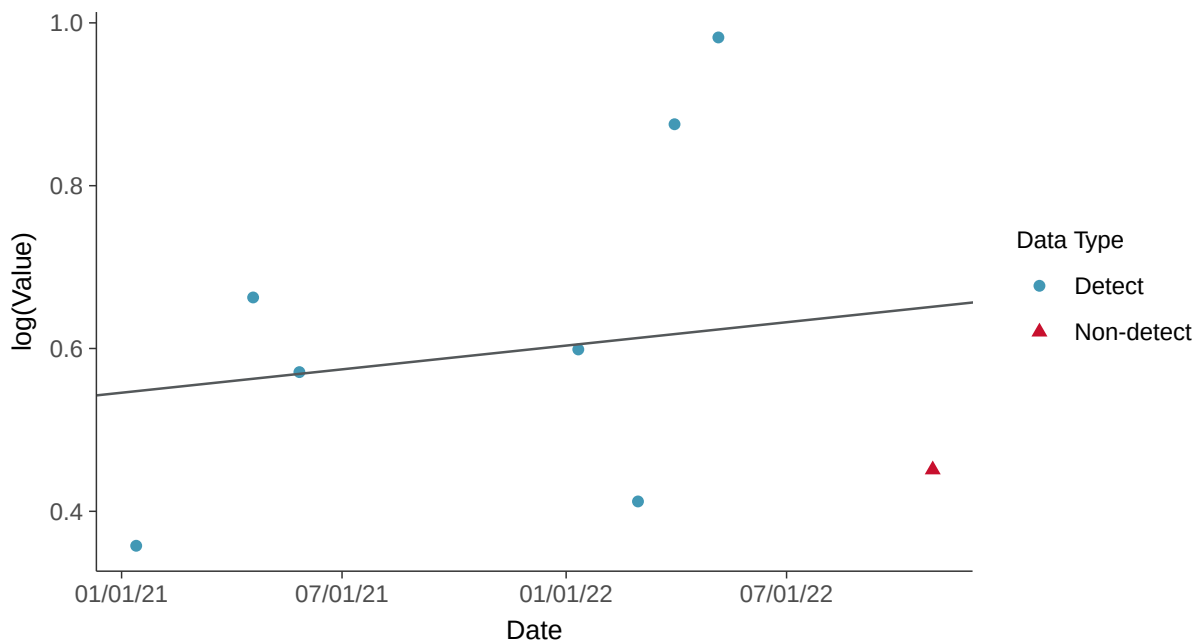
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Gamma Q-Q plot using ROS Imputed Estimates

Radium-226+228, W-9 (pci/l)

**Trend Regression: Lognormal MLE**

Radium-226+228, W-9 (pci/l)

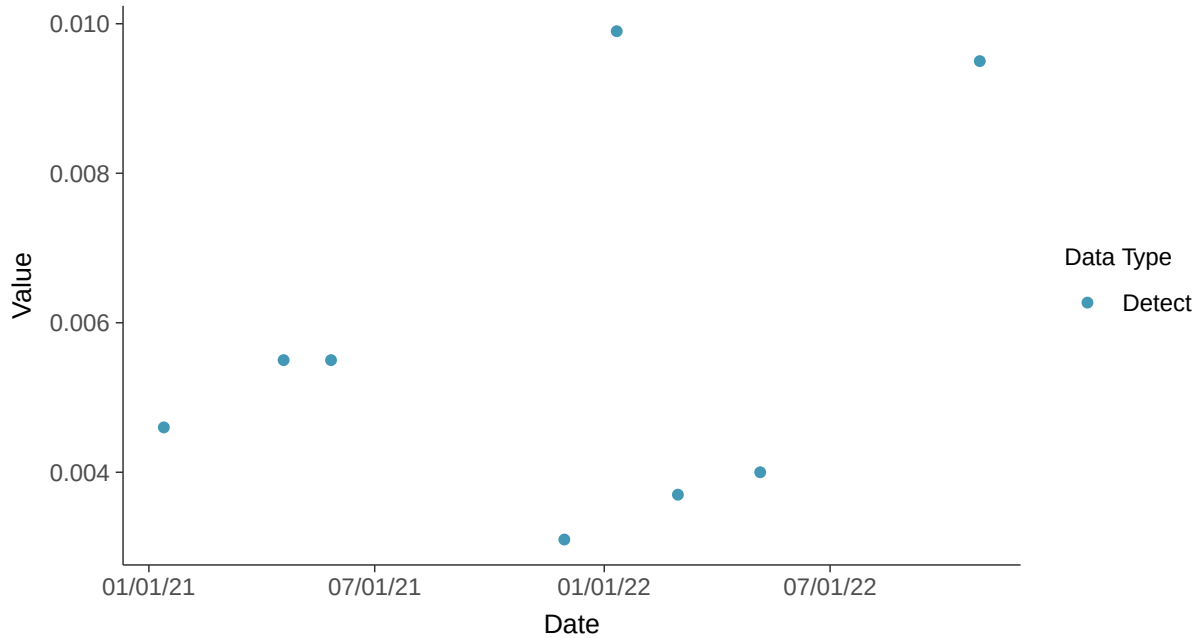


Appendix IV: Selenium, W-9

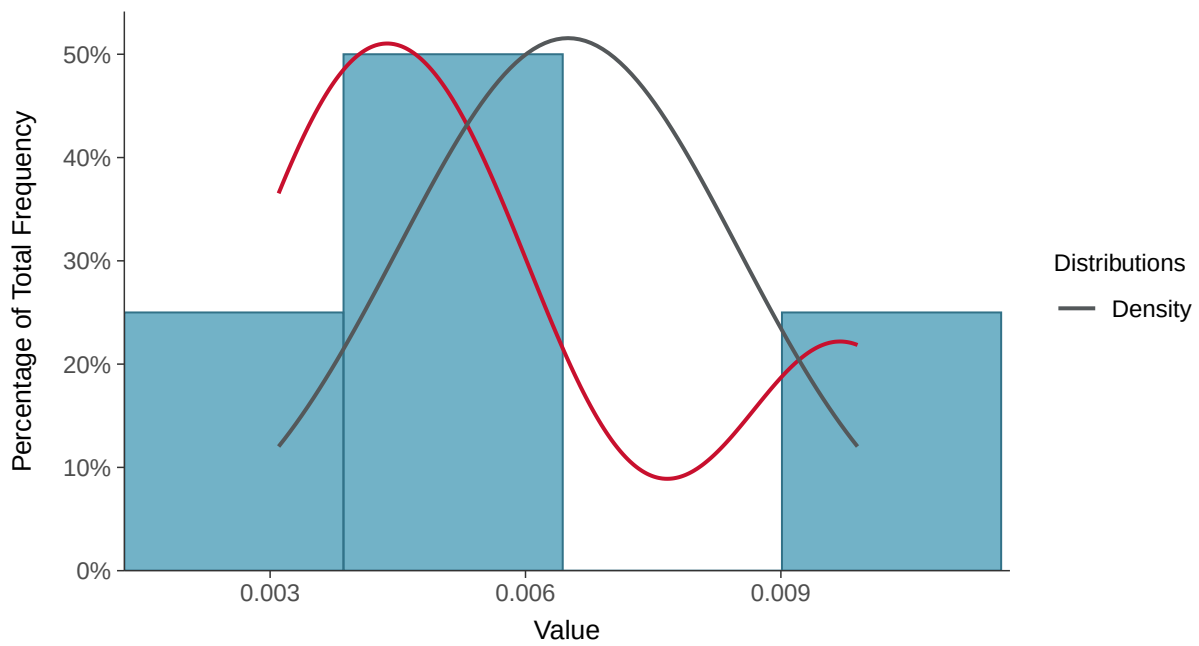
ID: 10_2_122

Scatter Plot

Selenium, W-9 (mg/l)

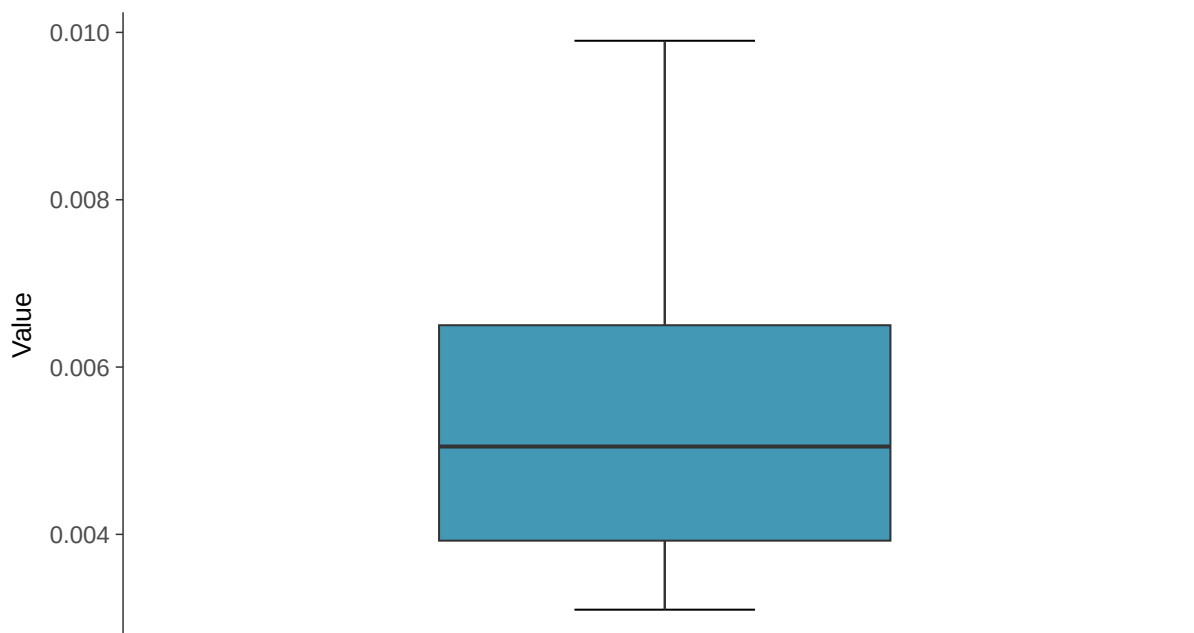
**Histogram**

Selenium, W-9 (mg/l)



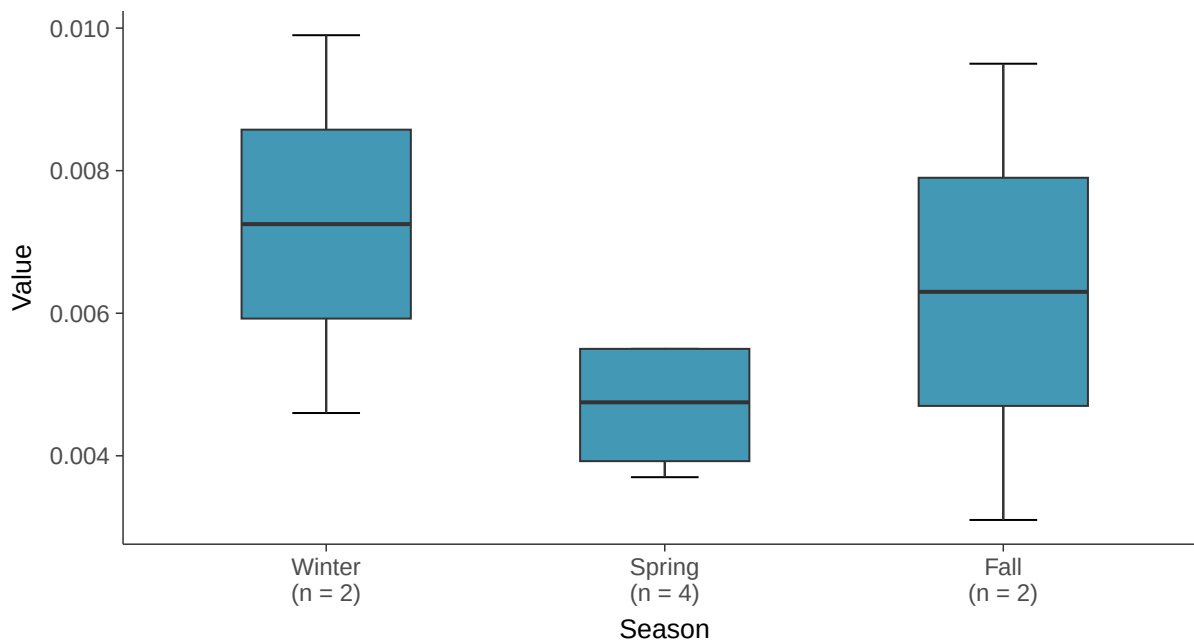
Boxplot

Selenium, W-9 (mg/l)



Boxplot by Season

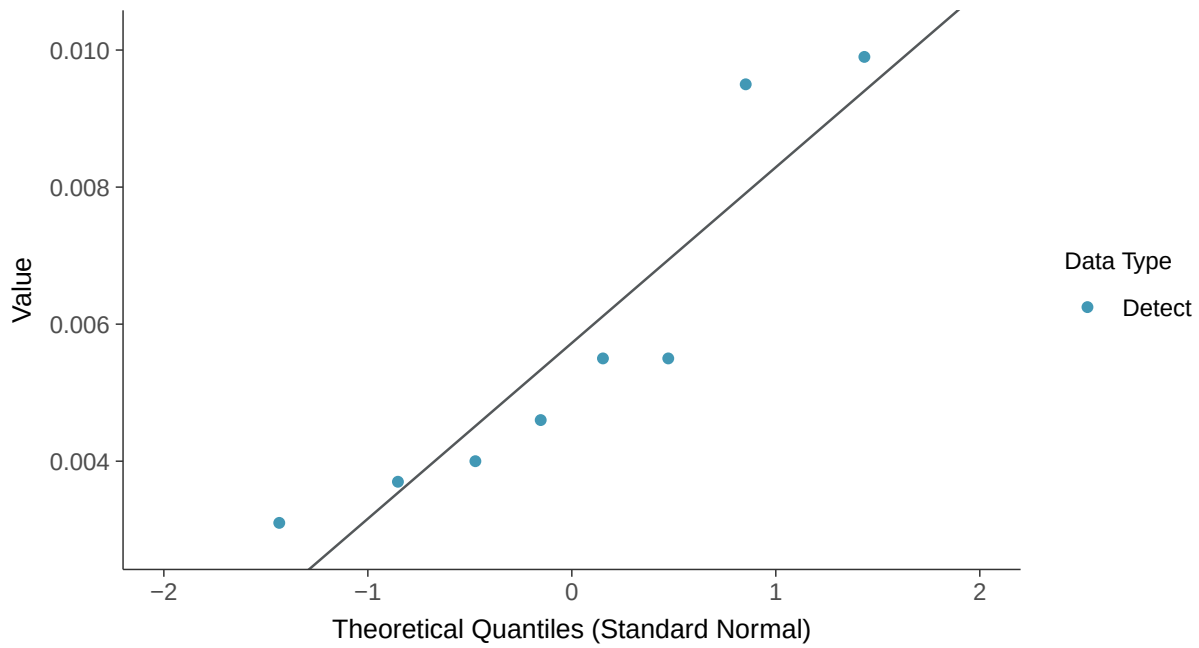
Selenium, W-9 (mg/l)





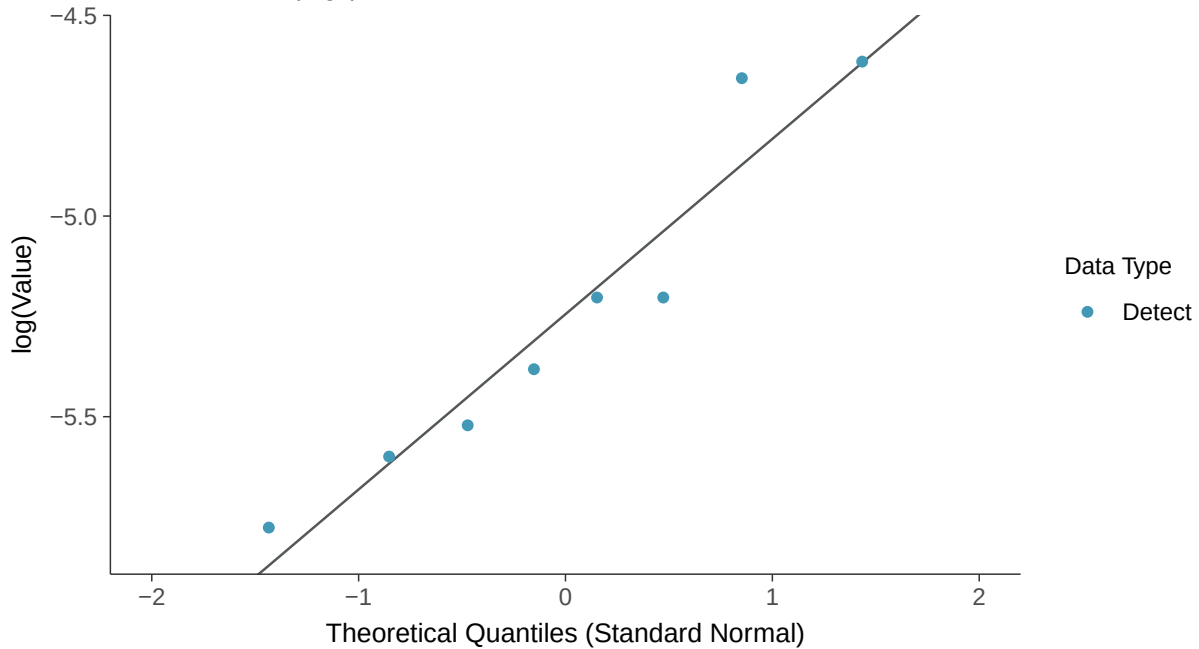
Normal Q-Q plot

Selenium, W-9 (mg/l)



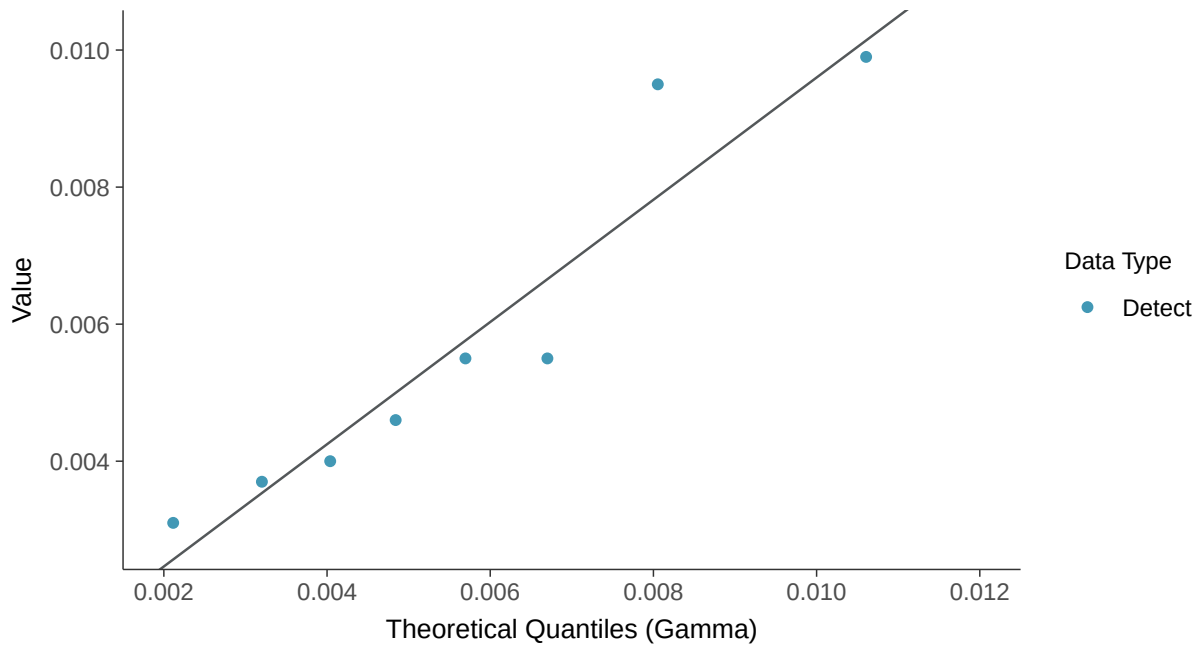
Lognormal Q-Q plot

Selenium, W-9 (mg/l)

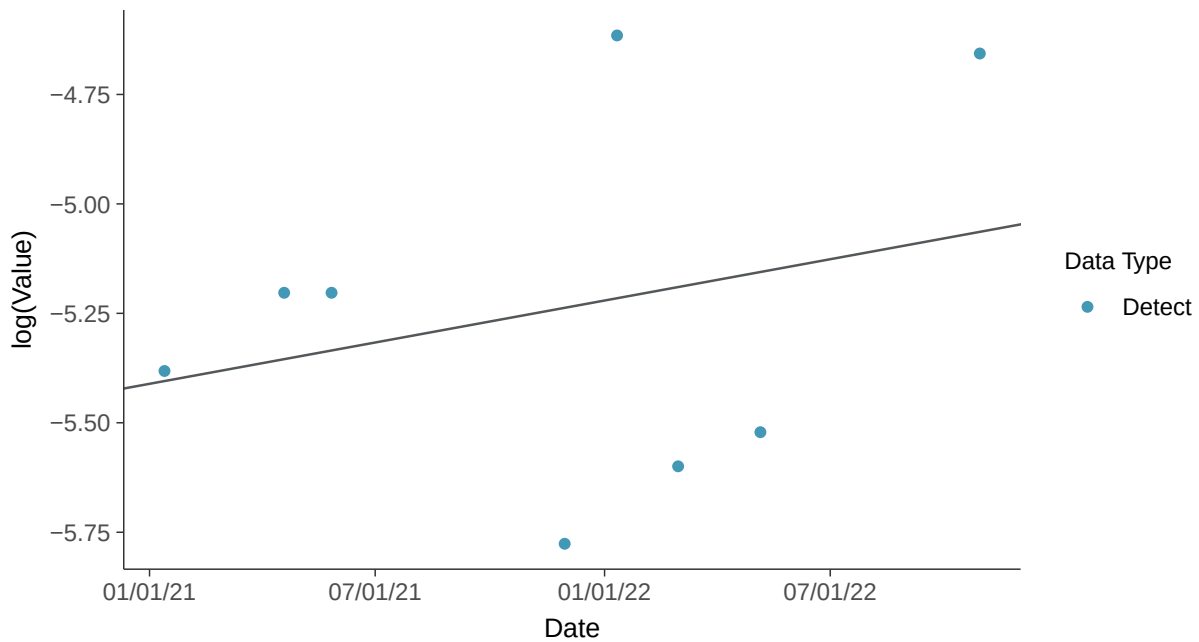




Gamma Q-Q plot
Selenium, W-9 (mg/l)

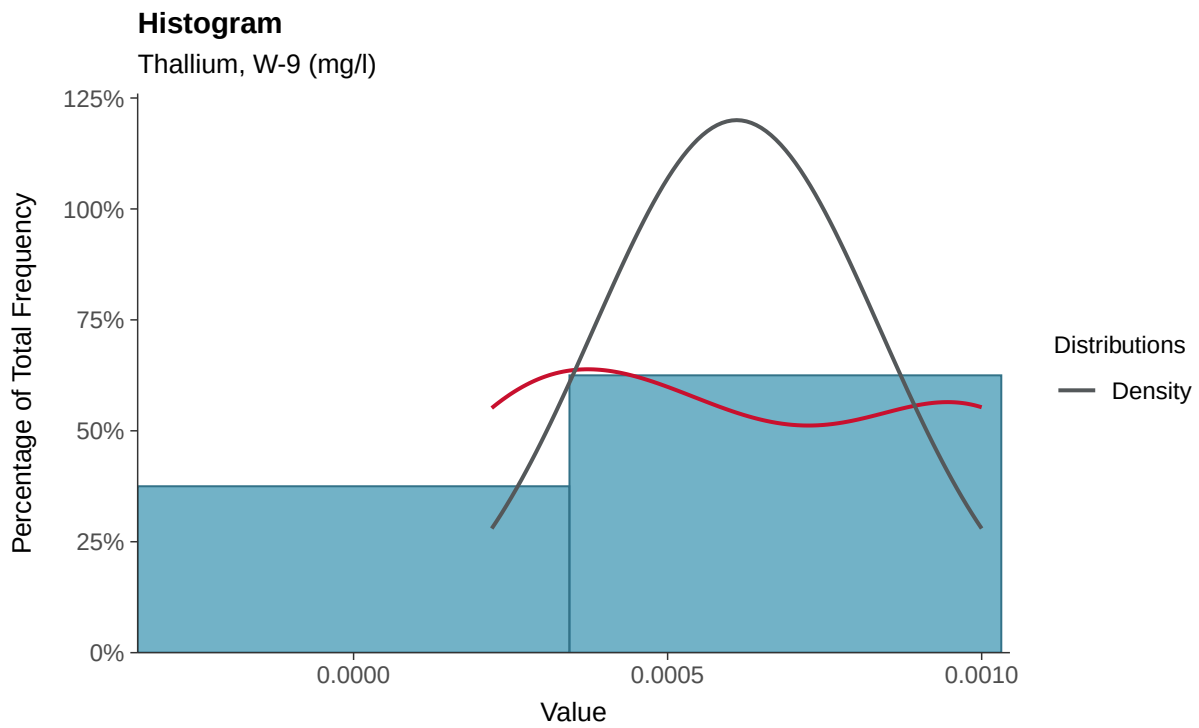
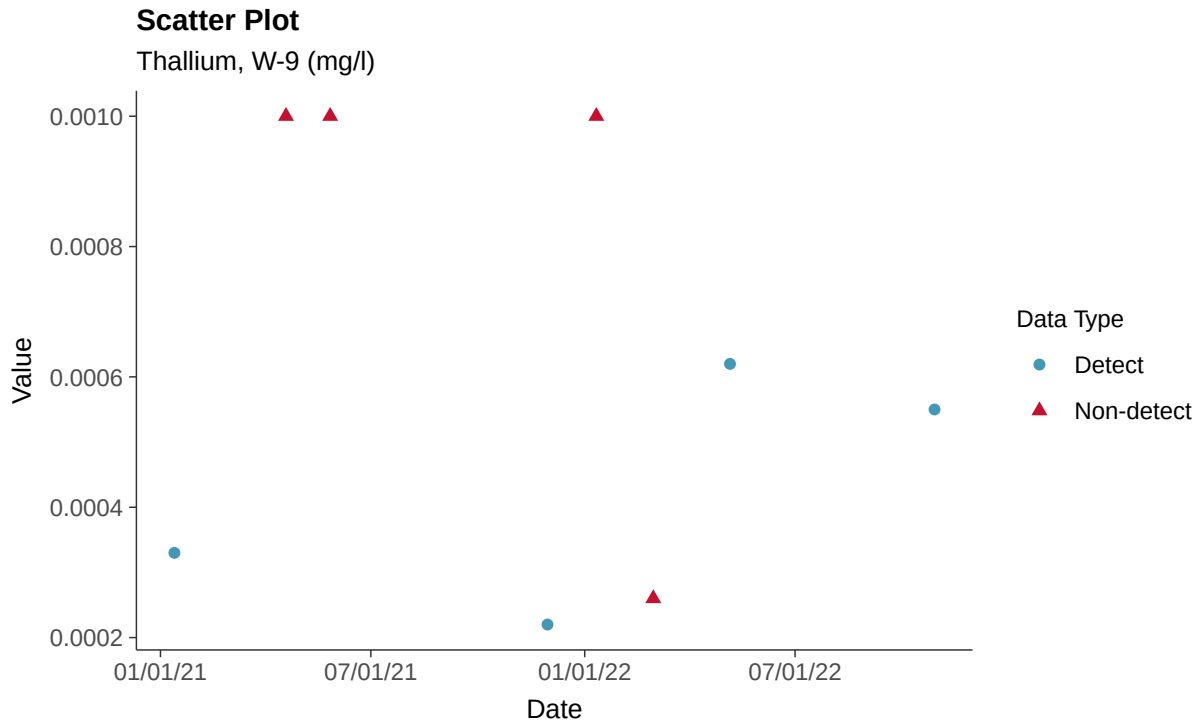


Trend Regression: Lognormal MLE
Selenium, W-9 (mg/l)



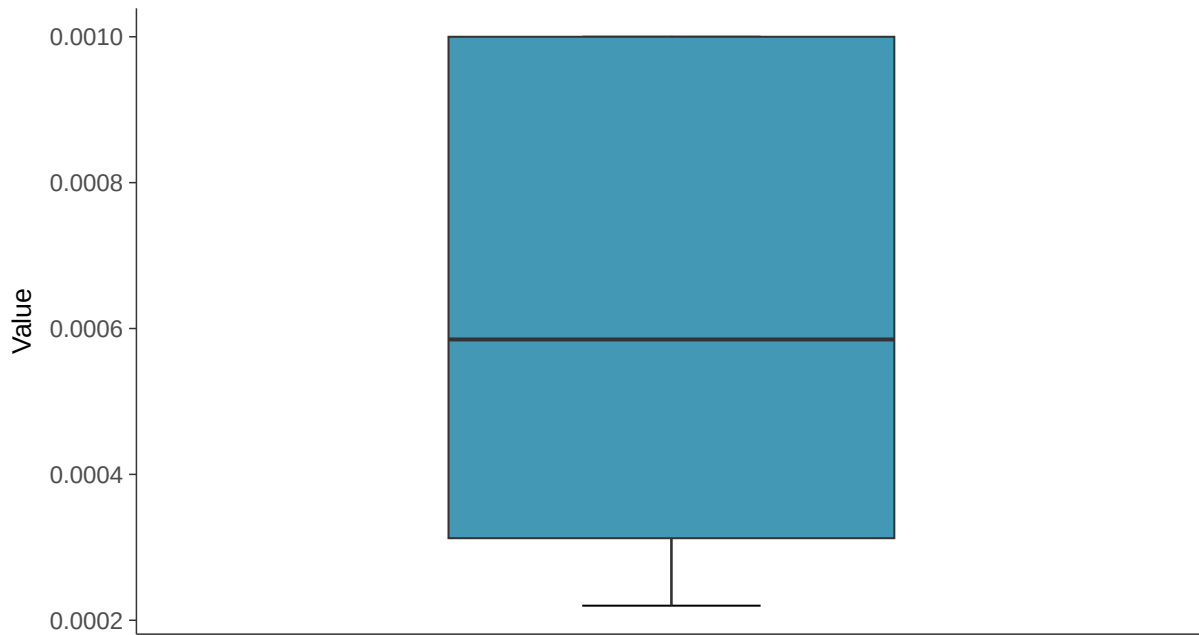
Appendix IV: Thallium, W-9

ID: 10_2_126



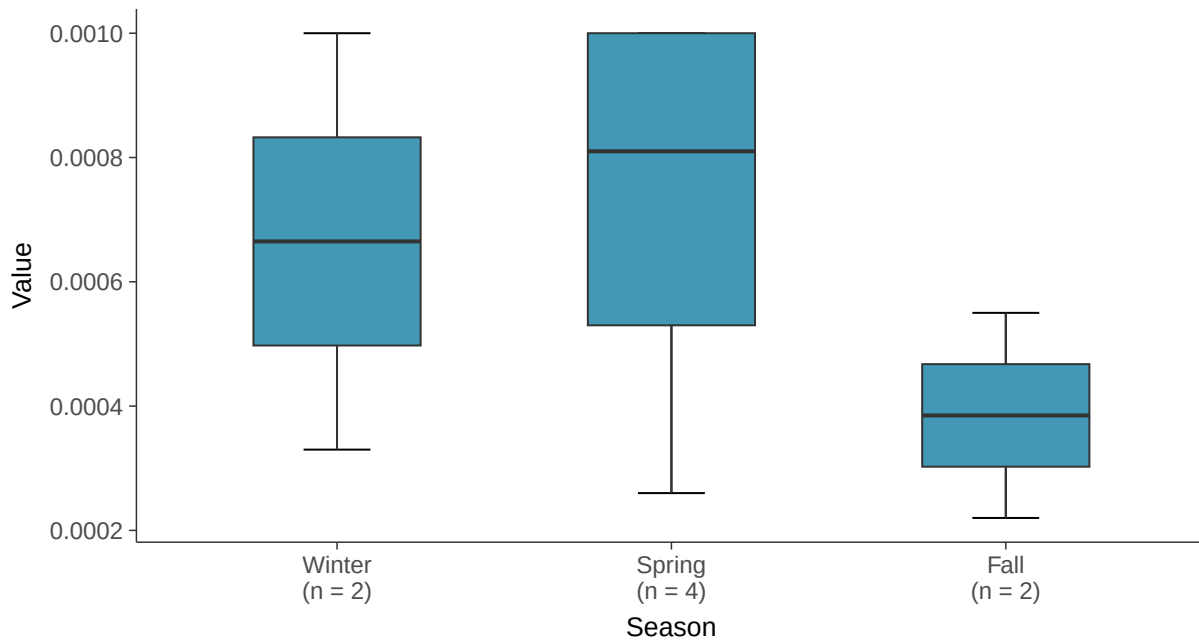
Boxplot

Thallium, W-9 (mg/l)



Boxplot by Season

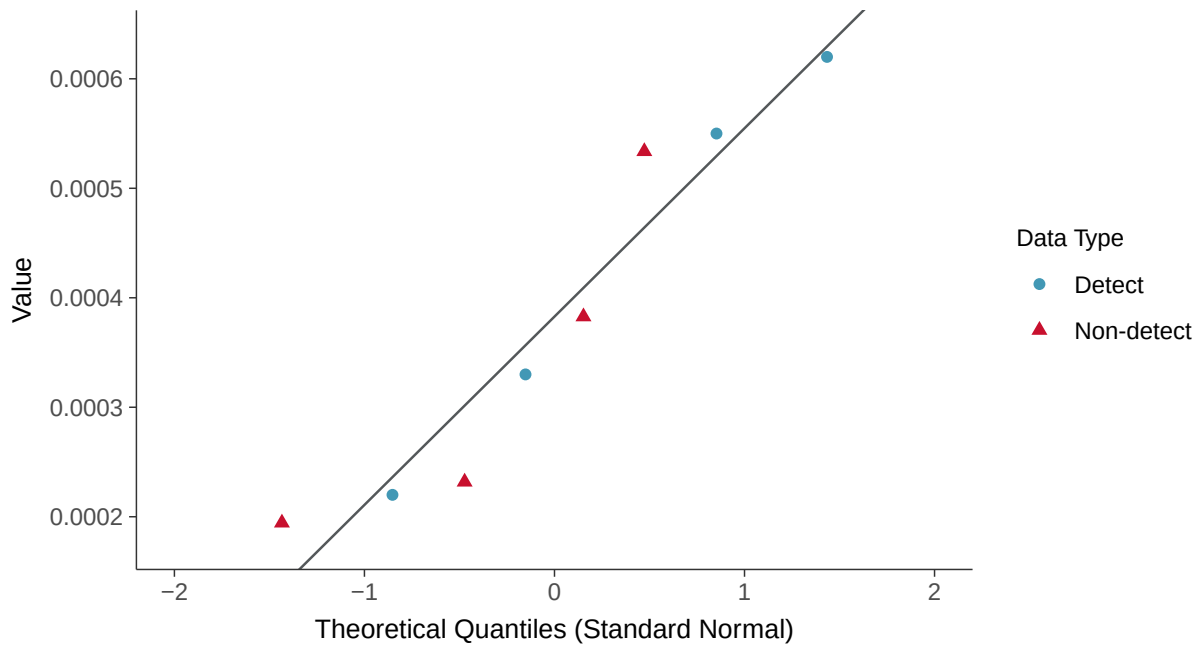
Thallium, W-9 (mg/l)



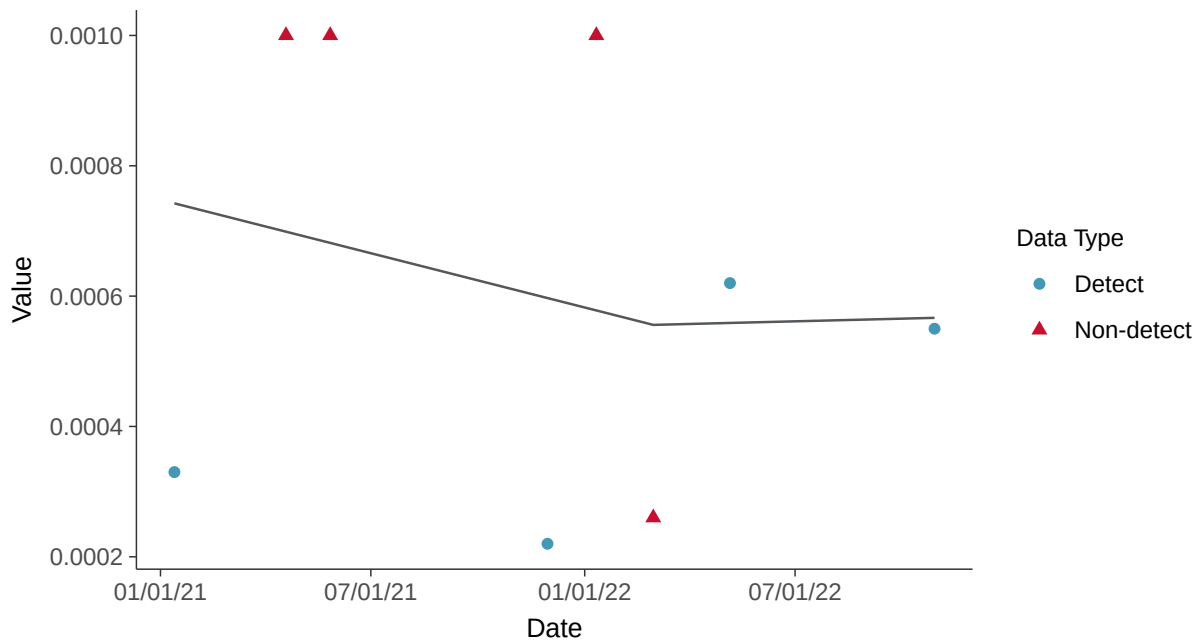
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Normal Q-Q plot using ROS Imputed Estimates

Thallium, W-9 (mg/l)

**Trend Regression: Piecewise Linear-Linear**

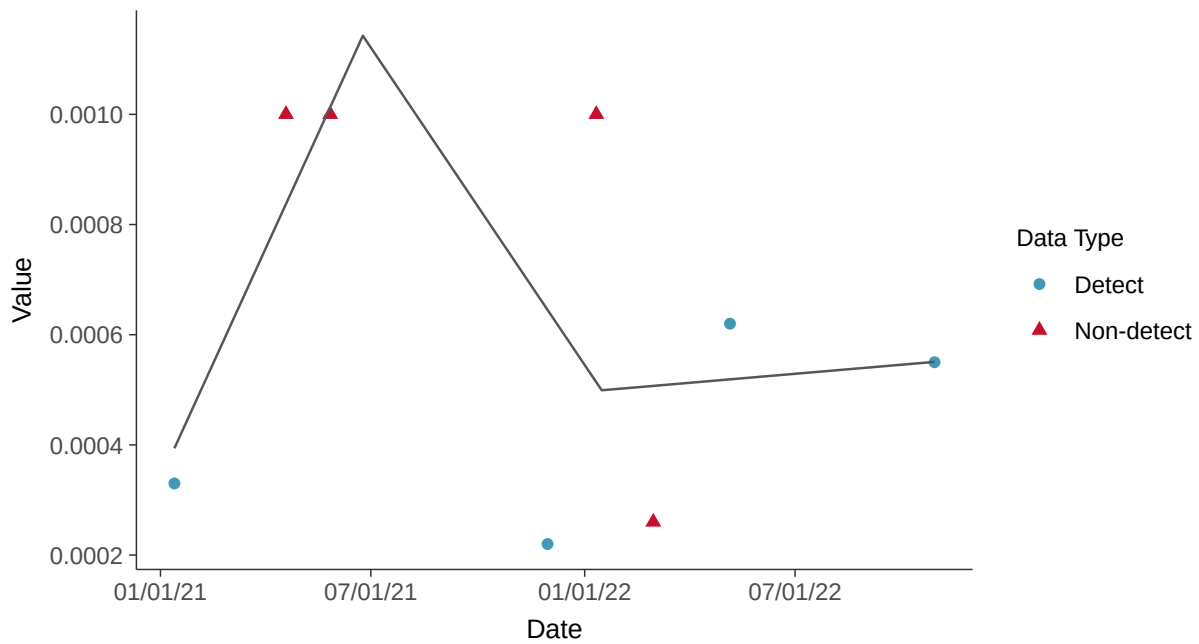
Thallium, W-9 (mg/l)





Trend Regression: Piecewise Linear-Linear-Linear

Thallium, W-9 (mg/l)



Scatter Plot
Antimony, W-1 (mg/l)

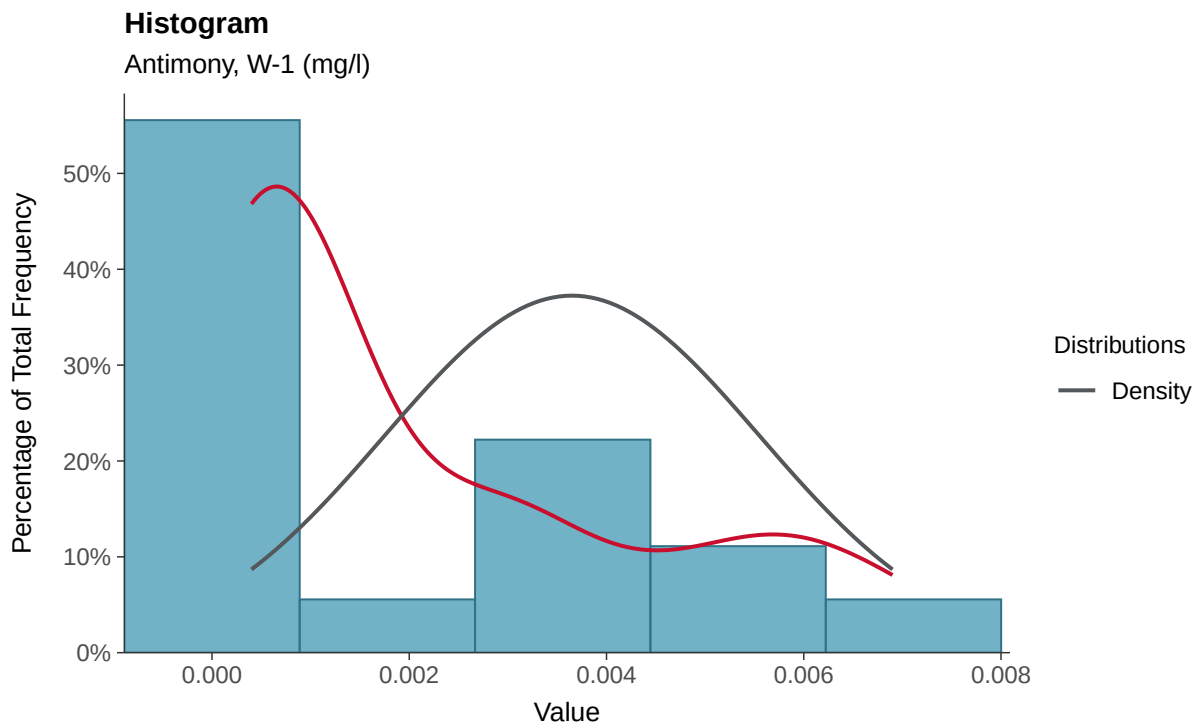
Value

Date

Data Type

- Detect
- Non-detect

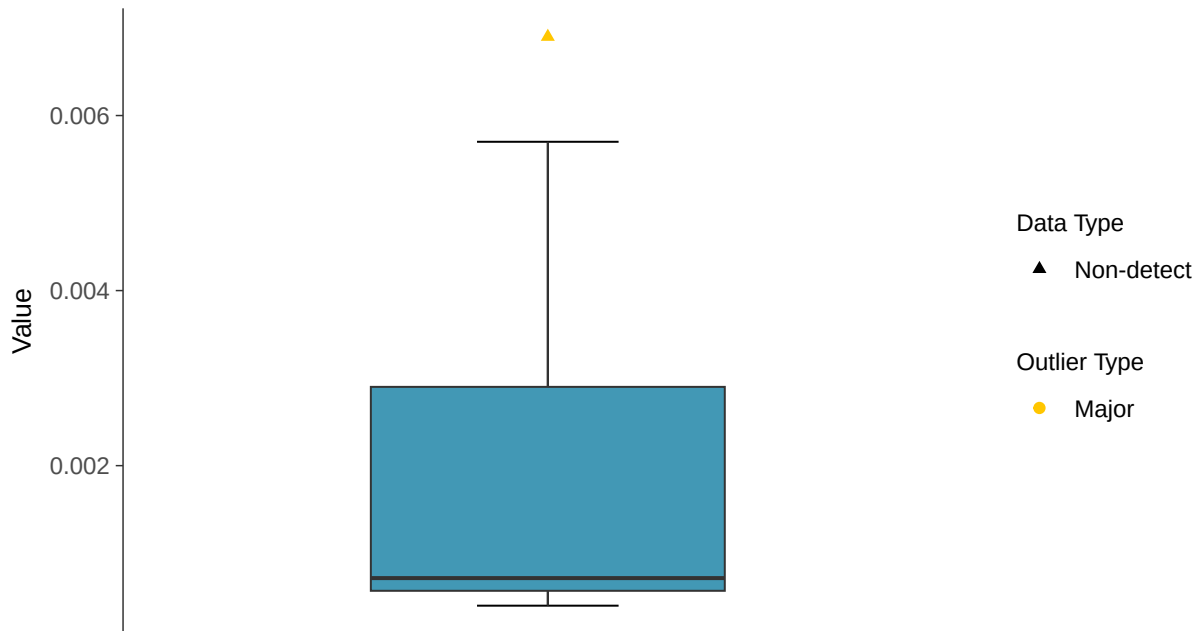
Date	Value (mg/l)	Data Type
2020-12-15	0.0005	Detect
2021-01-05	0.0005	Detect
2021-01-10	0.0005	Detect
2021-01-15	0.0005	Non-detect
2021-01-20	0.0005	Non-detect
2021-01-25	0.0005	Non-detect
2021-02-05	0.0058	Non-detect
2021-02-15	0.0058	Non-detect
2021-03-15	0.0029	Non-detect
2021-04-15	0.0029	Non-detect
2021-10-15	0.0029	Non-detect
2021-11-15	0.0044	Non-detect
2021-12-15	0.0070	Non-detect
2022-01-15	0.0005	Non-detect
2022-02-15	0.0012	Detect
2022-12-15	0.0005	Non-detect



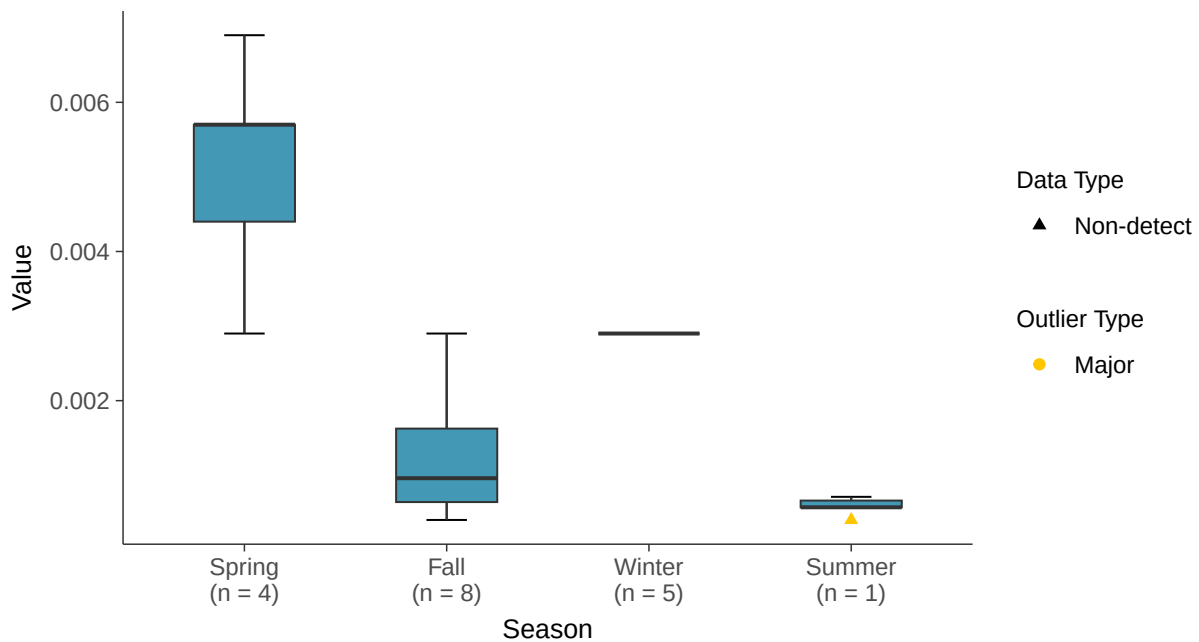
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Antimony, W-1 (mg/l)

**Boxplot by Season**

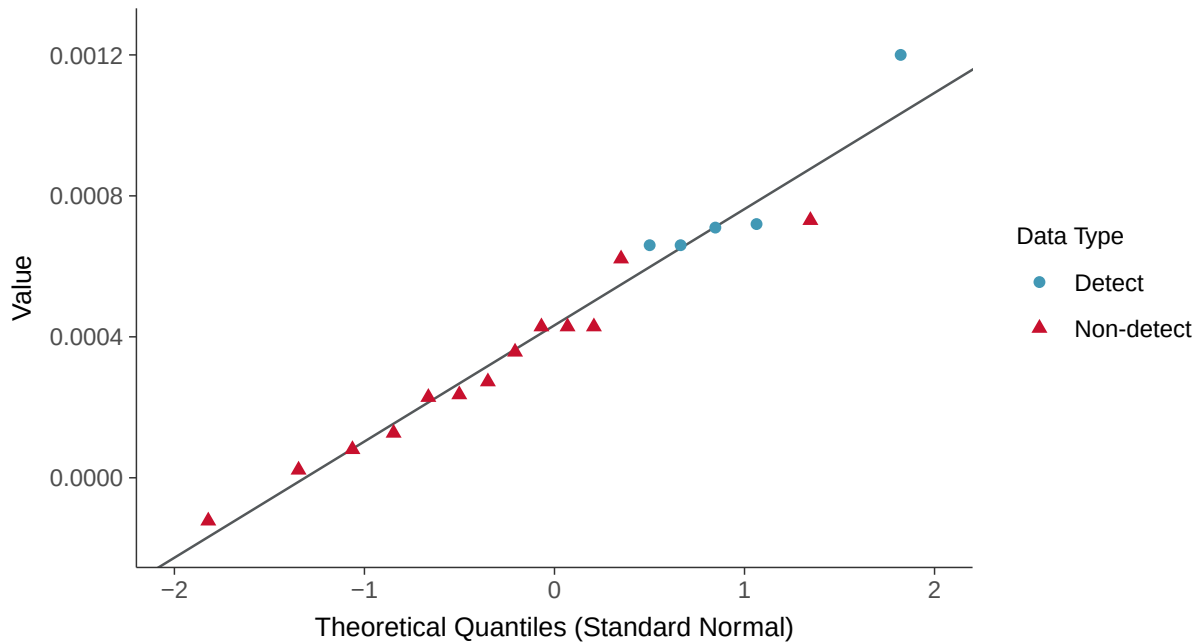
Antimony, W-1 (mg/l)





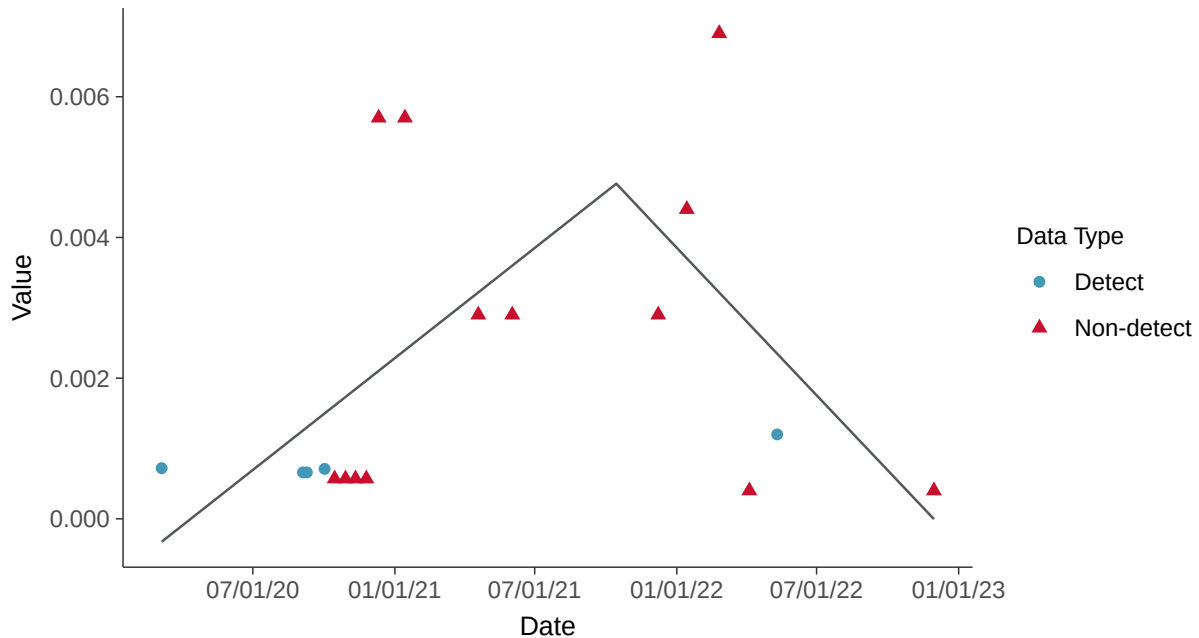
Normal Q-Q plot using ROS Imputed Estimates

Antimony, W-1 (mg/l)



Trend Regression: Piecewise Linear-Linear

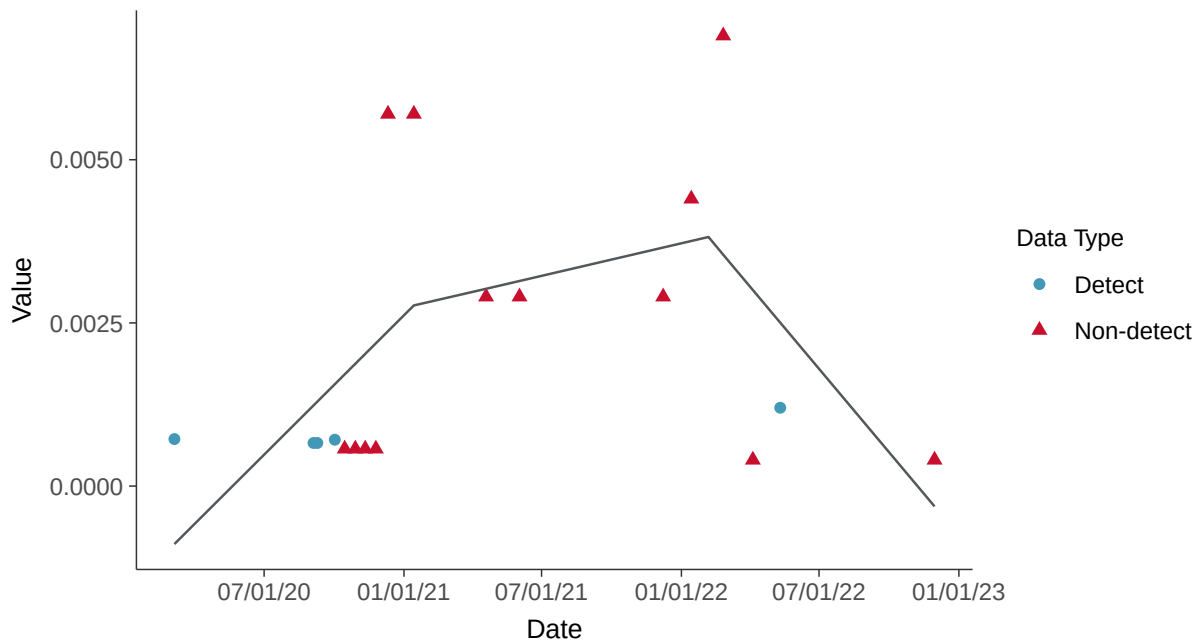
Antimony, W-1 (mg/l)





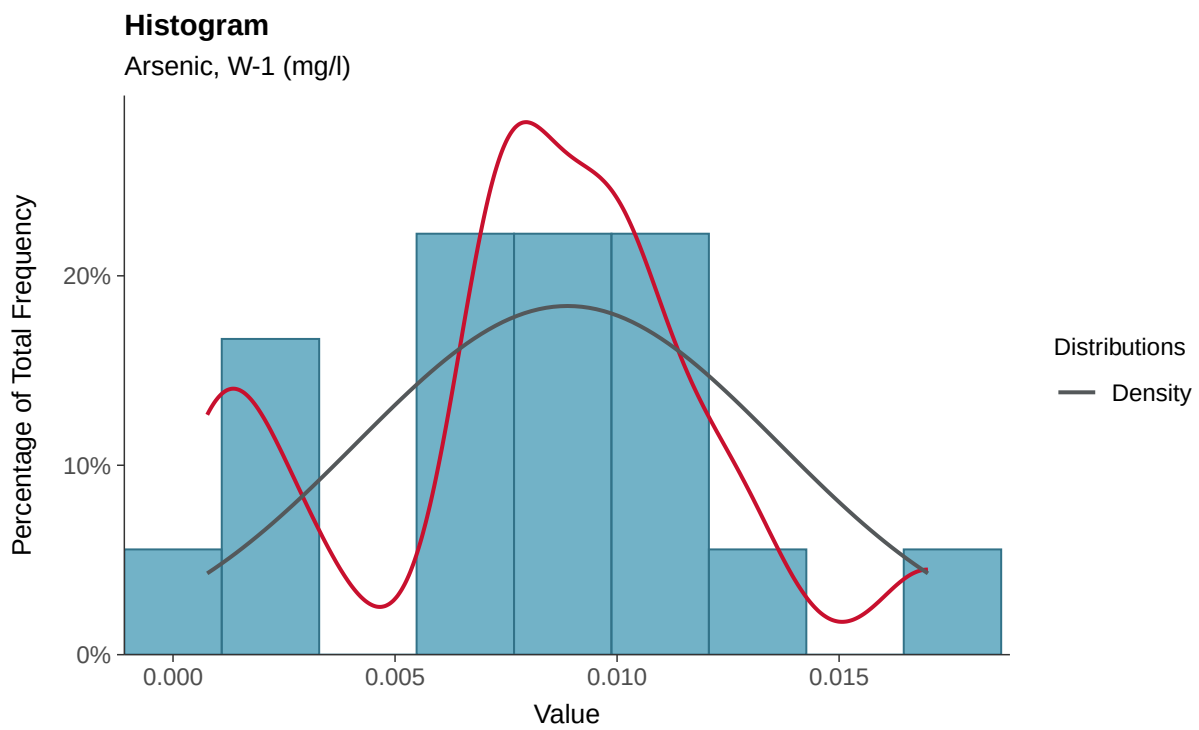
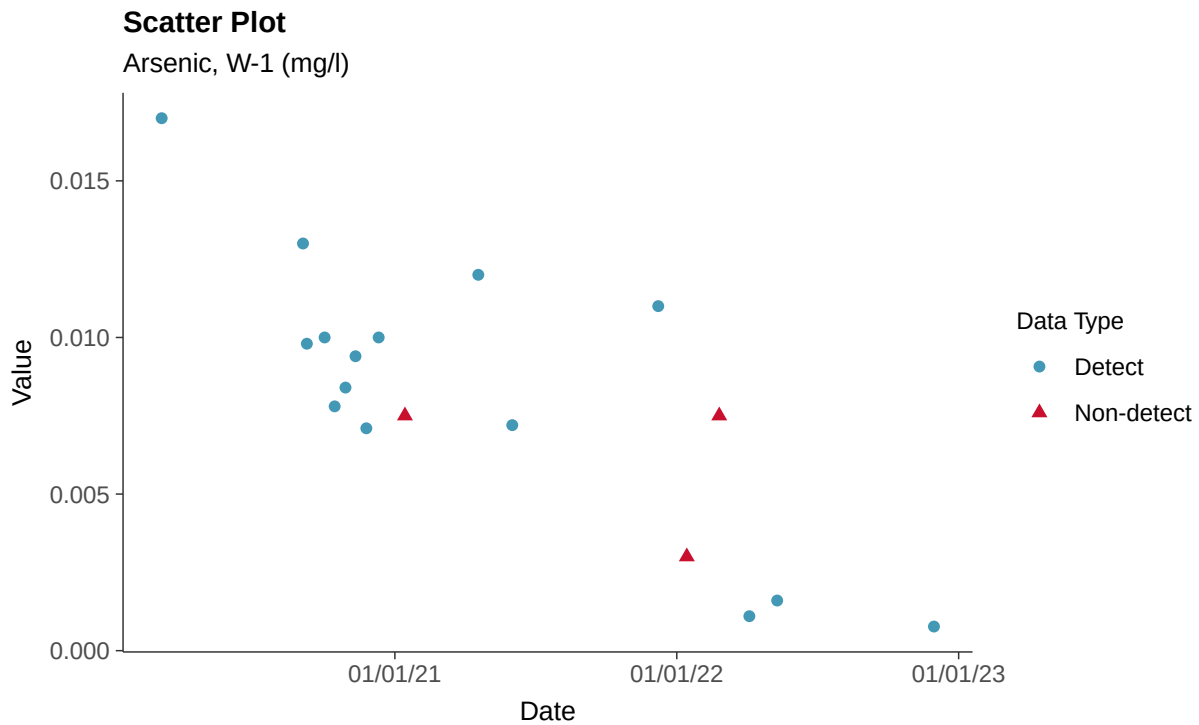
Trend Regression: Piecewise Linear-Linear-Linear

Antimony, W-1 (mg/l)



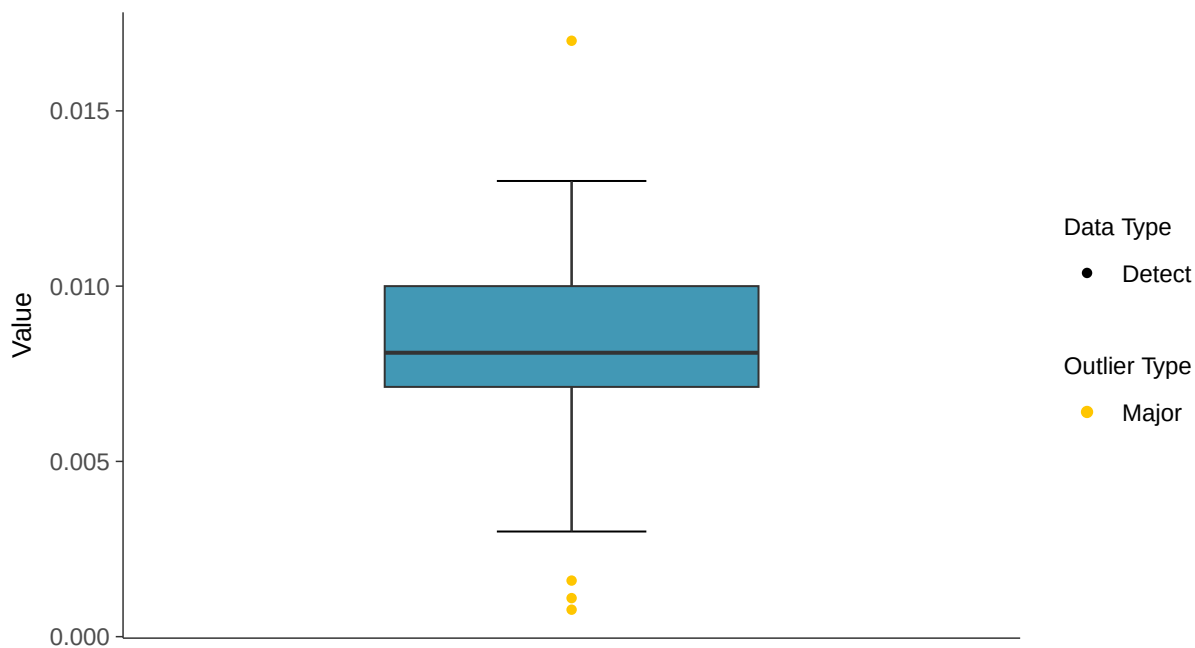
Appendix IV: Arsenic, W-1

ID: 1_2_102



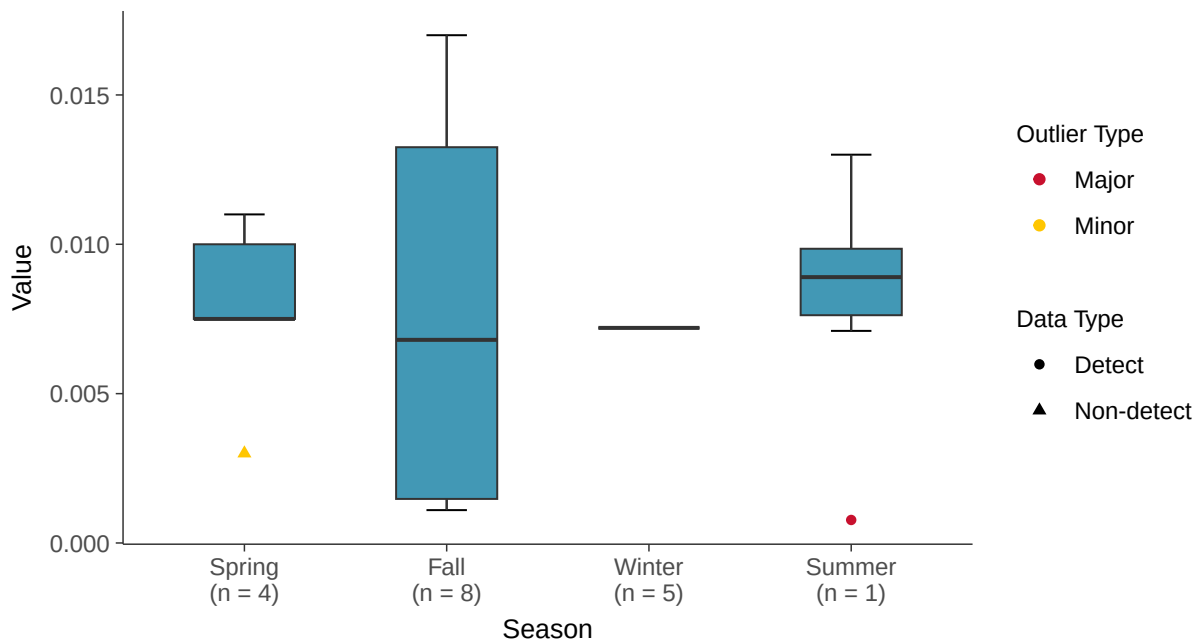
Boxplot

Arsenic, W-1 (mg/l)



Boxplot by Season

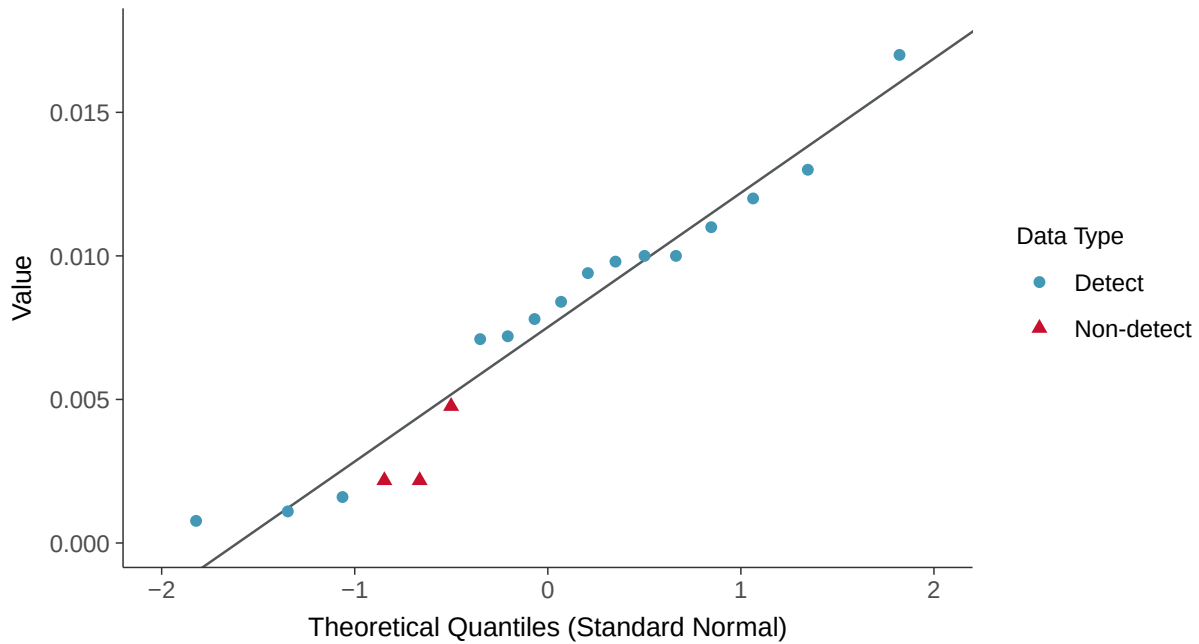
Arsenic, W-1 (mg/l)



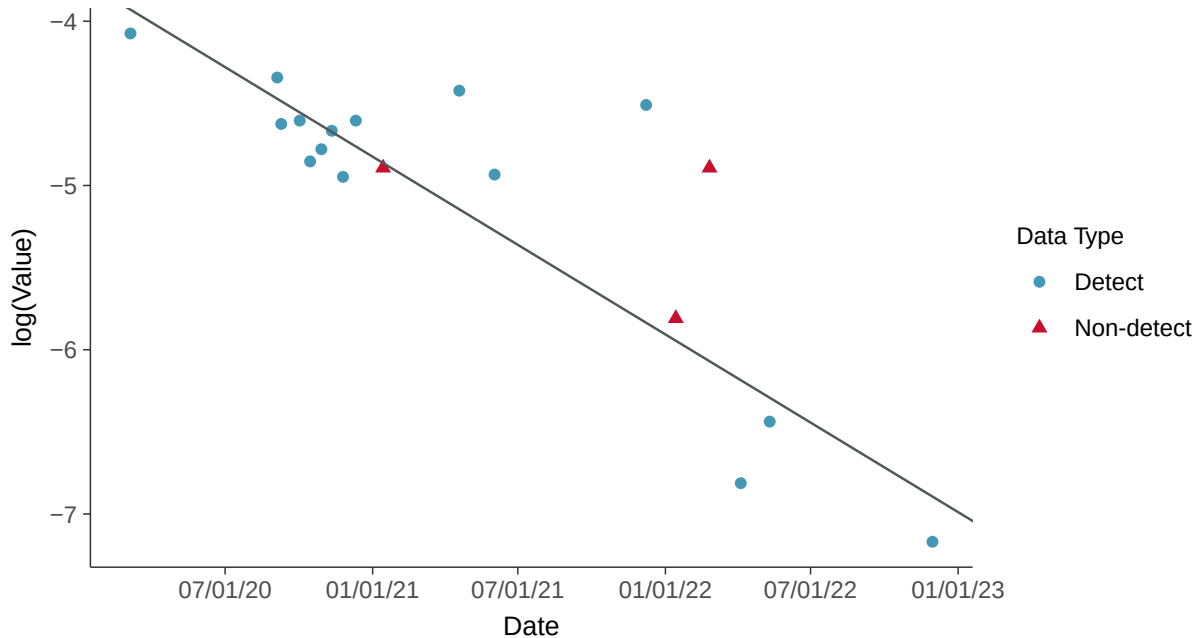
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Normal Q-Q plot using ROS Imputed Estimates

Arsenic, W-1 (mg/l)

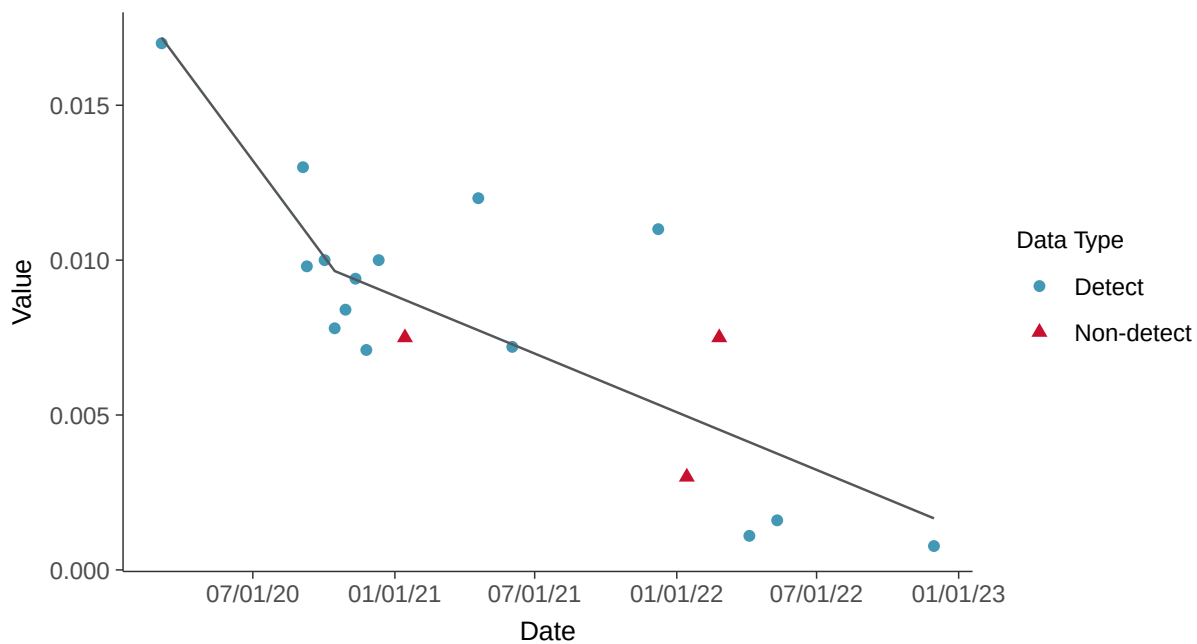
**Trend Regression: Lognormal MLE**

Arsenic, W-1 (mg/l)



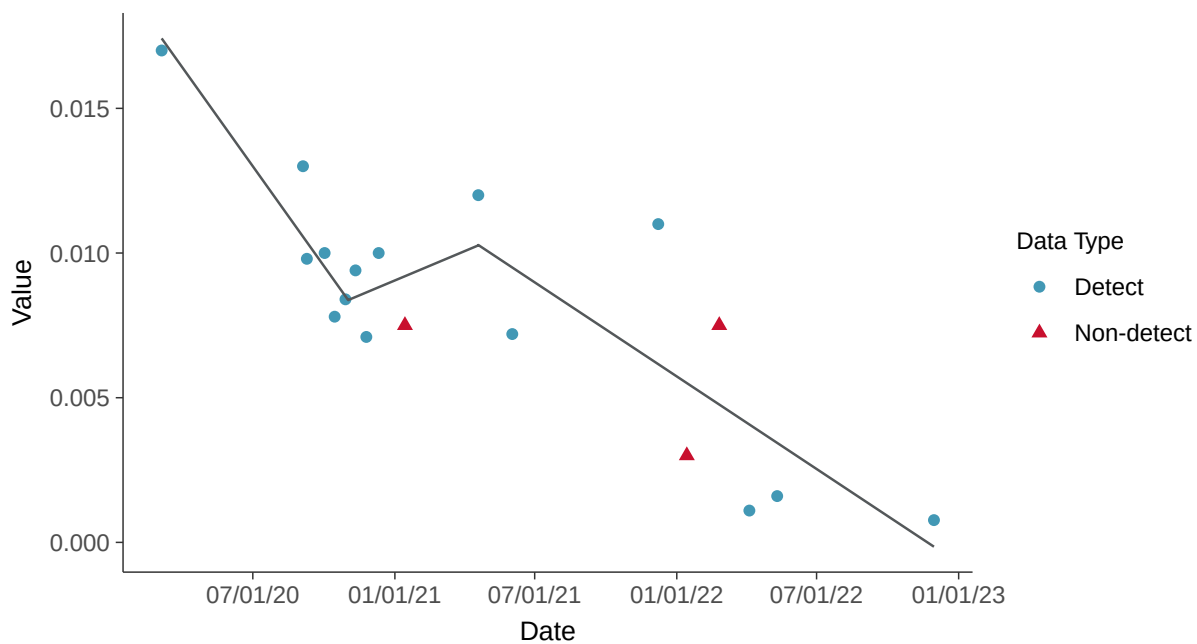
Trend Regression: Piecewise Linear-Linear

Arsenic, W-1 (mg/l)



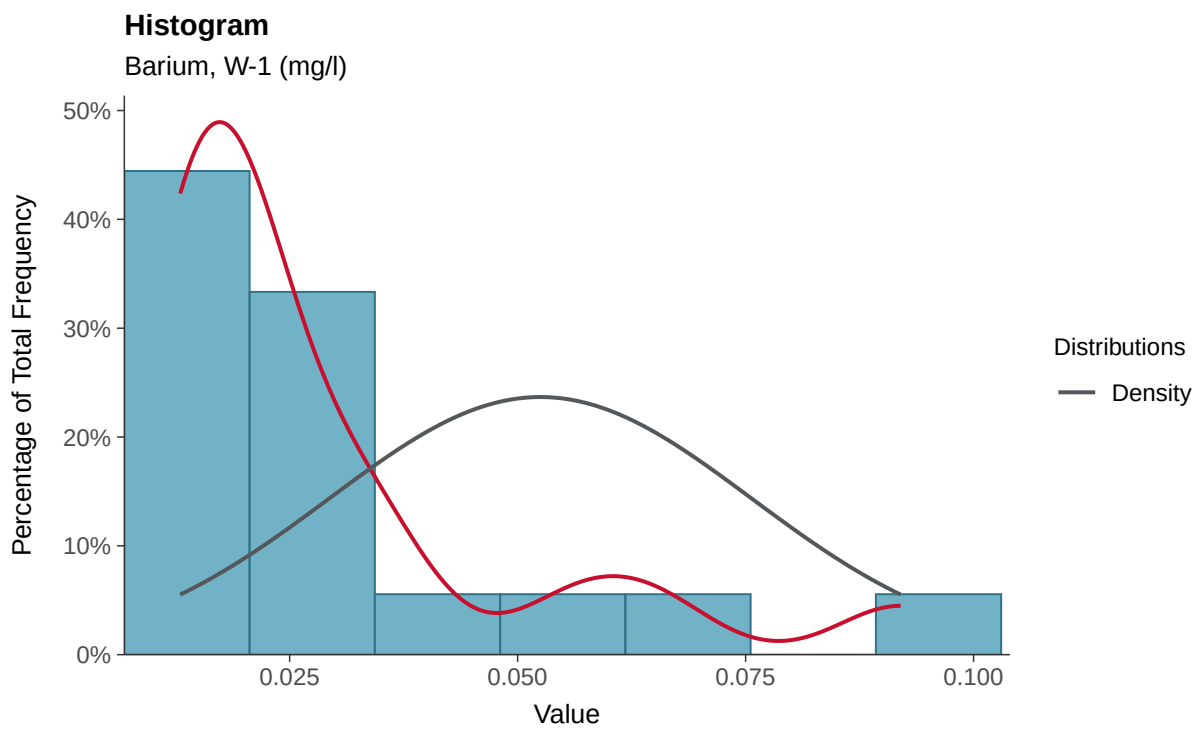
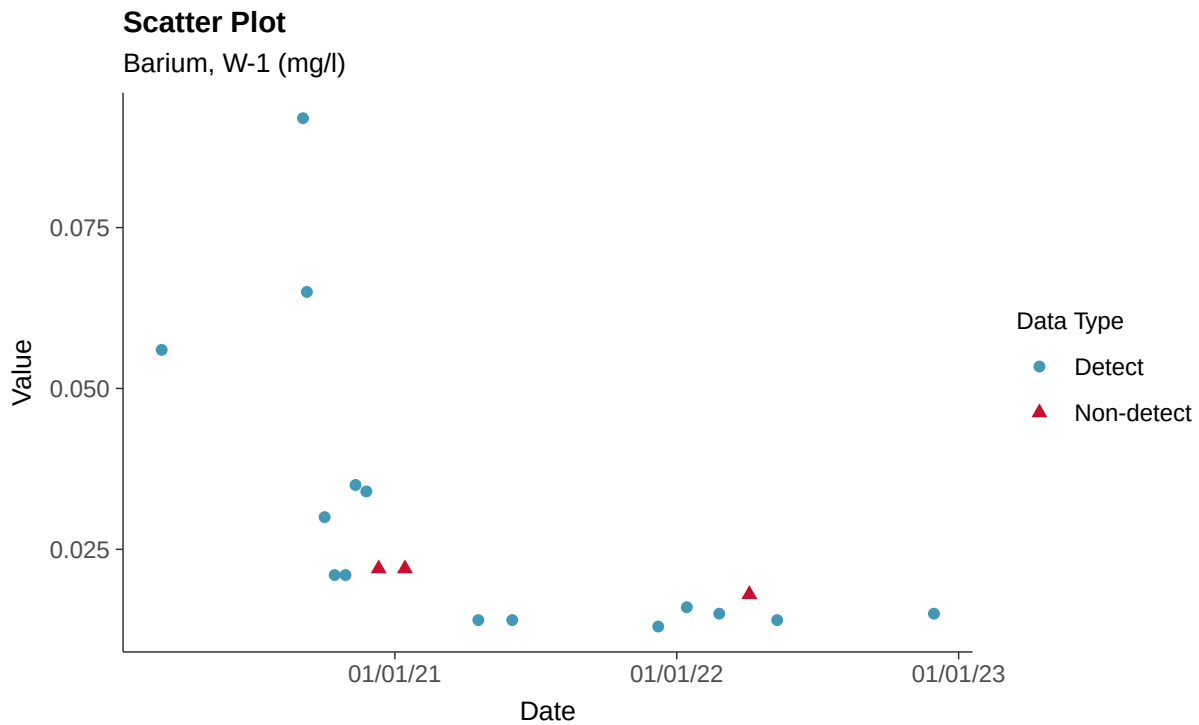
Trend Regression: Piecewise Linear-Linear-Linear

Arsenic, W-1 (mg/l)



Appendix IV: Barium, W-1

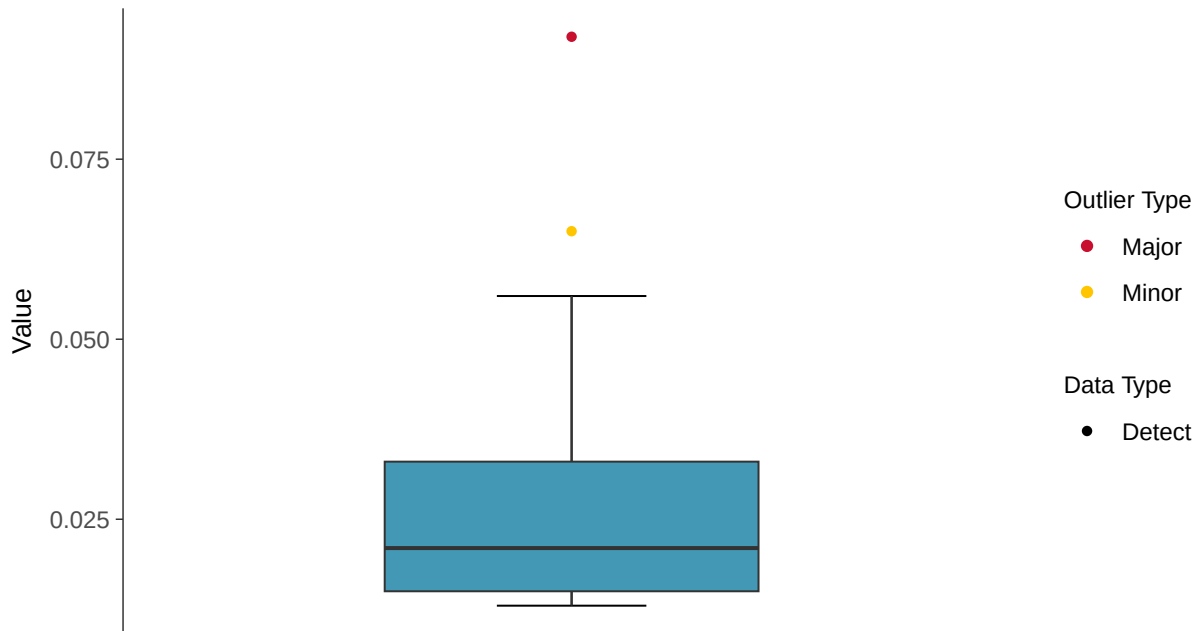
ID: 1_2_103



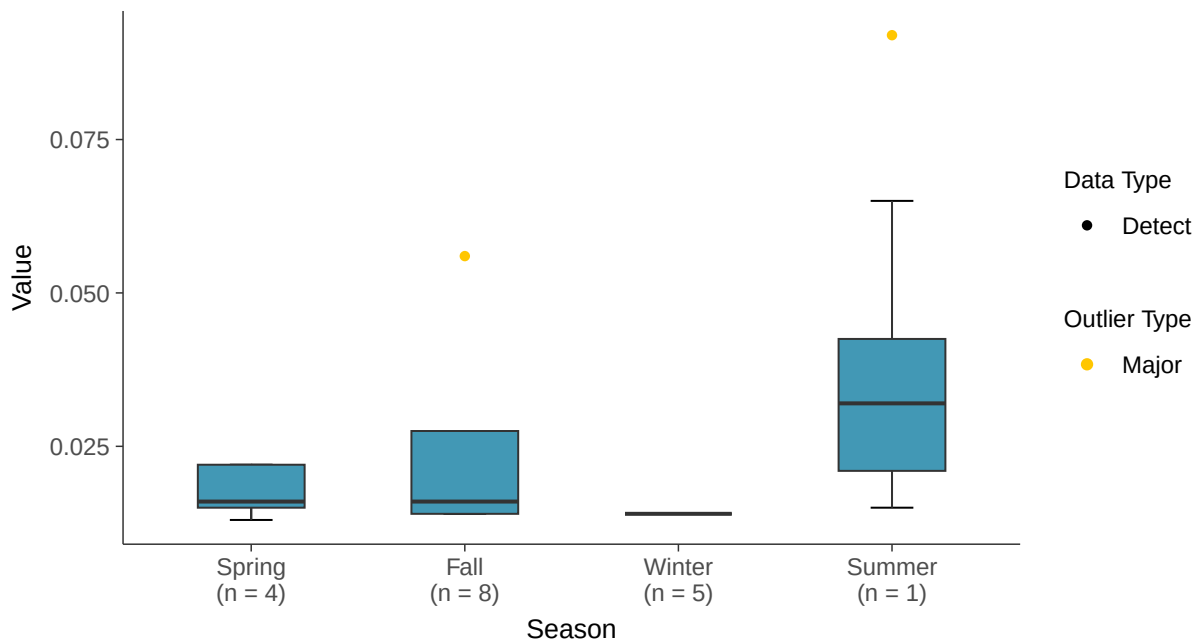
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

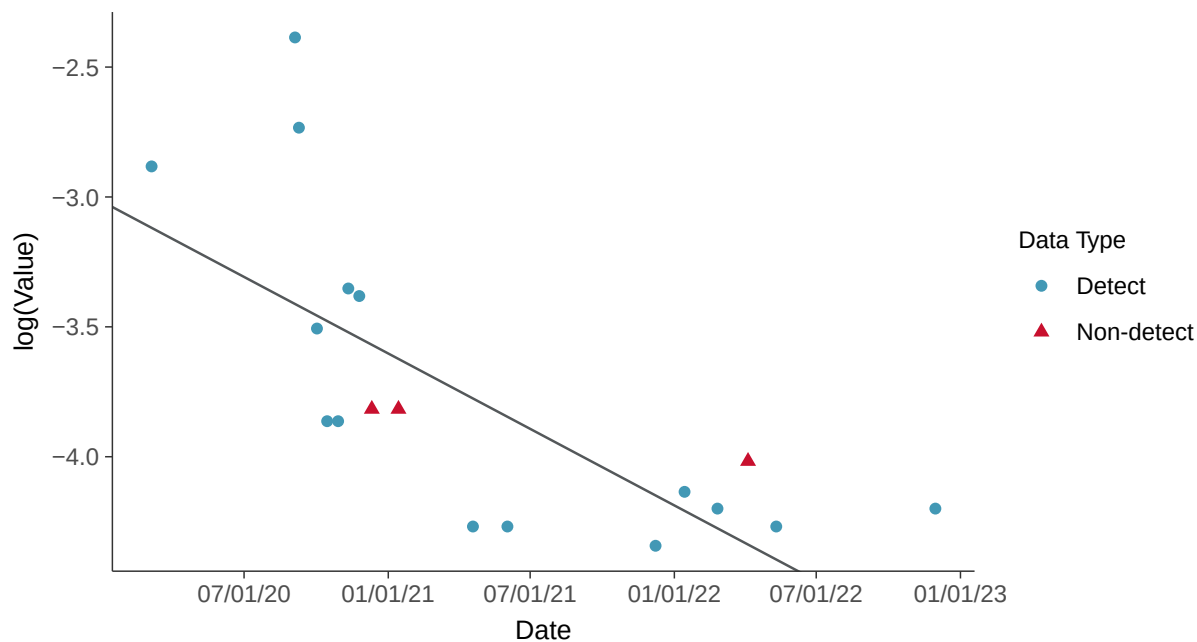
Boxplot

Barium, W-1 (mg/l)

**Boxplot by Season**

Barium, W-1 (mg/l)

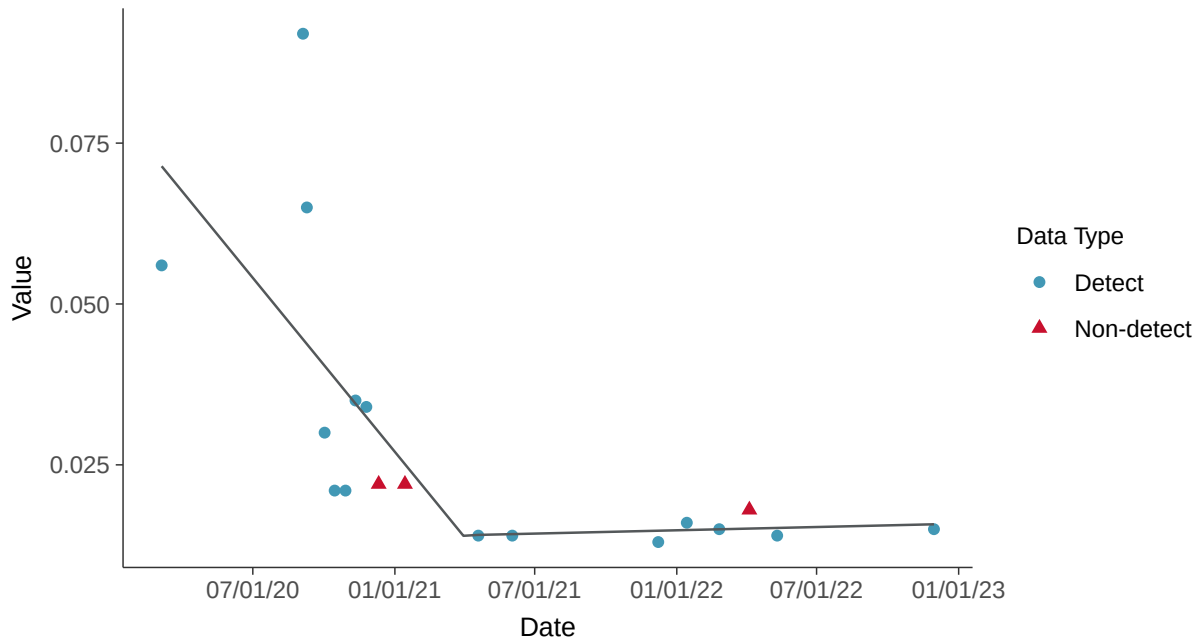




Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Trend Regression: Piecewise Linear-Linear

Barium, W-1 (mg/l)

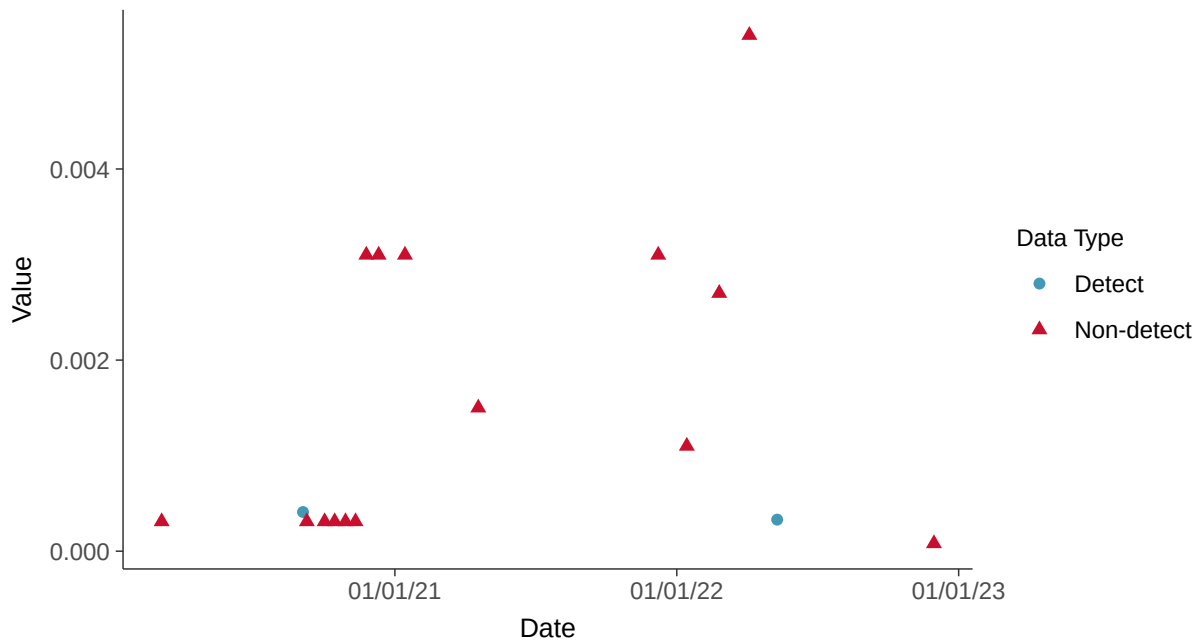


Appendix IV: Beryllium, W-1

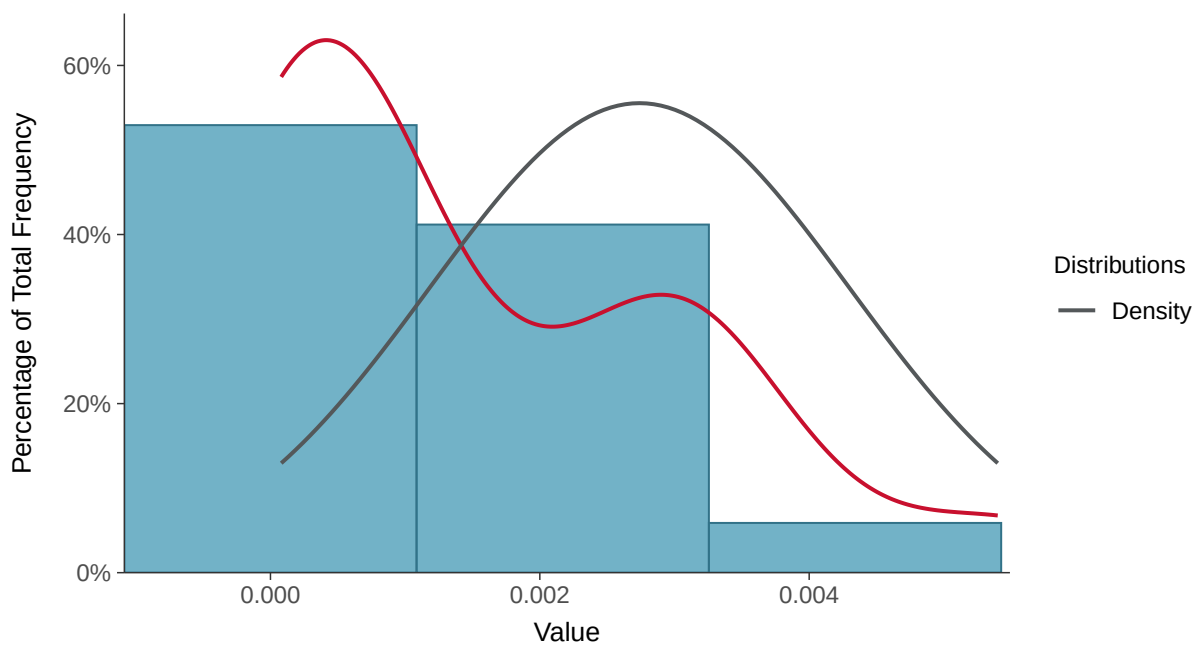
ID: 1_2_104

Scatter Plot

Beryllium, W-1 (mg/l)

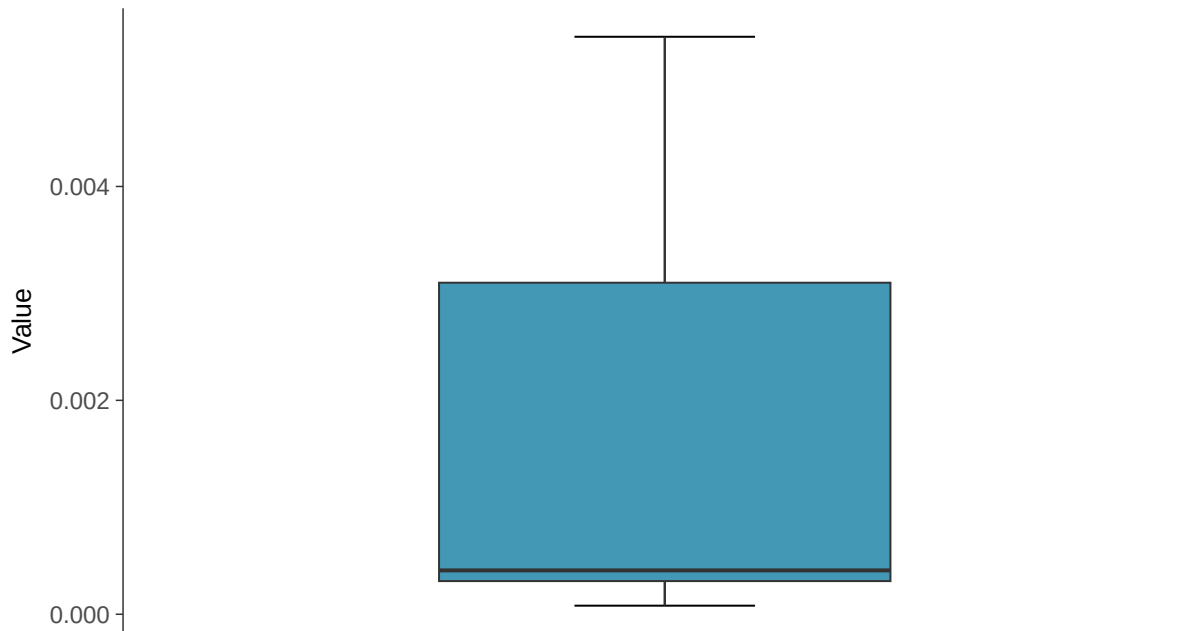
**Histogram**

Beryllium, W-1 (mg/l)



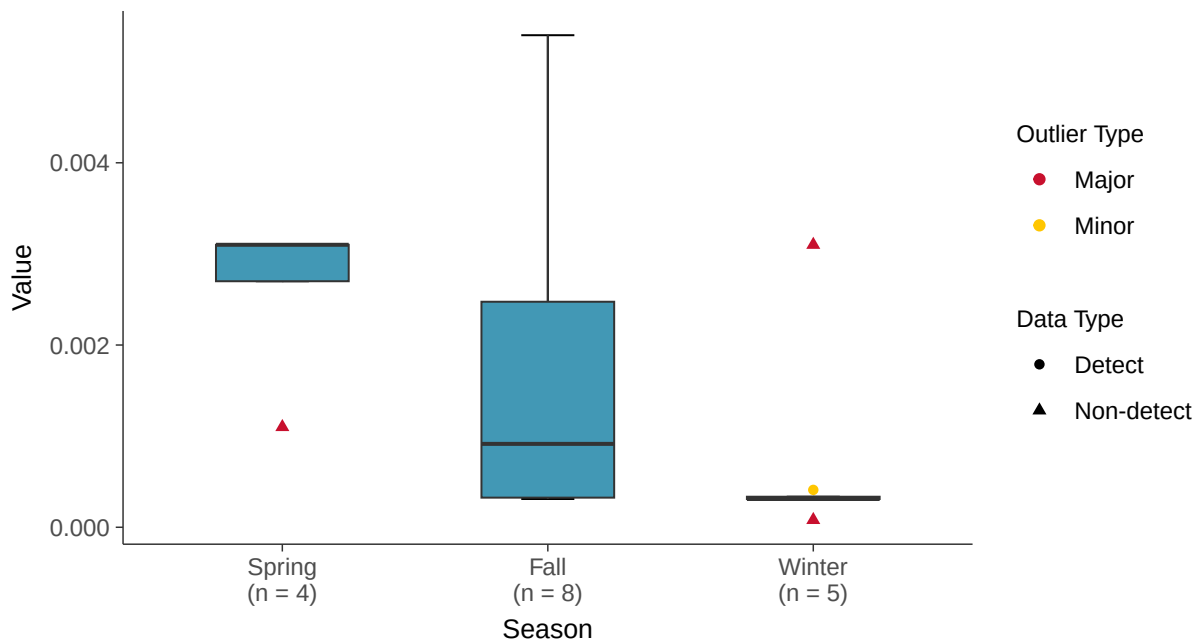
Boxplot

Beryllium, W-1 (mg/l)



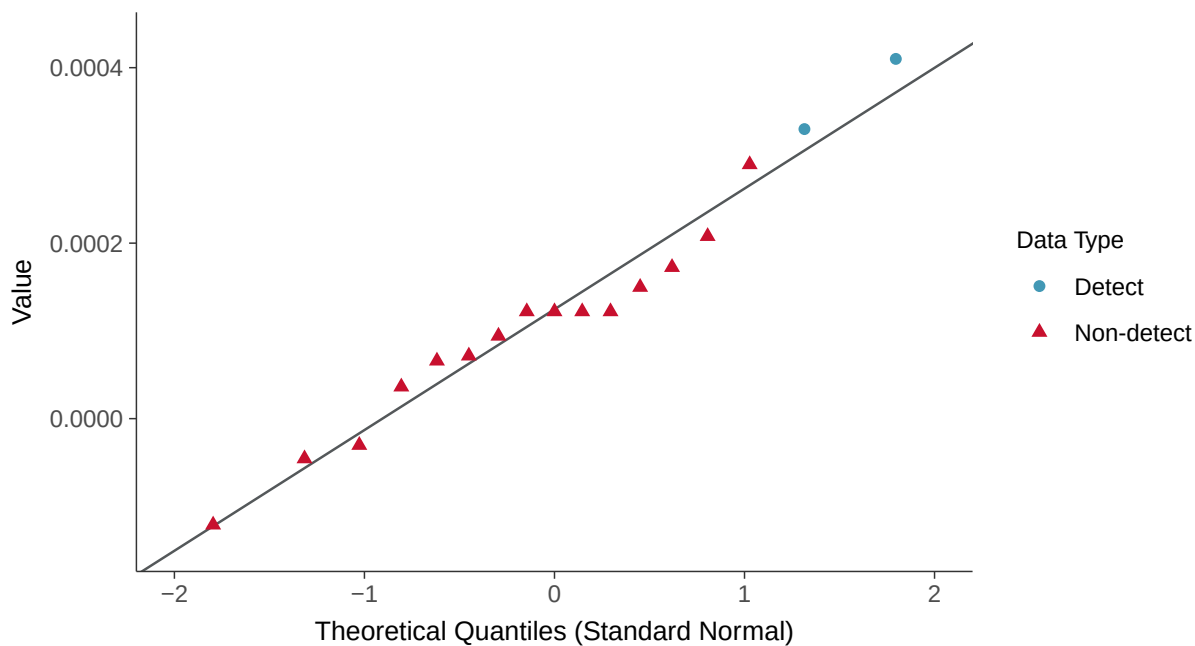
Boxplot by Season

Beryllium, W-1 (mg/l)



Normal Q-Q plot using ROS Imputed Estimates

Beryllium, W-1 (mg/l)



Scatter Plot
Cadmium, W-1 (mg/l)

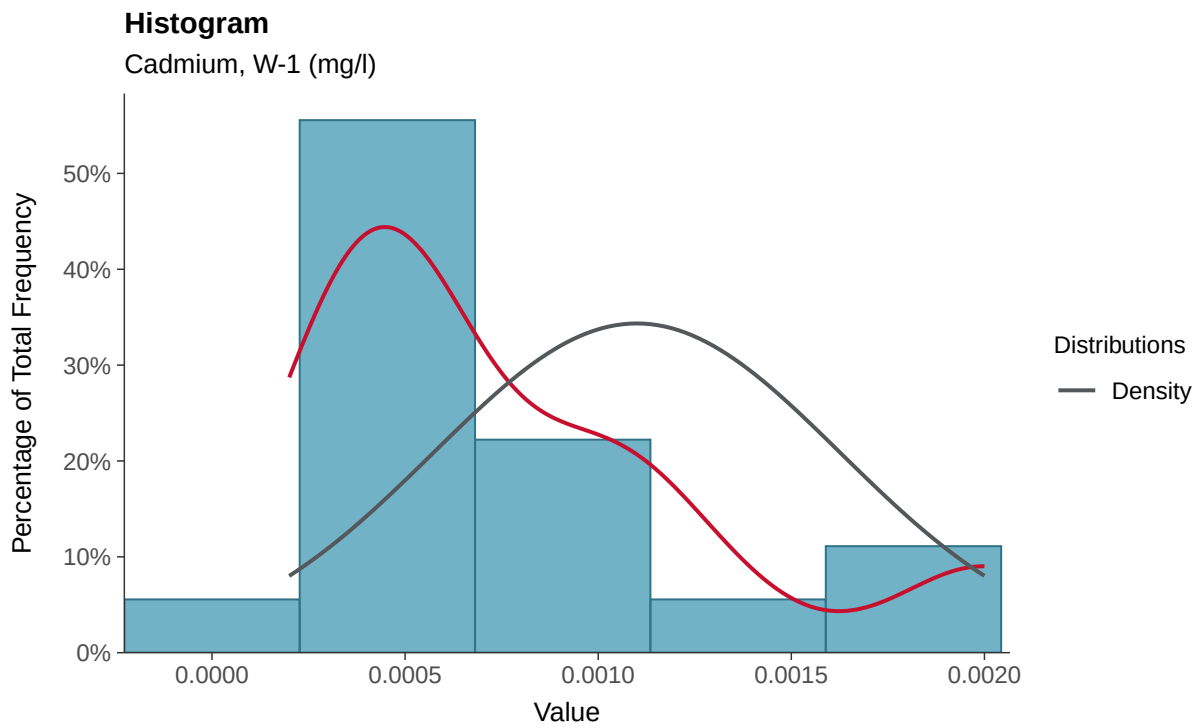
Value

Date

Data Type

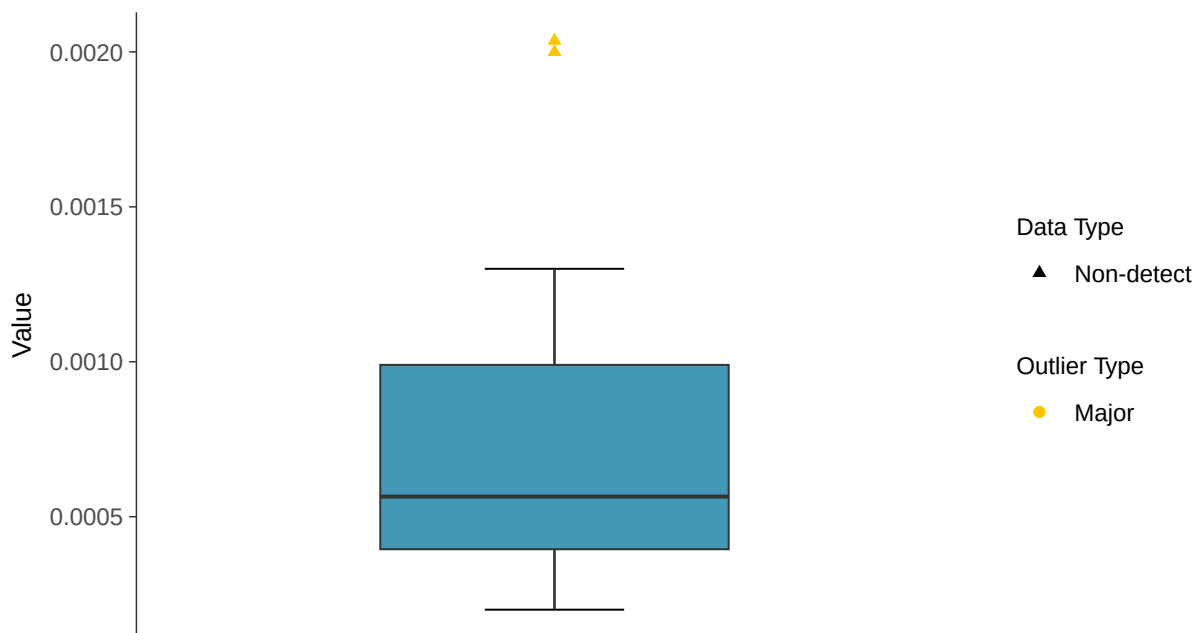
- Detect
- Non-detect

Date	Value (mg/l)	Data Type
2020-03-01	0.0001	Non-detect
2020-07-01	0.0004	Detect
2020-08-01	0.0003	Detect
2020-09-01	0.0005	Detect
2020-10-01	0.0004	Detect
2020-11-01	0.0004	Detect
2020-12-01	0.0005	Detect
2021-01-01	0.0020	Non-detect
2021-02-01	0.0020	Non-detect
2021-05-01	0.0010	Non-detect
2021-07-01	0.0010	Non-detect
2021-12-01	0.0010	Non-detect
2022-01-01	0.0004	Detect
2022-03-01	0.0005	Non-detect
2022-05-01	0.0011	Non-detect
2022-07-01	0.0013	Non-detect
2022-12-01	0.0006	Detect



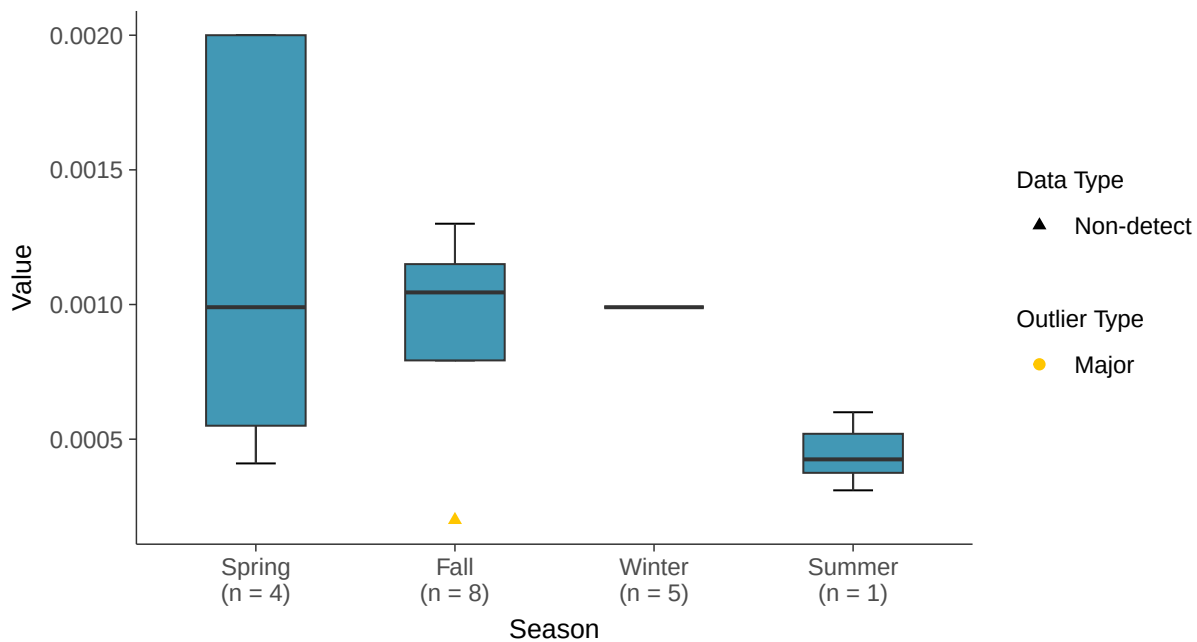
Boxplot

Cadmium, W-1 (mg/l)



Boxplot by Season

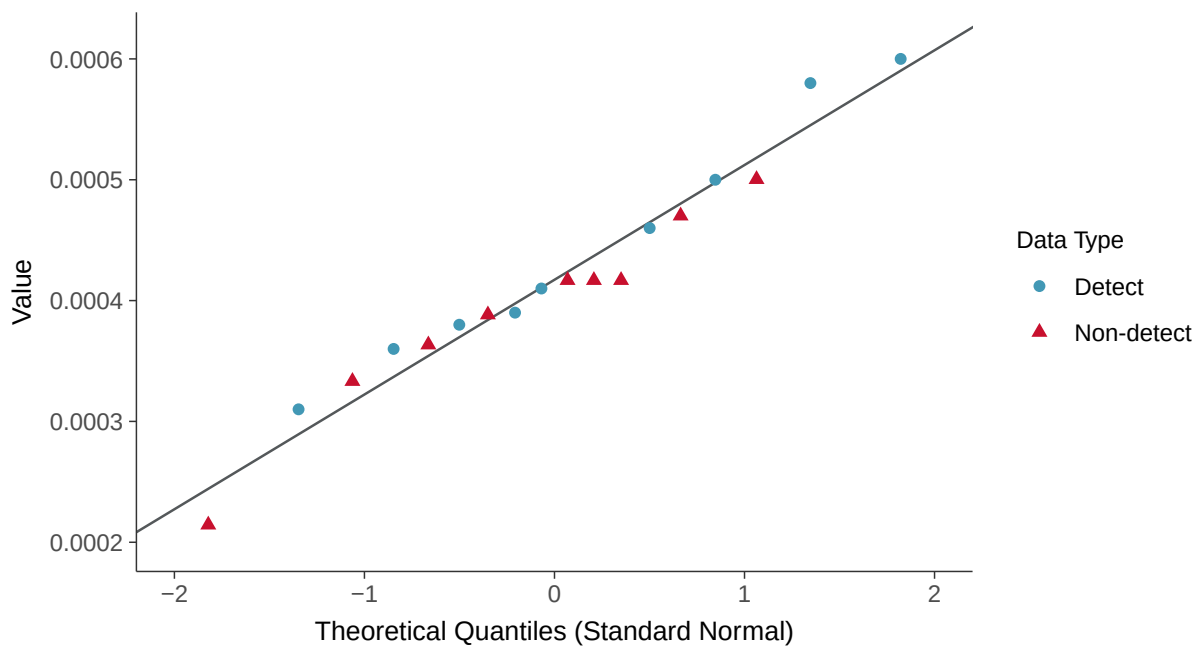
Cadmium, W-1 (mg/l)





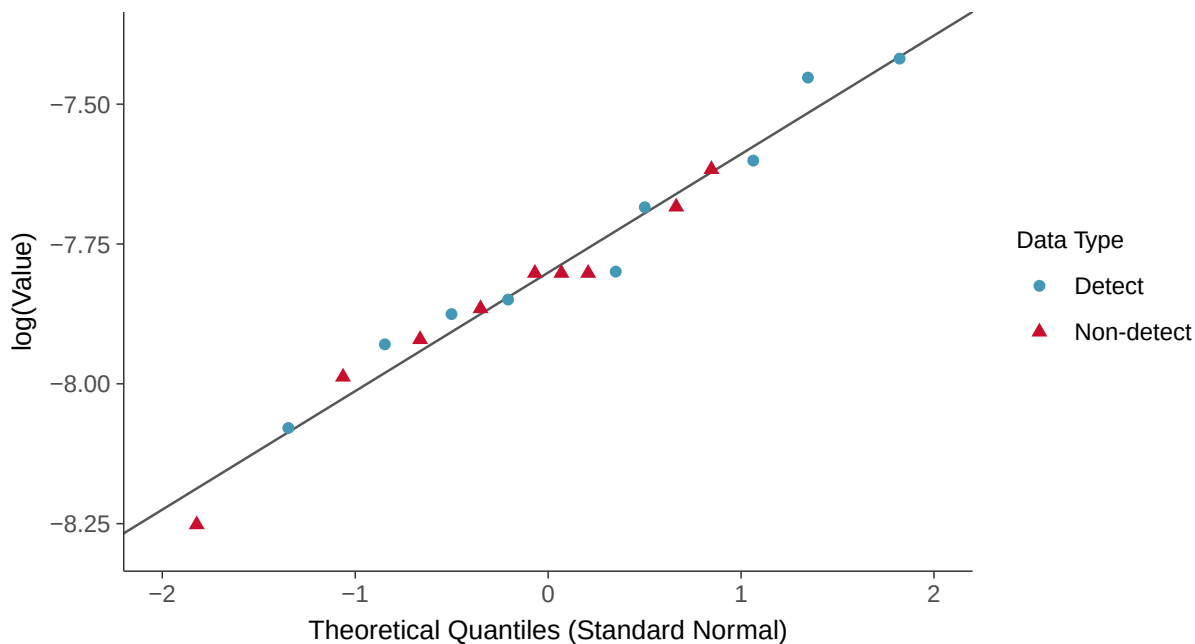
Normal Q-Q plot using ROS Imputed Estimates

Cadmium, W-1 (mg/l)



Lognormal Q-Q plot using ROS Imputed Estimates

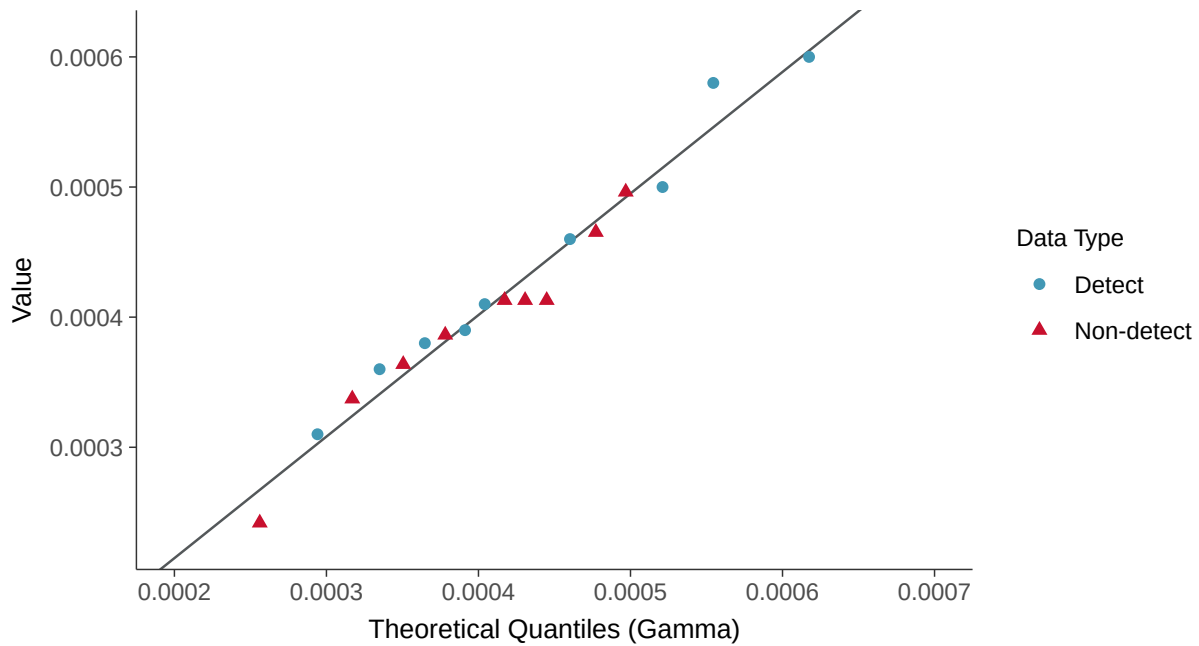
Cadmium, W-1 (mg/l)





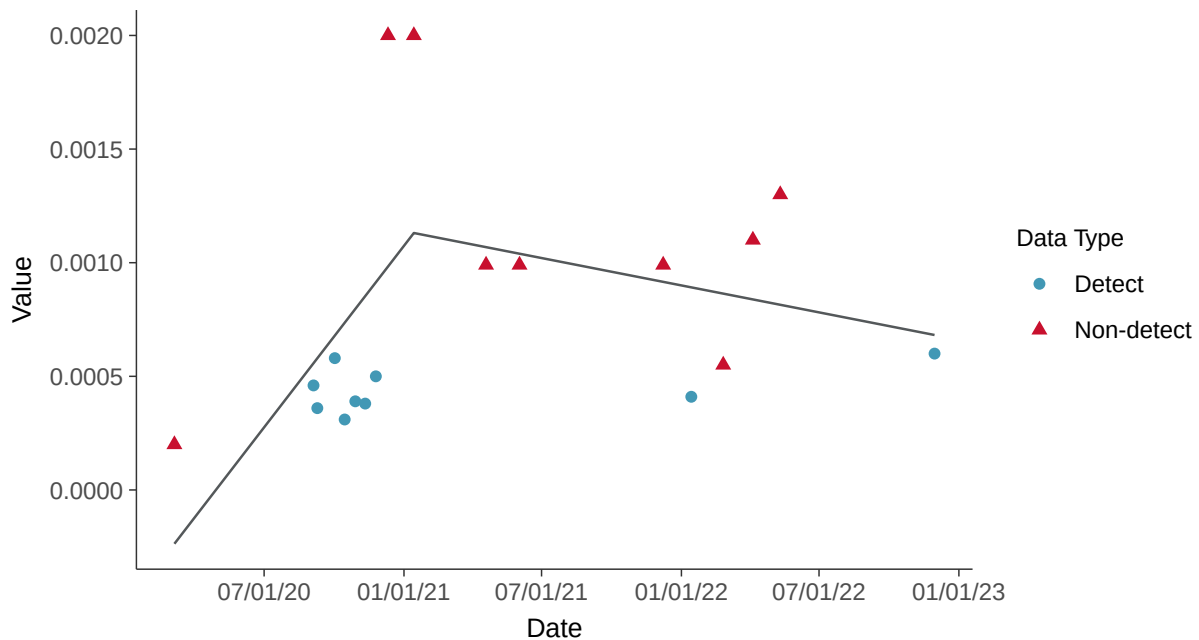
Gamma Q-Q plot using ROS Imputed Estimates

Cadmium, W-1 (mg/l)



Trend Regression: Piecewise Linear-Linear

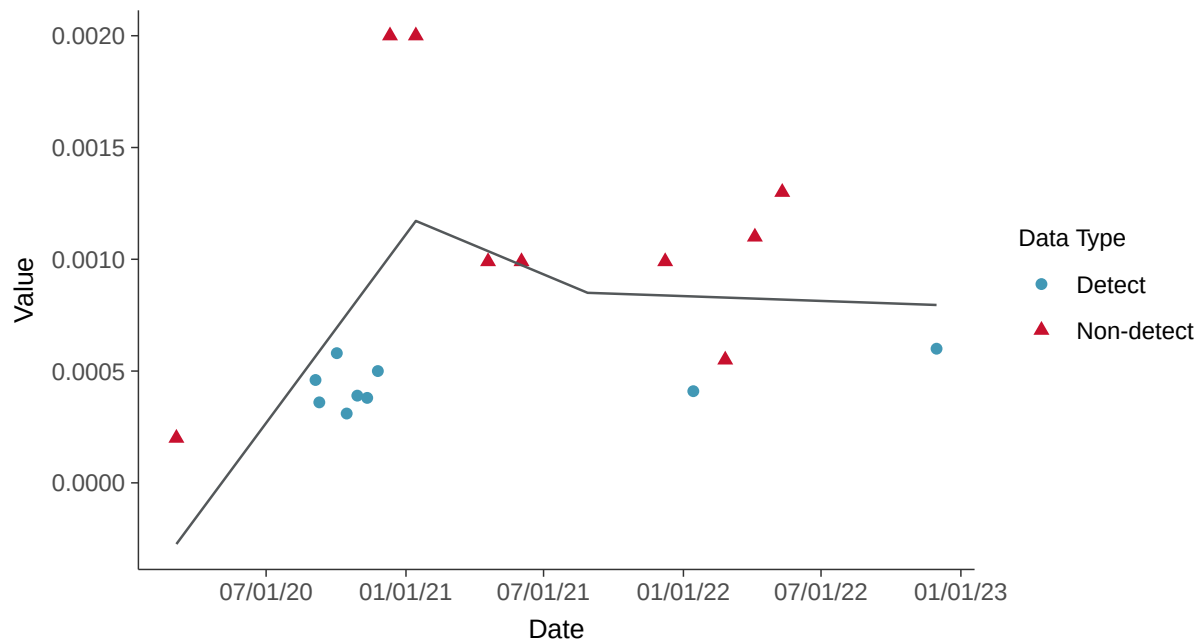
Cadmium, W-1 (mg/l)





Trend Regression: Piecewise Linear-Linear-Linear

Cadmium, W-1 (mg/l)

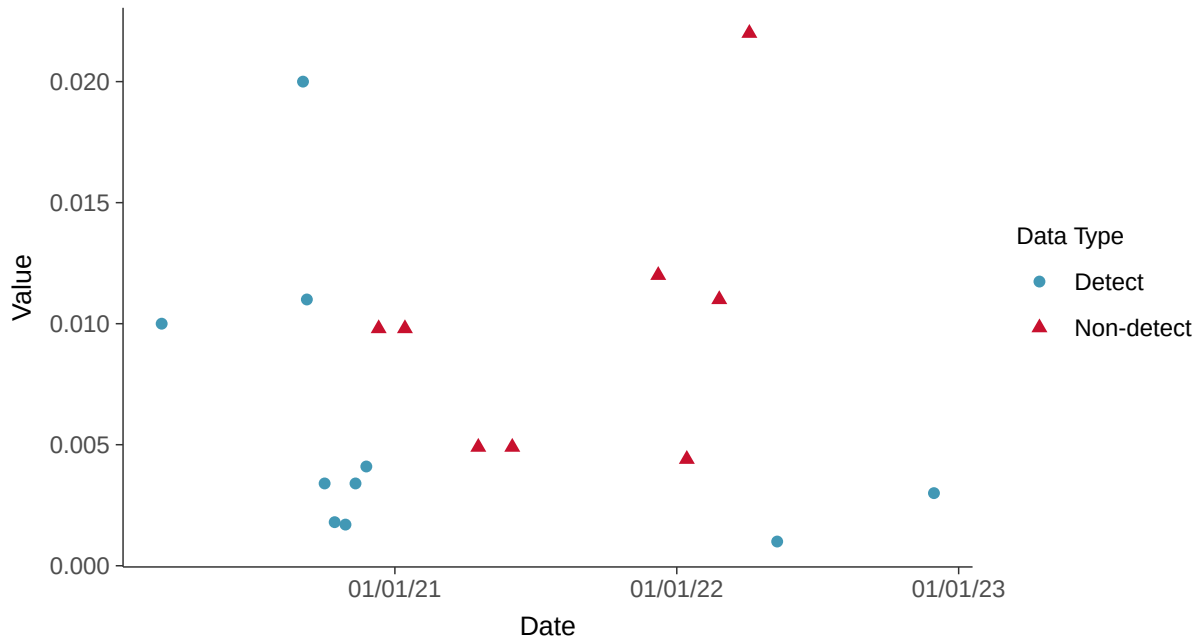


Appendix IV: Chromium, Total, W-1

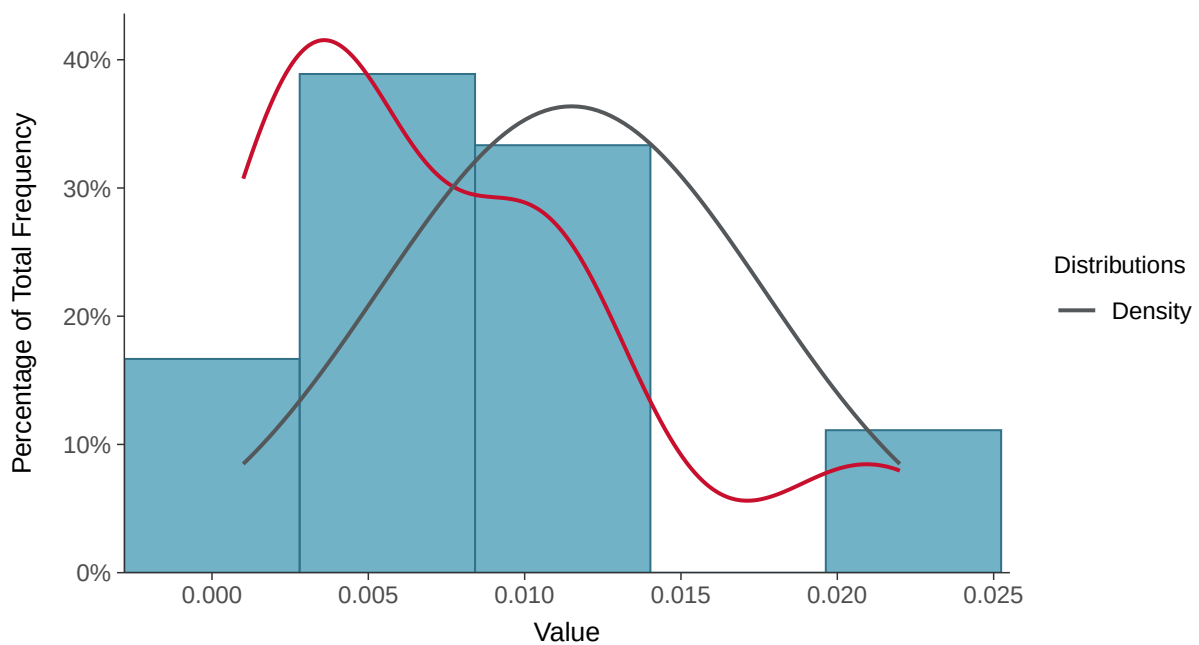
ID: 1_2_109

Scatter Plot

Chromium, Total, W-1 (mg/l)

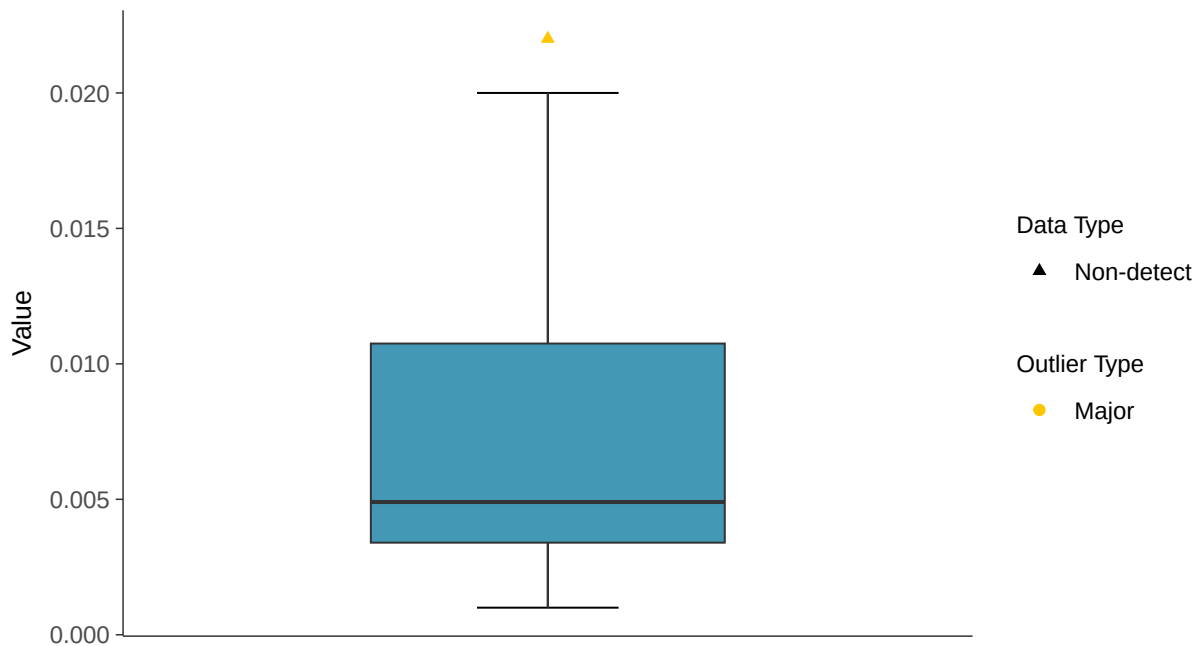
**Histogram**

Chromium, Total, W-1 (mg/l)



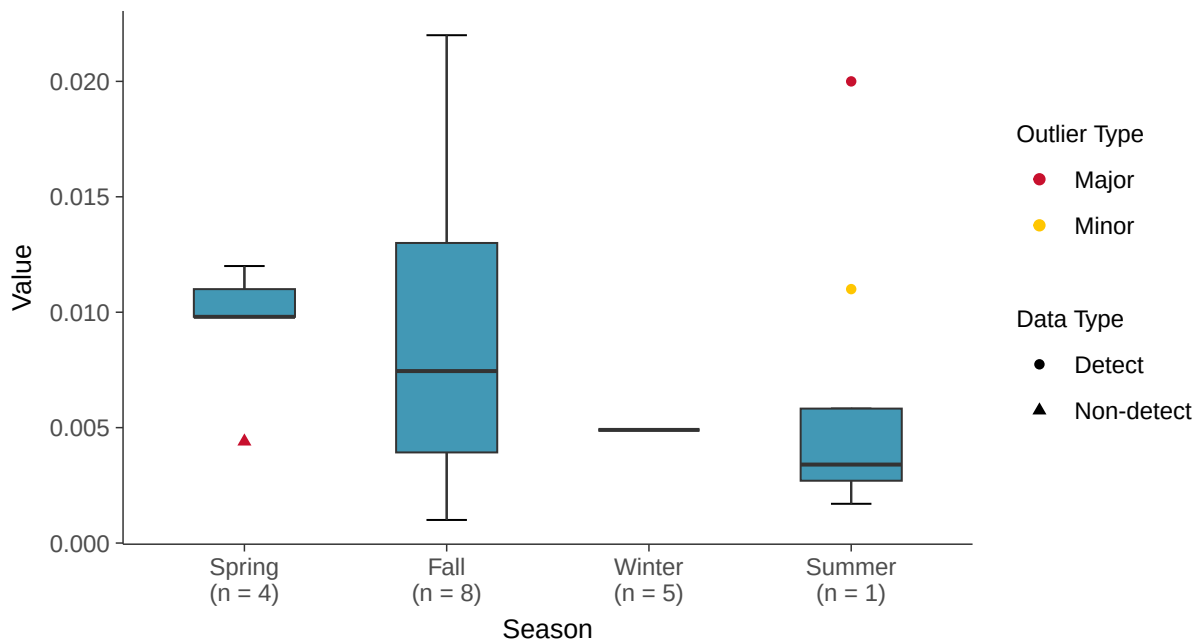
Boxplot

Chromium, Total, W-1 (mg/l)



Boxplot by Season

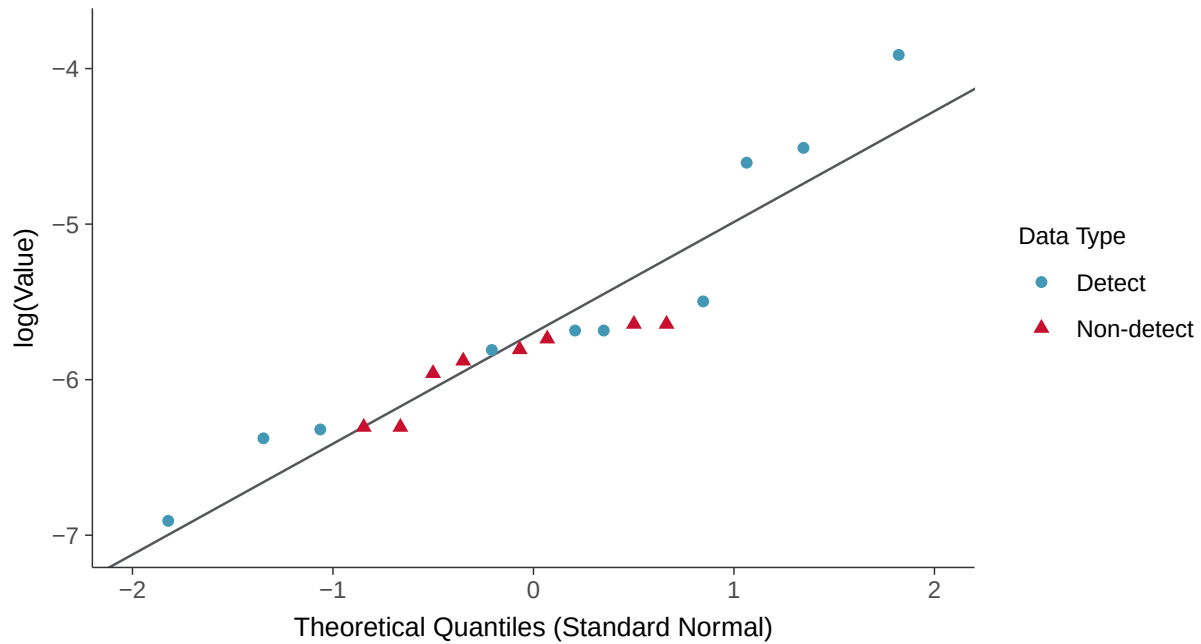
Chromium, Total, W-1 (mg/l)

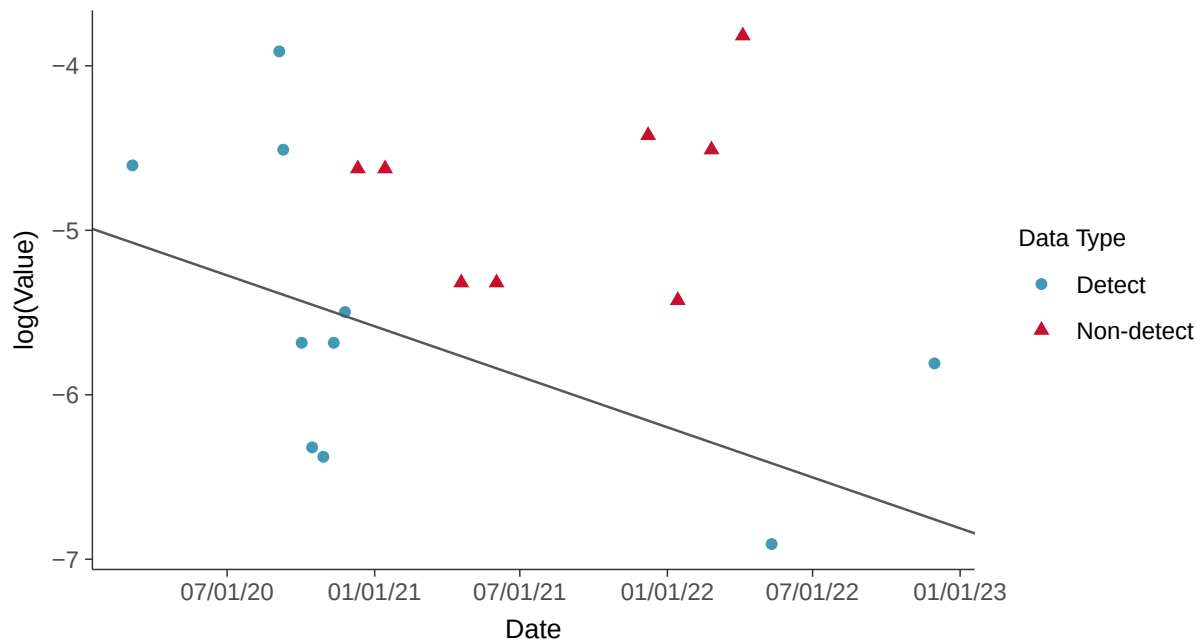


Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Lognormal Q-Q plot using ROS Imputed Estimates

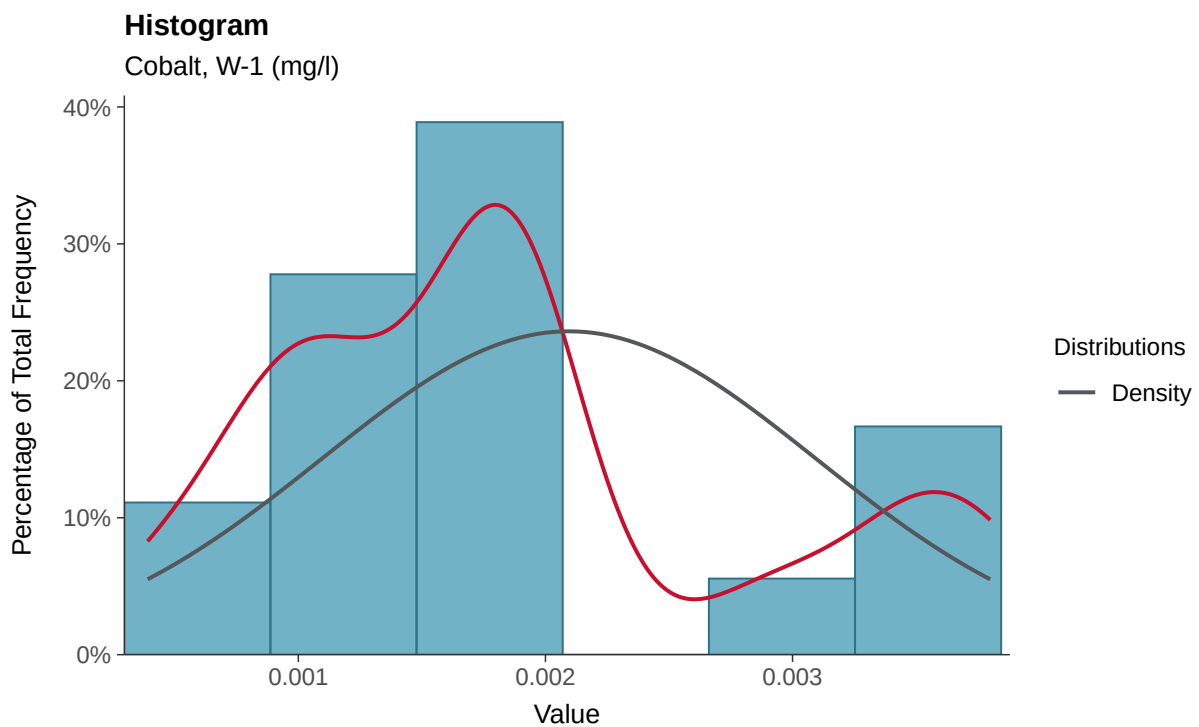
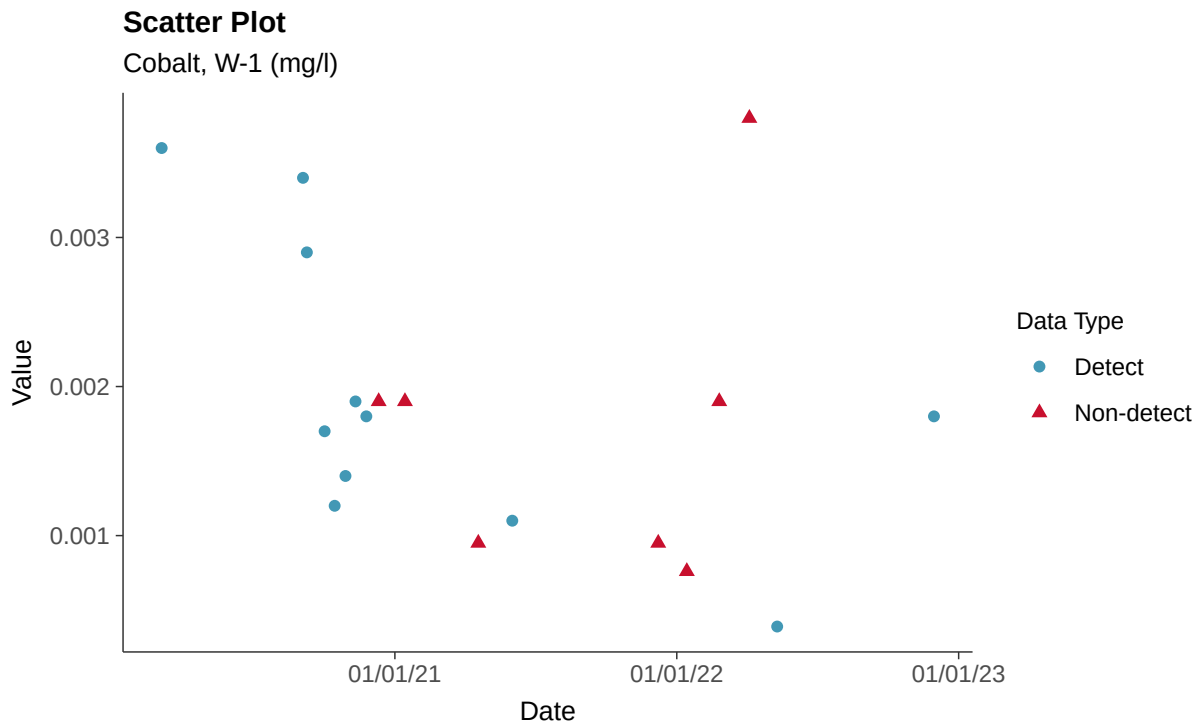
Chromium, Total, W-1 (mg/l)





Appendix IV: Cobalt, W-1

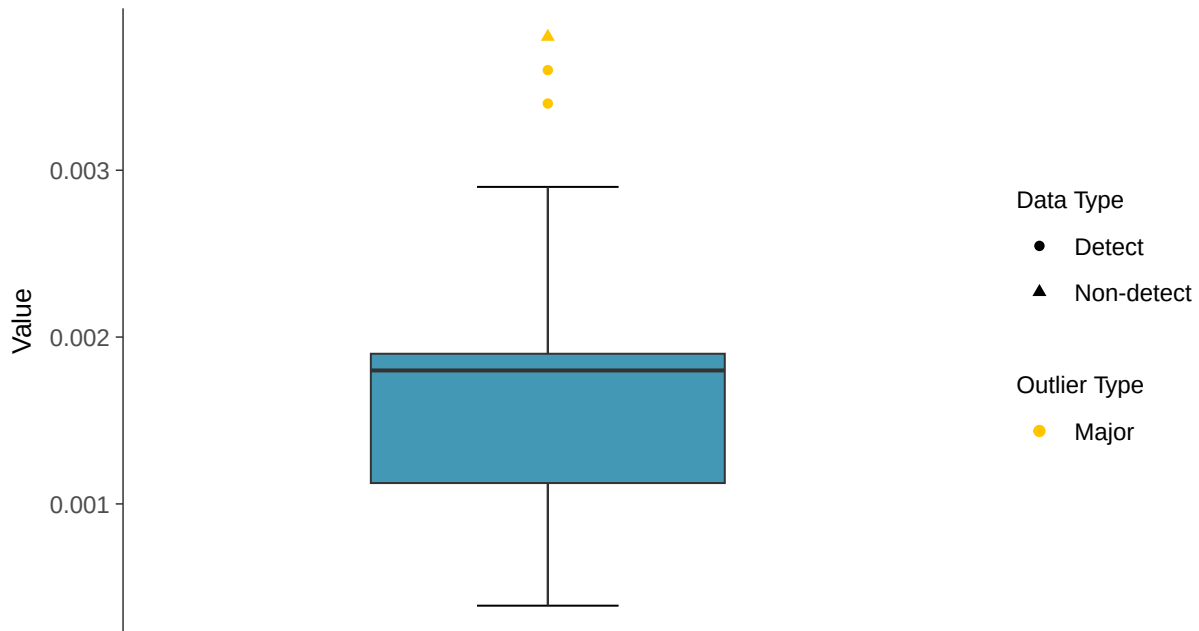
ID: 1_2_110



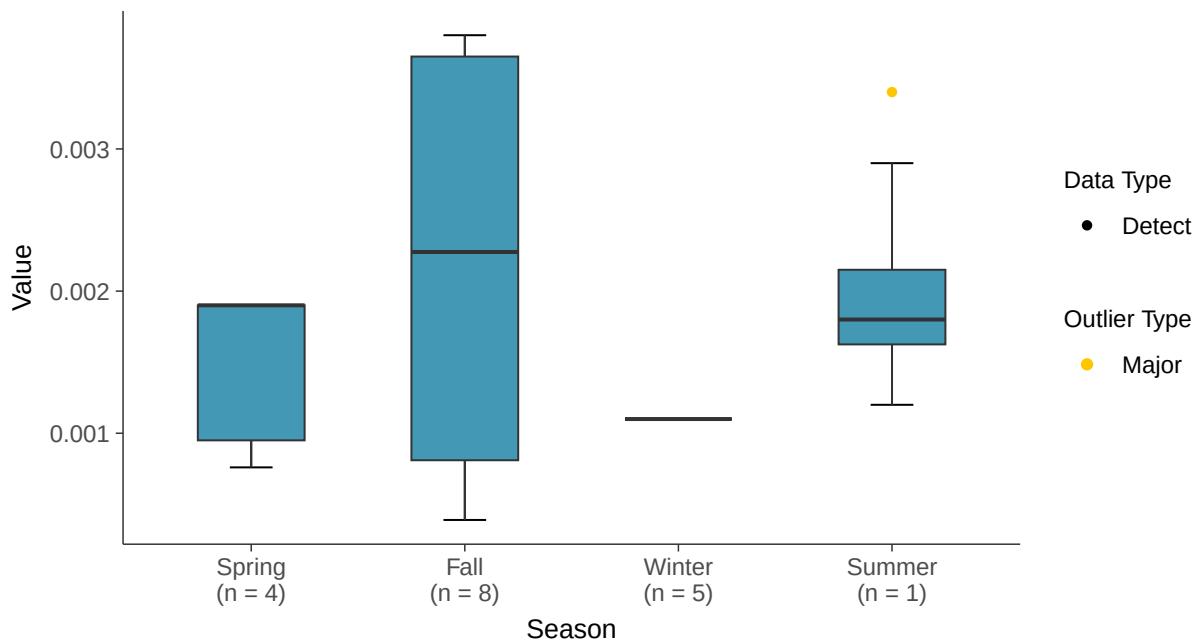
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Cobalt, W-1 (mg/l)

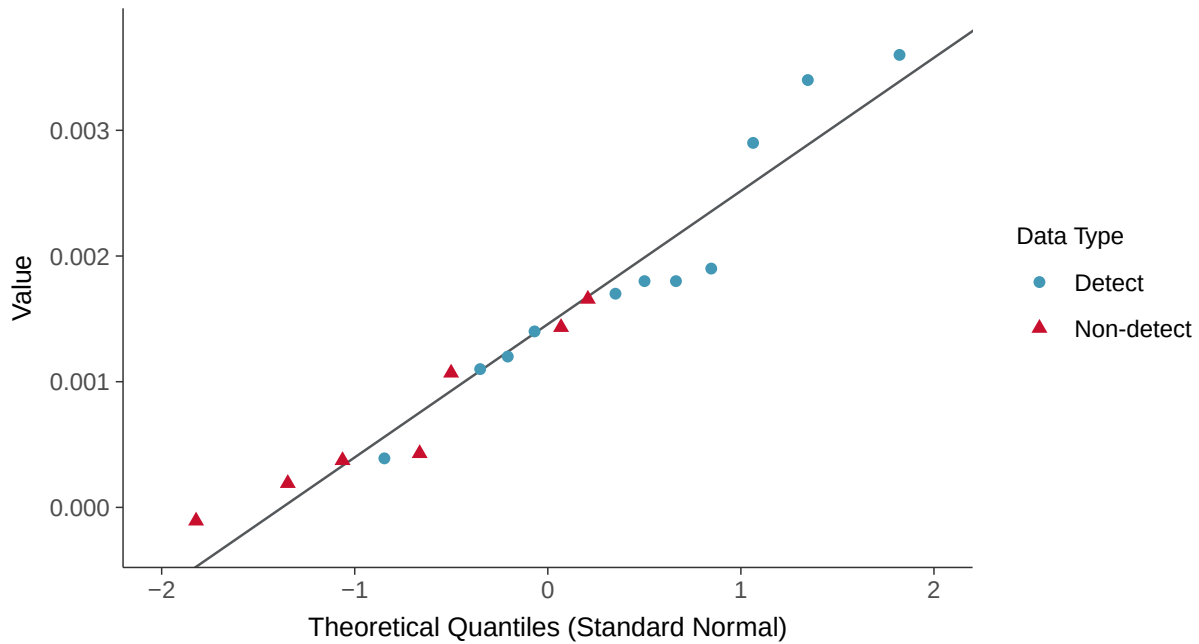
**Boxplot by Season**

Cobalt, W-1 (mg/l)

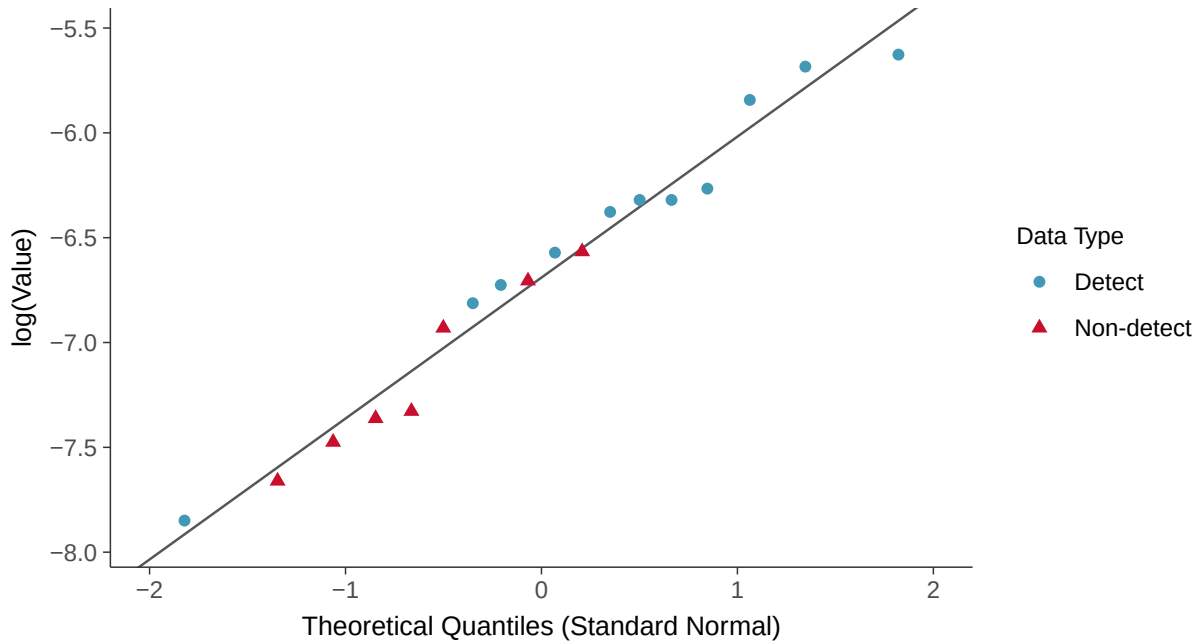


Normal Q-Q plot using ROS Imputed Estimates

Cobalt, W-1 (mg/l)

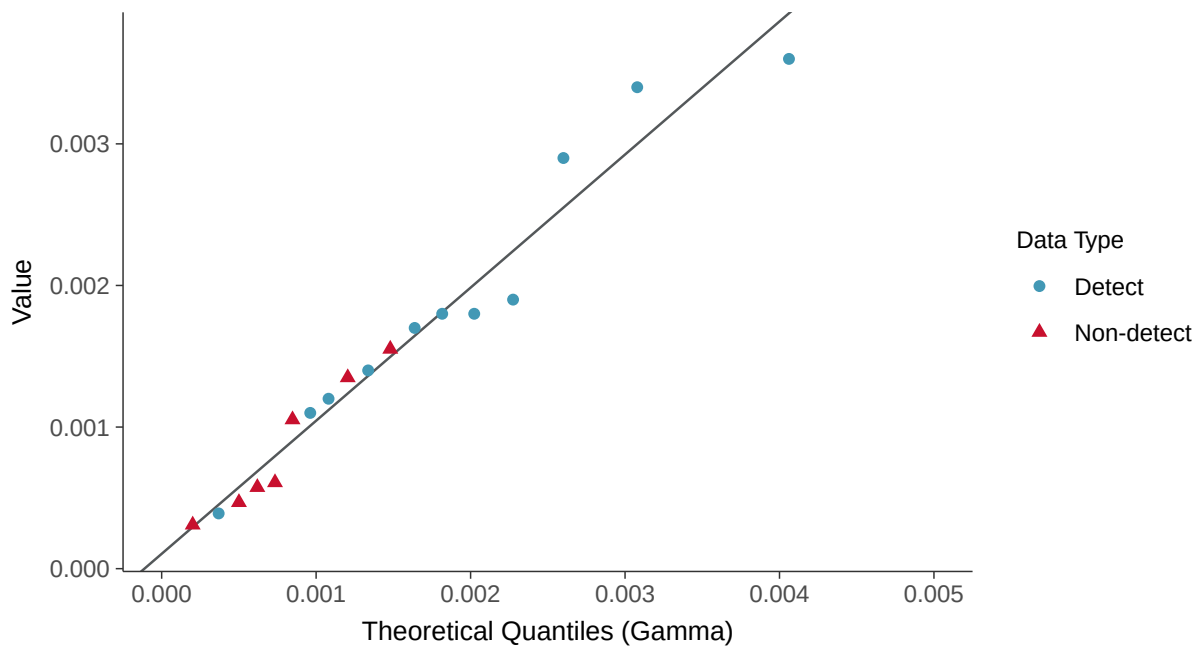
**Lognormal Q-Q plot using ROS Imputed Estimates**

Cobalt, W-1 (mg/l)



Gamma Q-Q plot using ROS Imputed Estimates

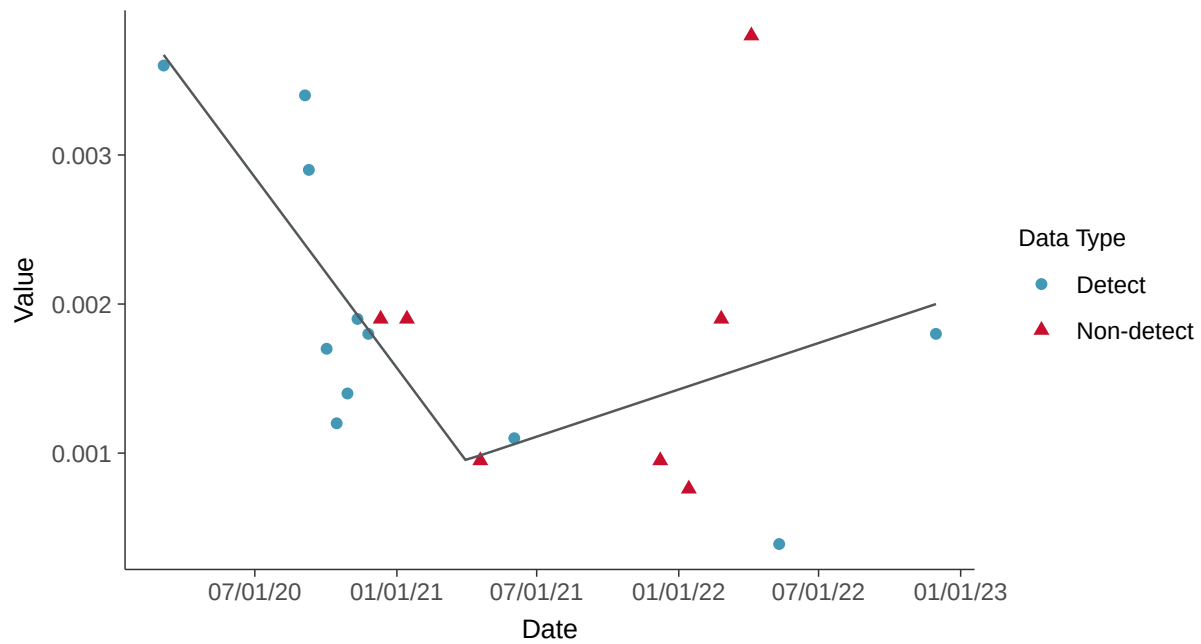
Cobalt, W-1 (mg/l)





Trend Regression: Piecewise Linear-Linear

Cobalt, W-1 (mg/l)

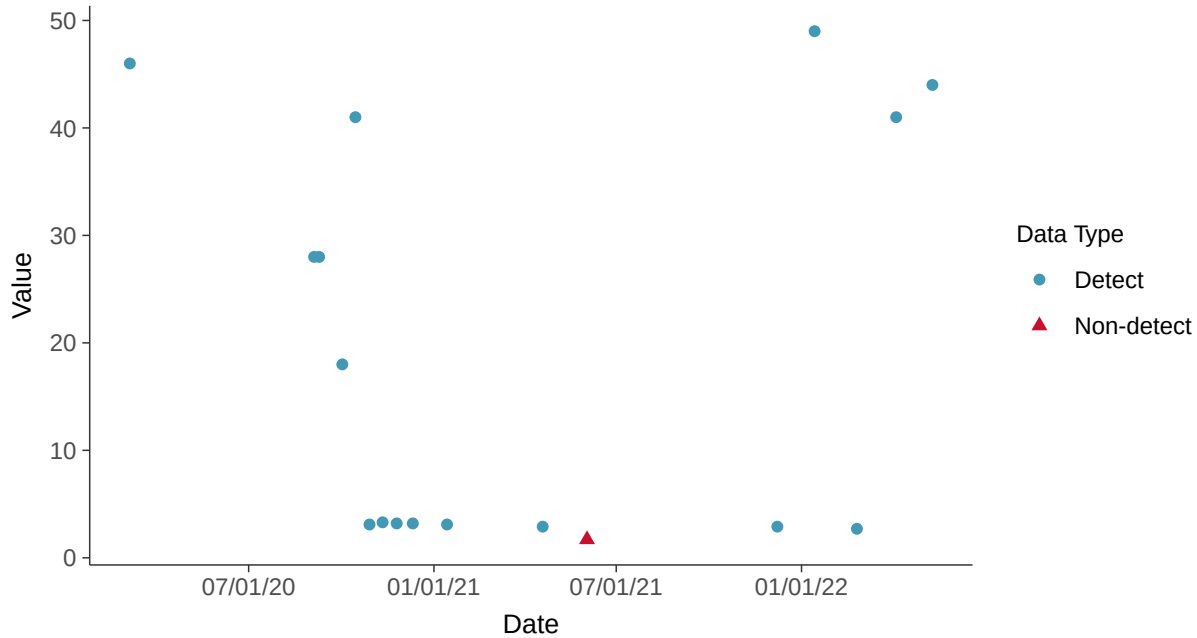


Appendix IV: Fluoride (App IV), W-1

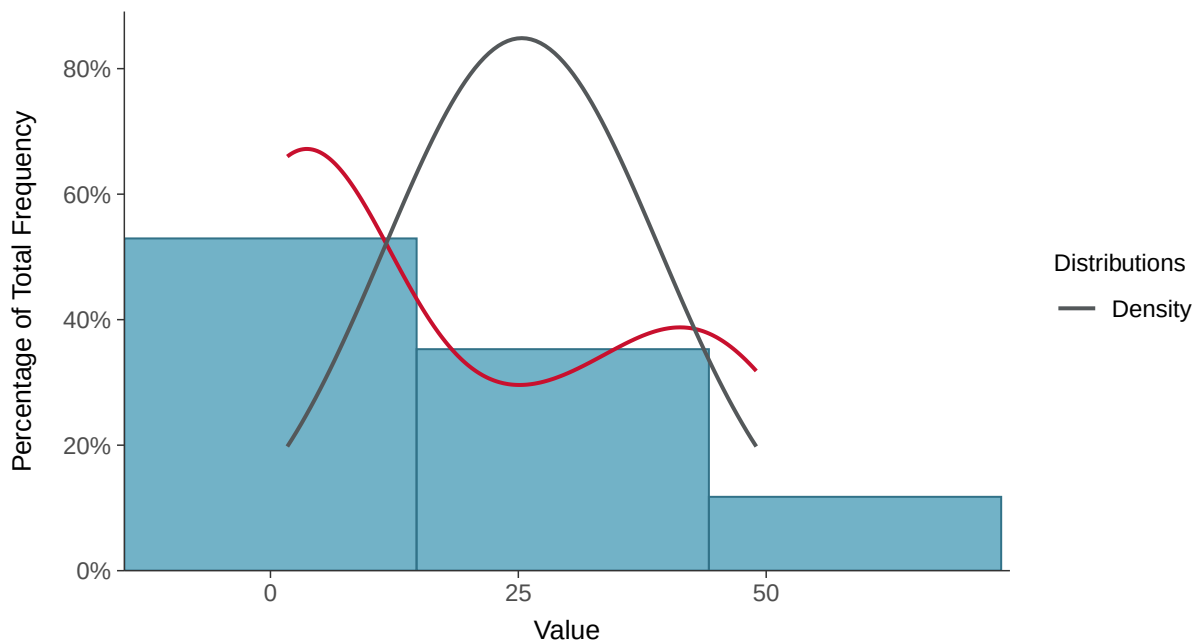
ID: 1_2_112

Scatter Plot

Fluoride (App IV), W-1 (mg/l)

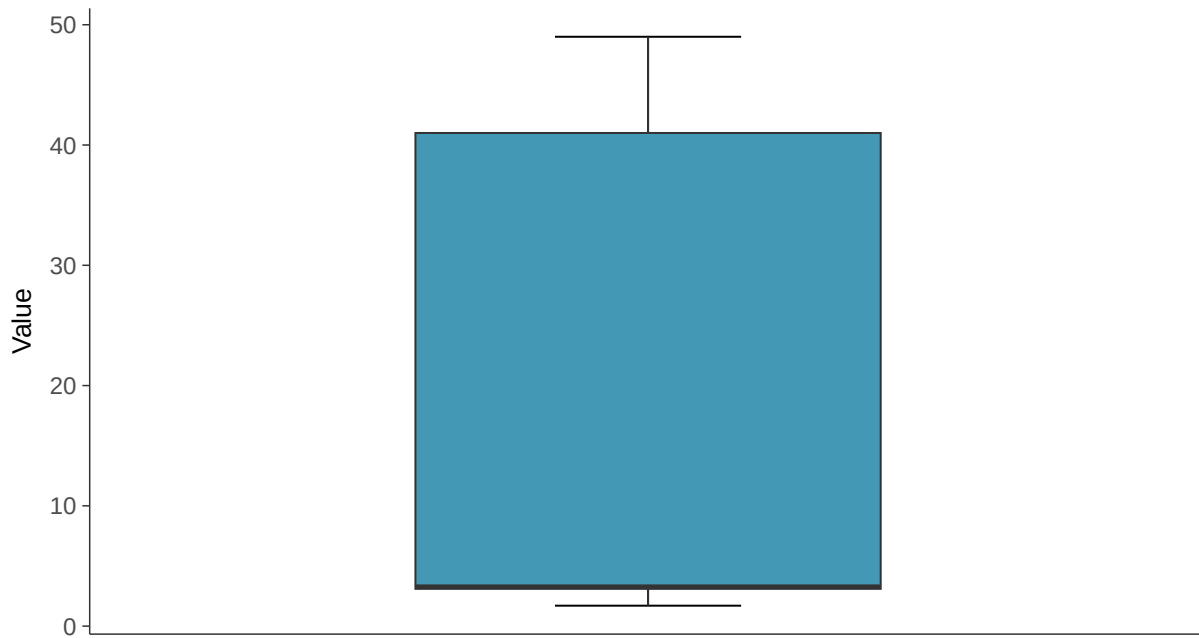
**Histogram**

Fluoride (App IV), W-1 (mg/l)



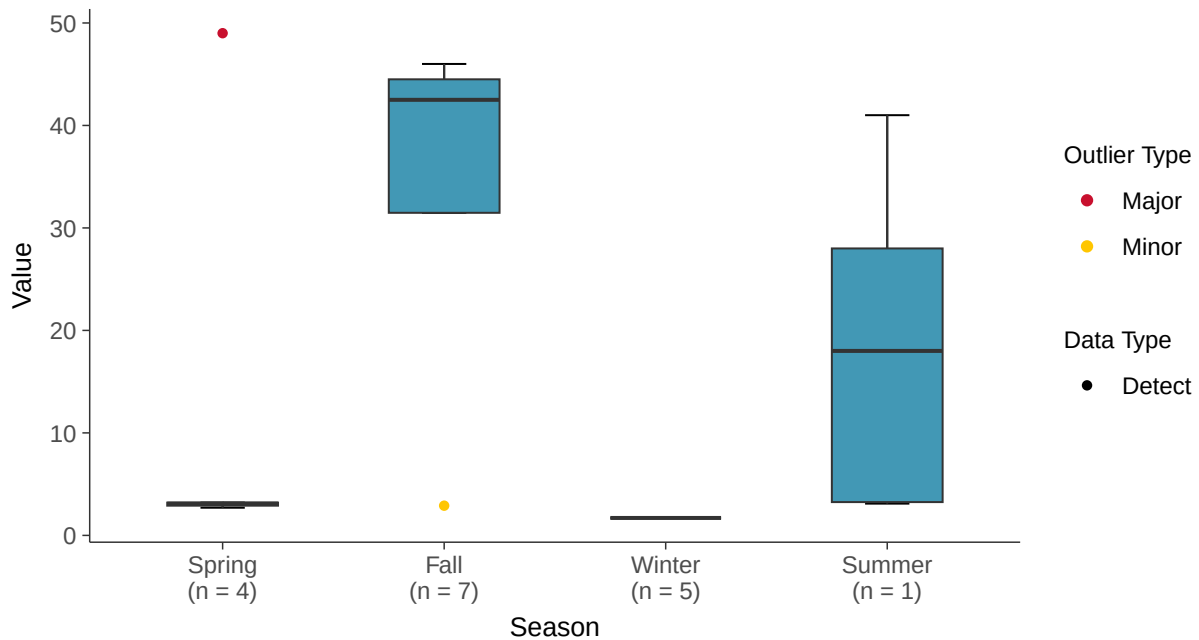
Boxplot

Fluoride (App IV), W-1 (mg/l)



Boxplot by Season

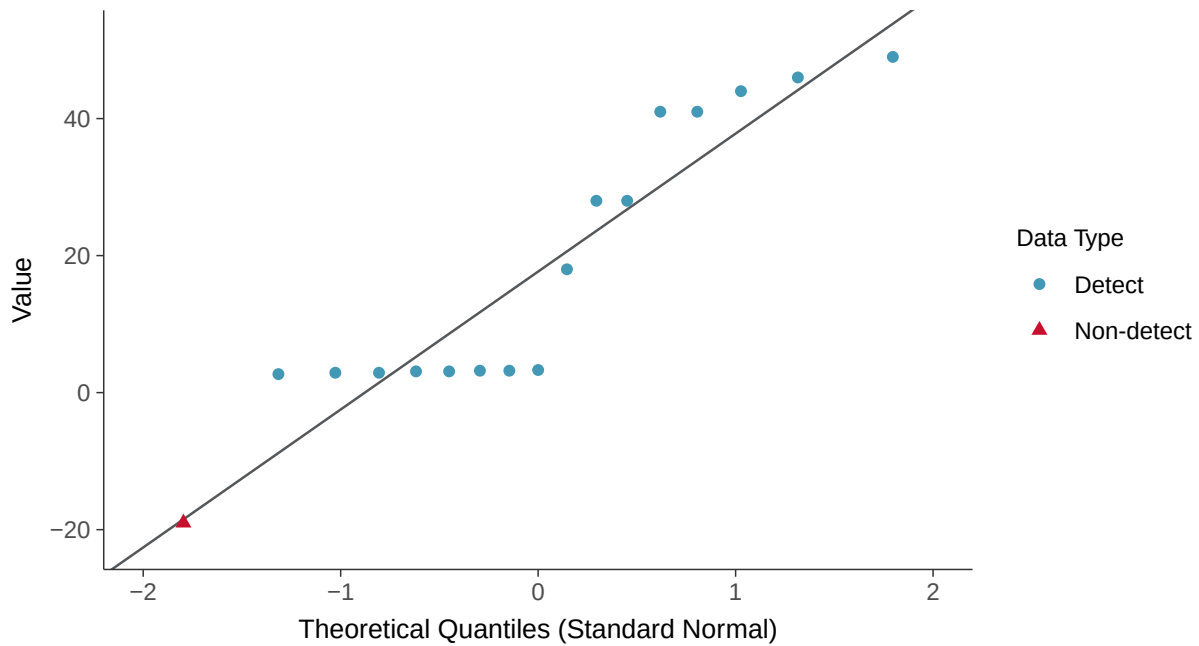
Fluoride (App IV), W-1 (mg/l)



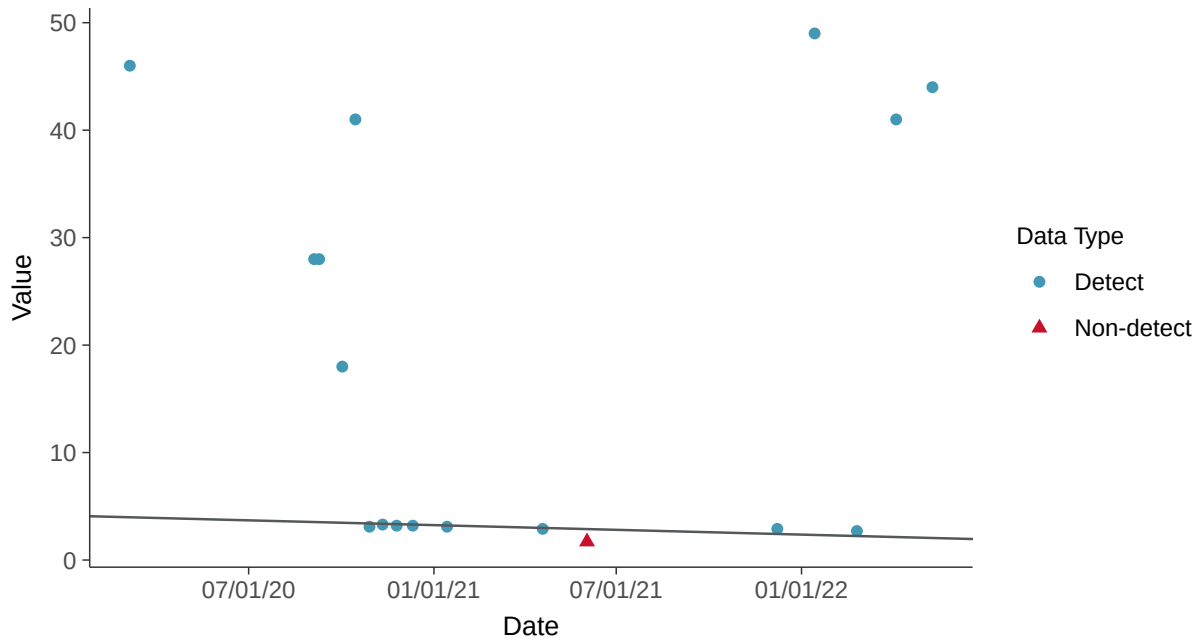
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Normal Q-Q plot using ROS Imputed Estimates

Fluoride (App IV), W-1 (mg/l)

**Trend Regression: Mann-Kendall/Theil-Sen Estimate**

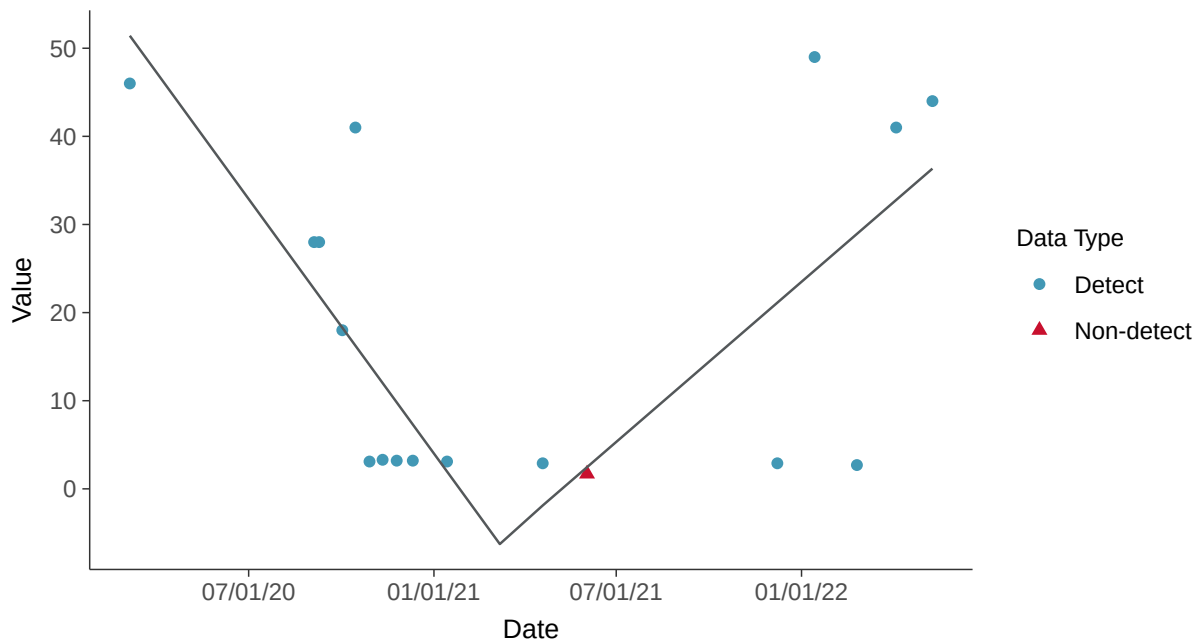
Fluoride (App IV), W-1 (mg/l)





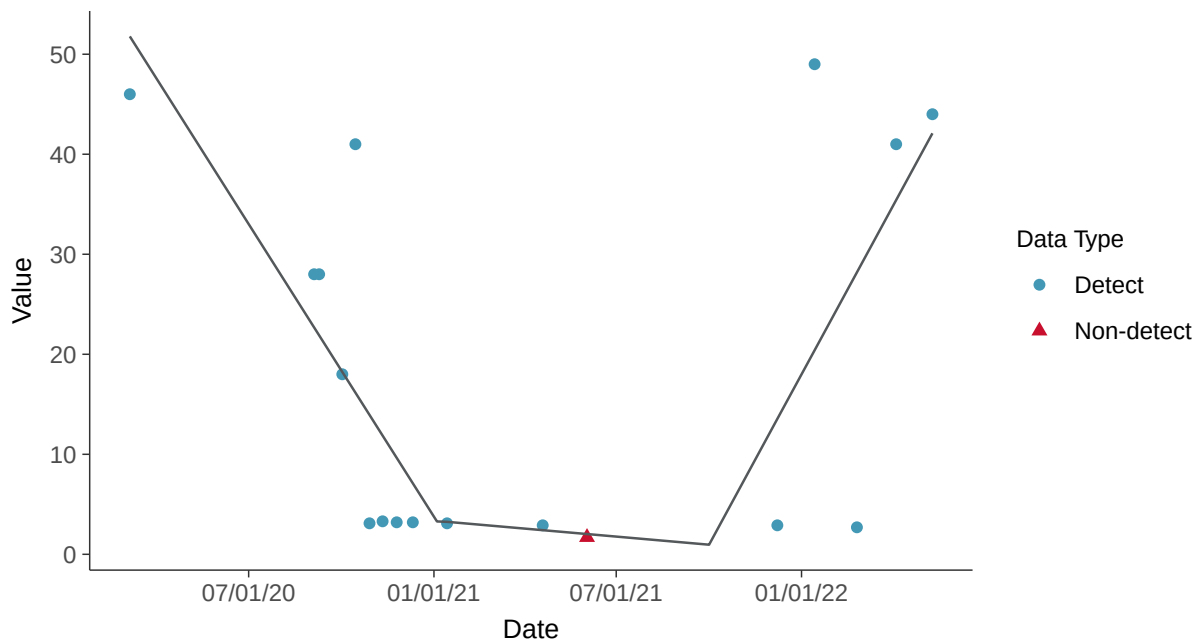
Trend Regression: Piecewise Linear-Linear

Fluoride (App IV), W-1 (mg/l)



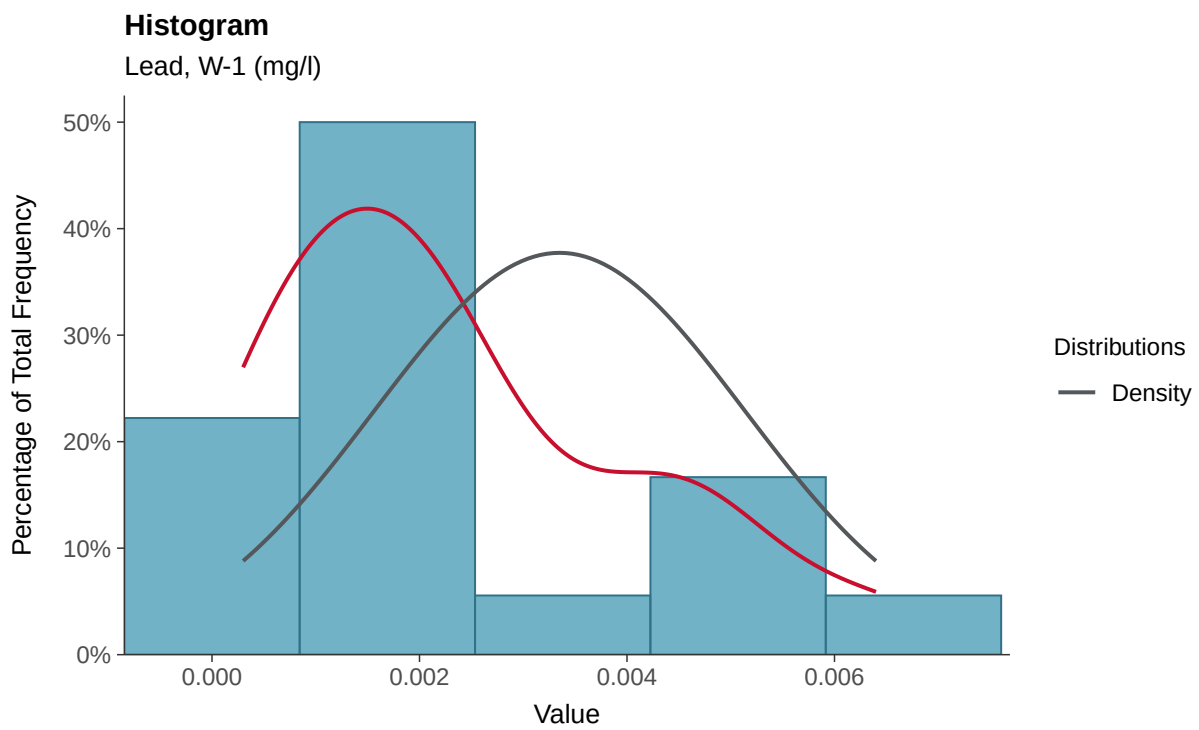
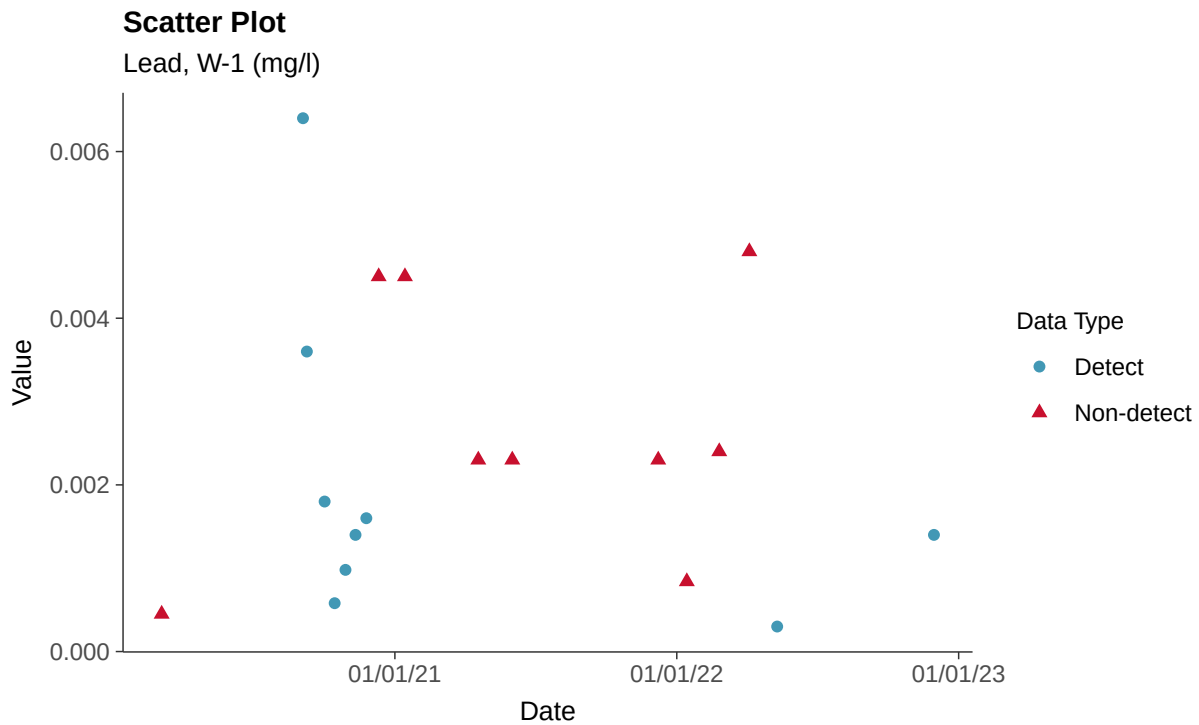
Trend Regression: Piecewise Linear-Linear-Linear

Fluoride (App IV), W-1 (mg/l)



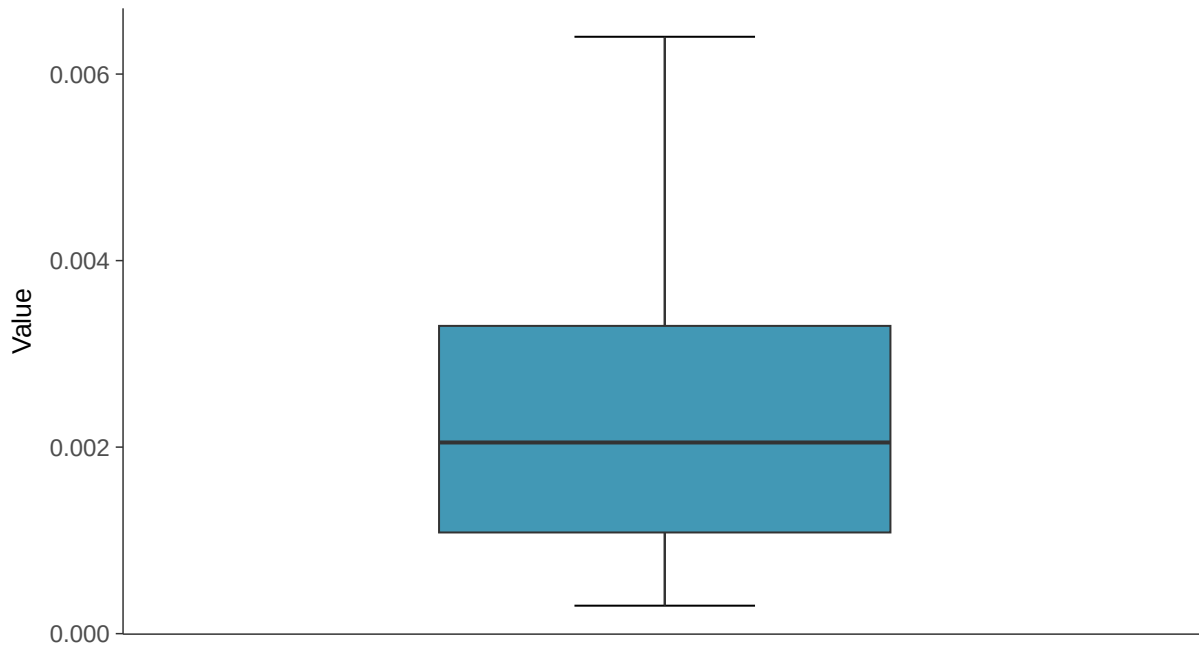
Appendix IV: Lead, W-1

ID: 1_2_113



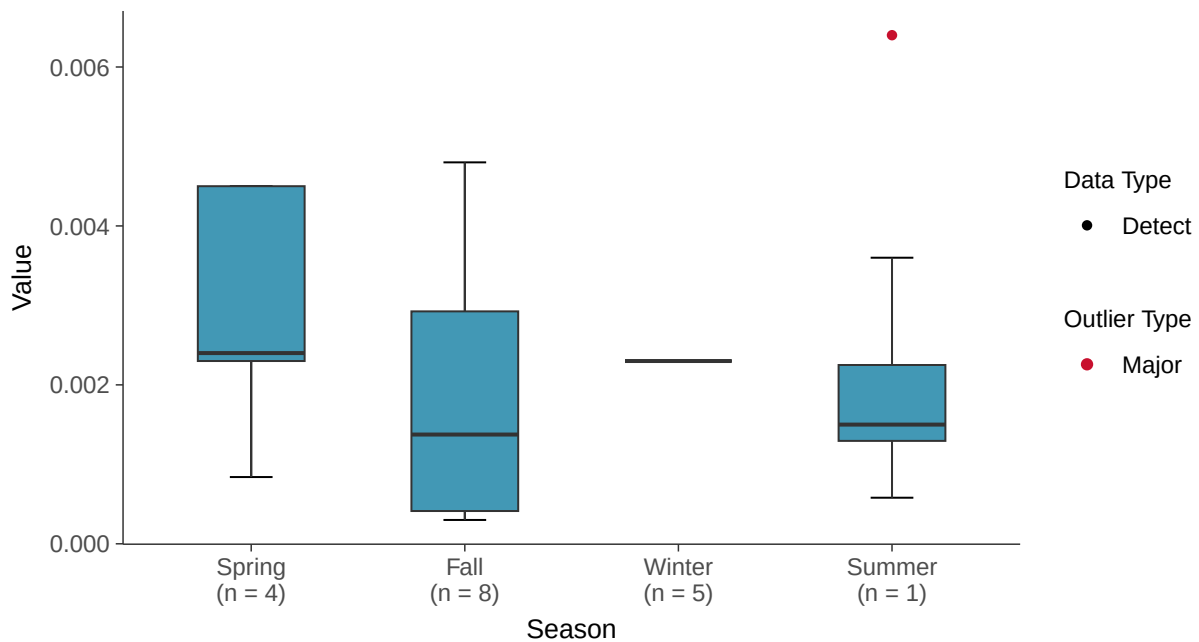
Boxplot

Lead, W-1 (mg/l)



Boxplot by Season

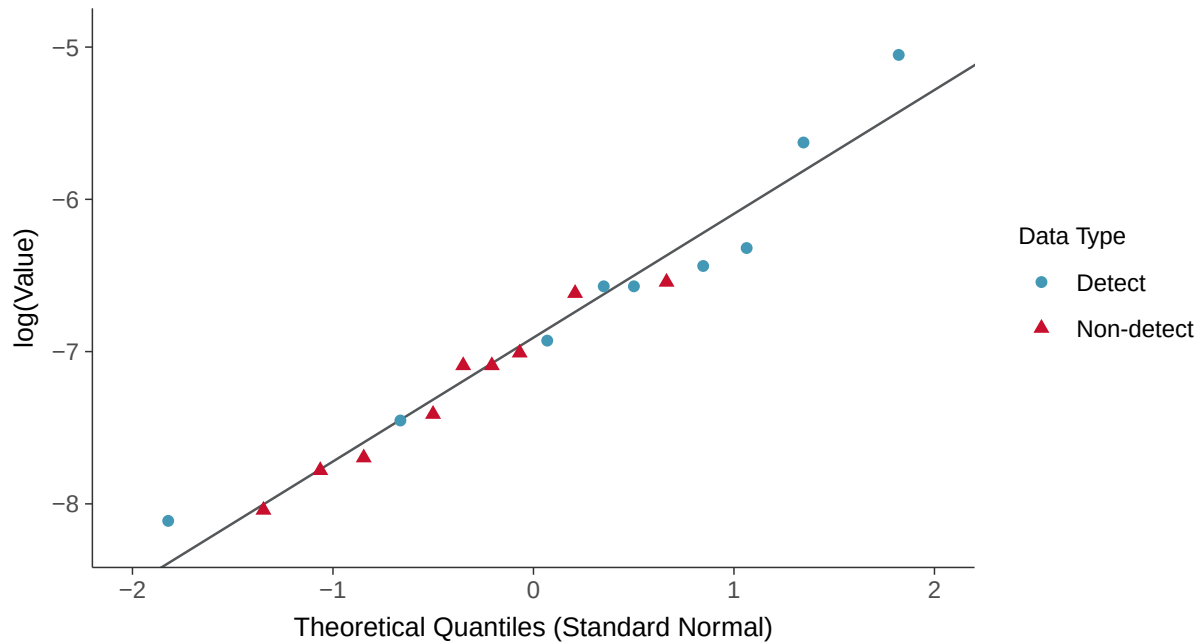
Lead, W-1 (mg/l)





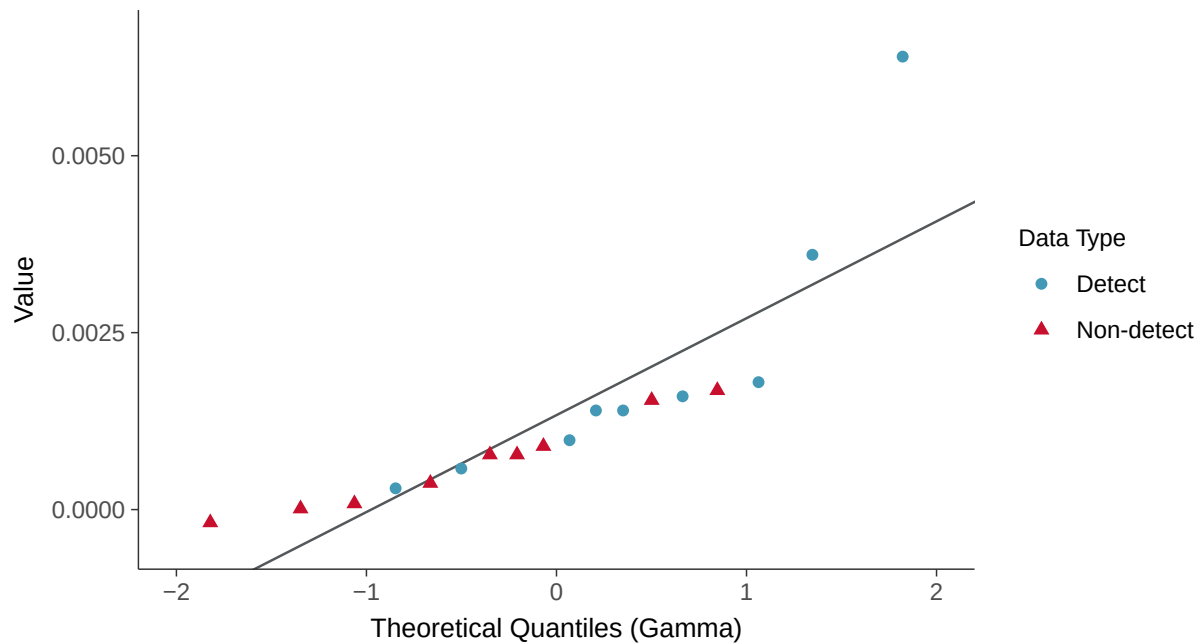
Lognormal Q-Q plot using ROS Imputed Estimates

Lead, W-1 (mg/l)



Gamma Q-Q plot using ROS Imputed Estimates

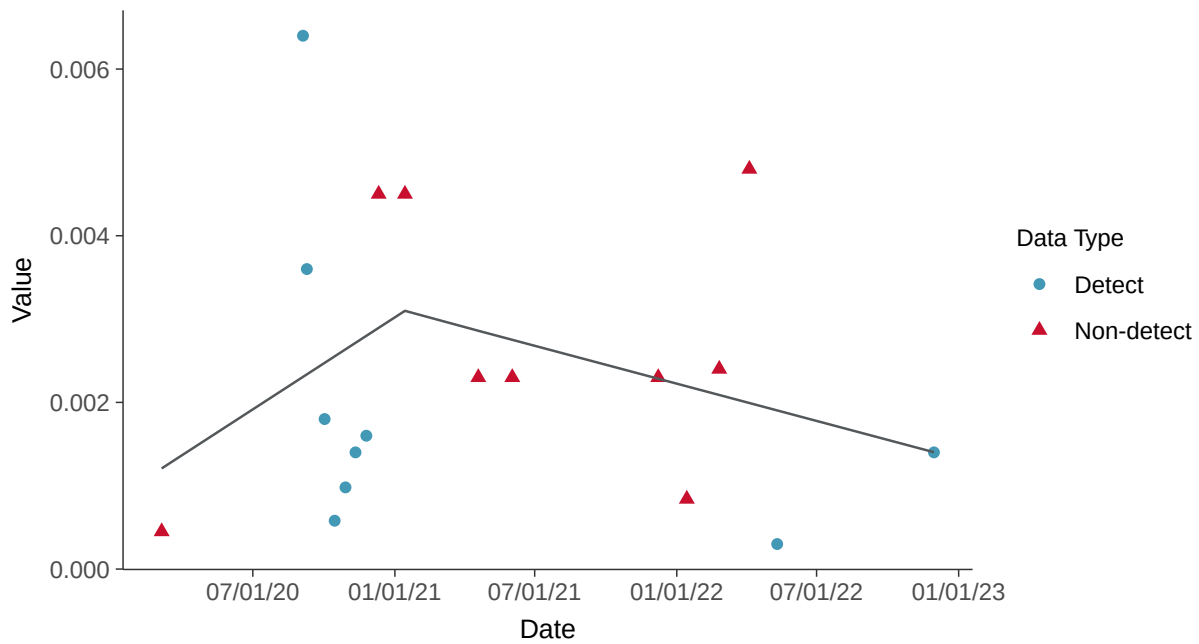
Lead, W-1 (mg/l)





Trend Regression: Piecewise Linear-Linear

Lead, W-1 (mg/l)

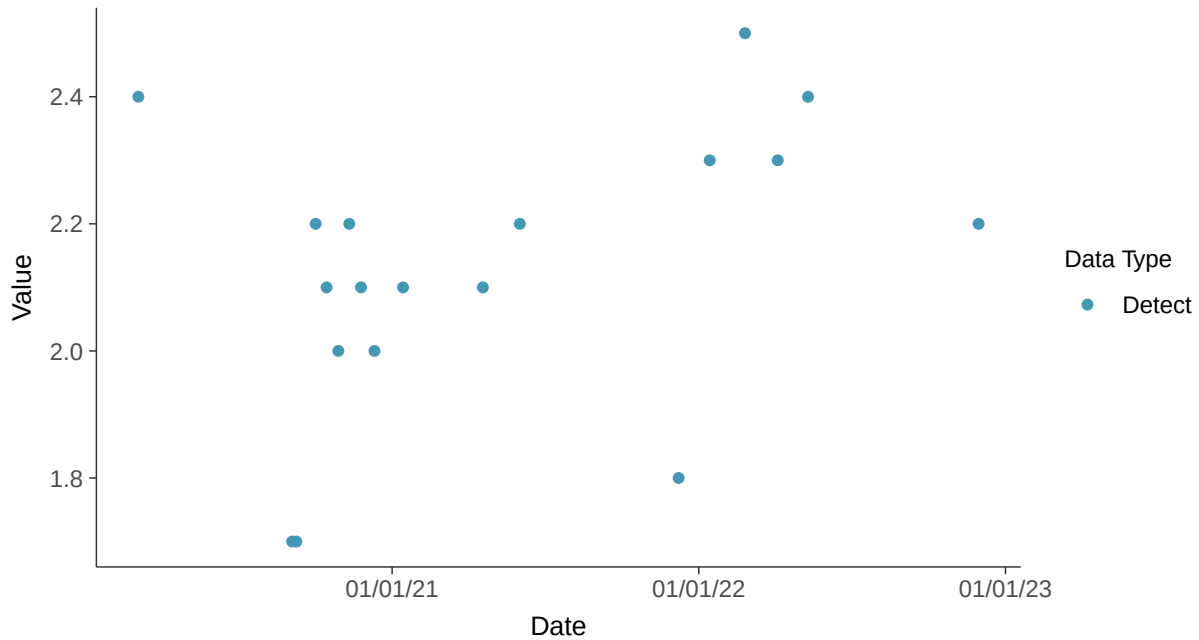


Appendix IV: Lithium, W-1

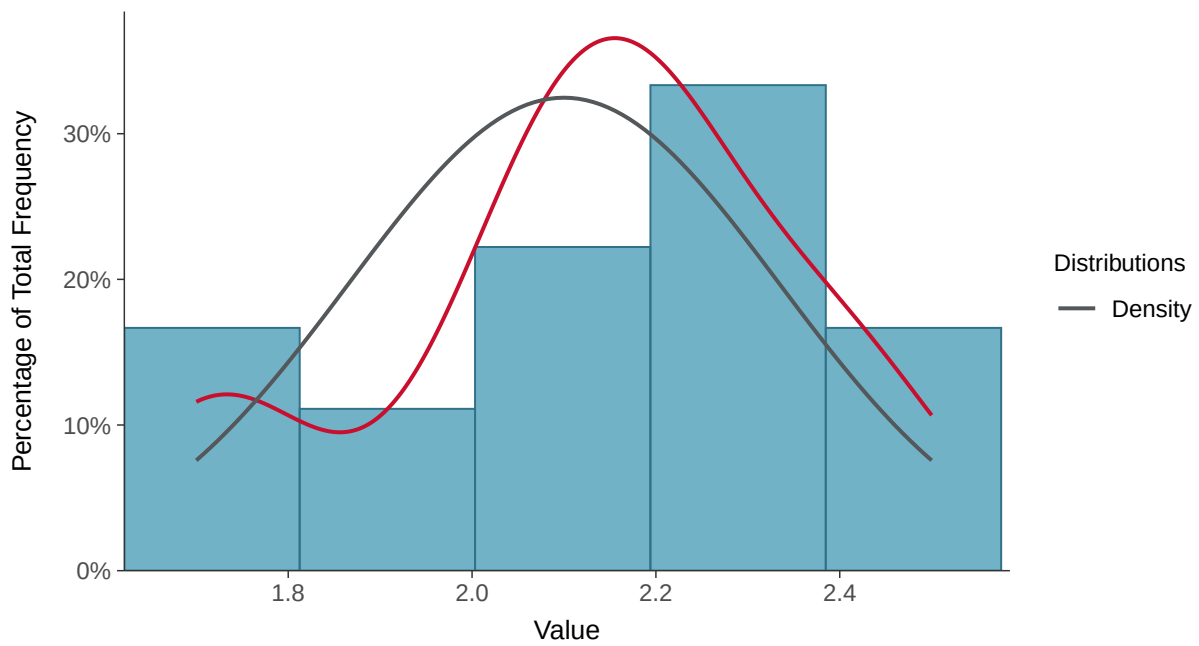
ID: 1_2_114

Scatter Plot

Lithium, W-1 (mg/l)

**Histogram**

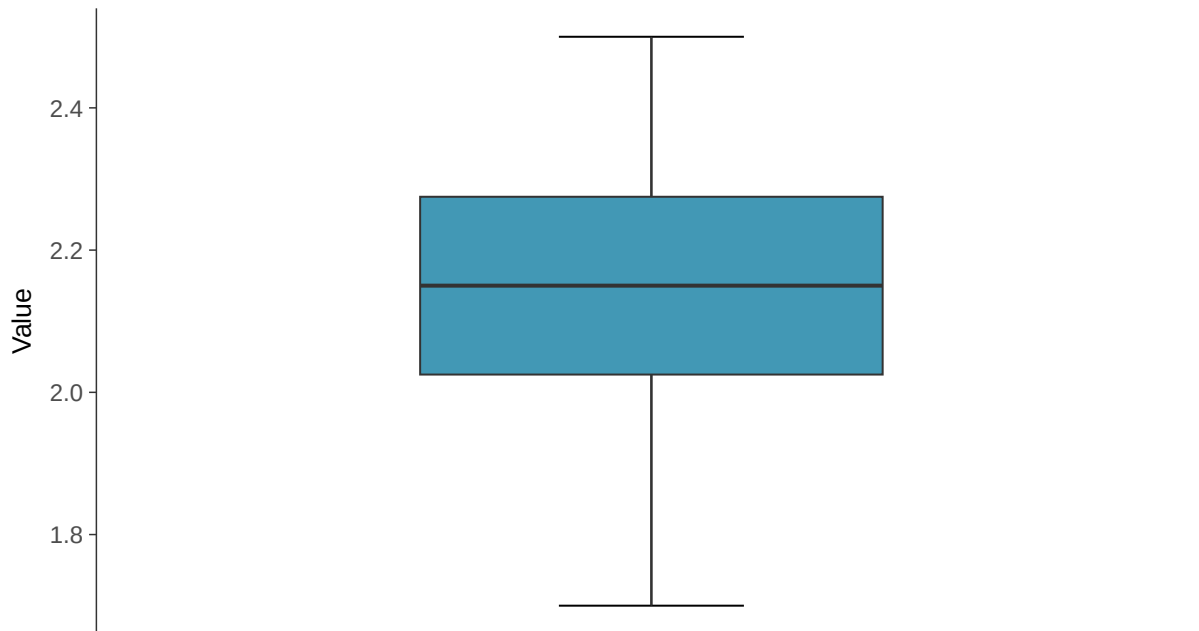
Lithium, W-1 (mg/l)



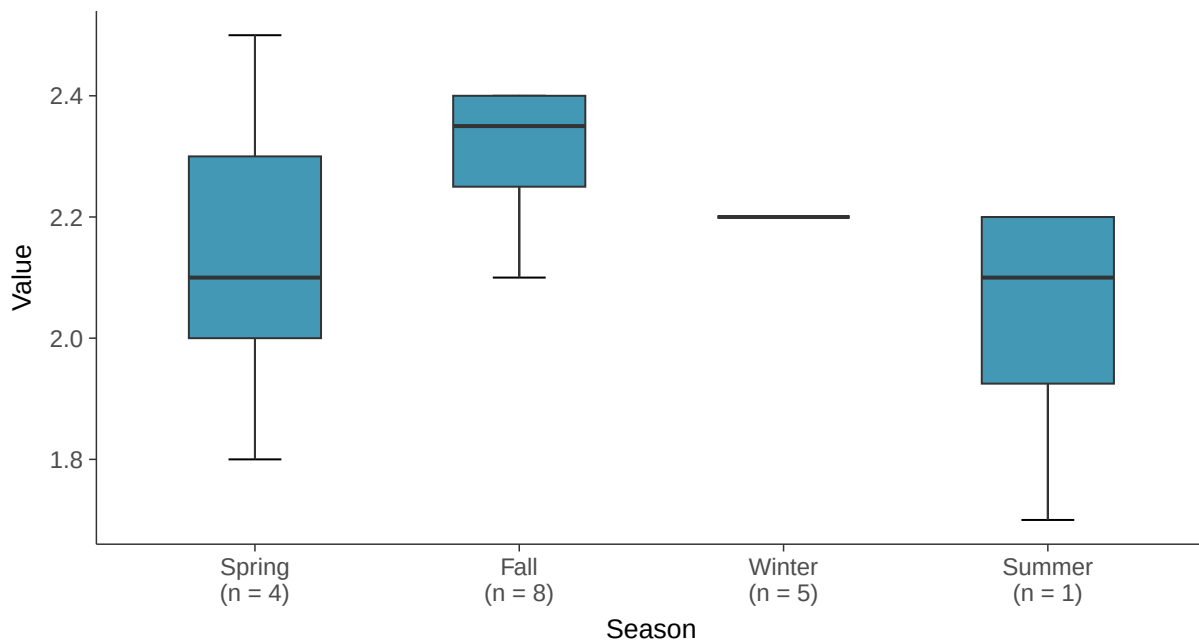
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Lithium, W-1 (mg/l)

**Boxplot by Season**

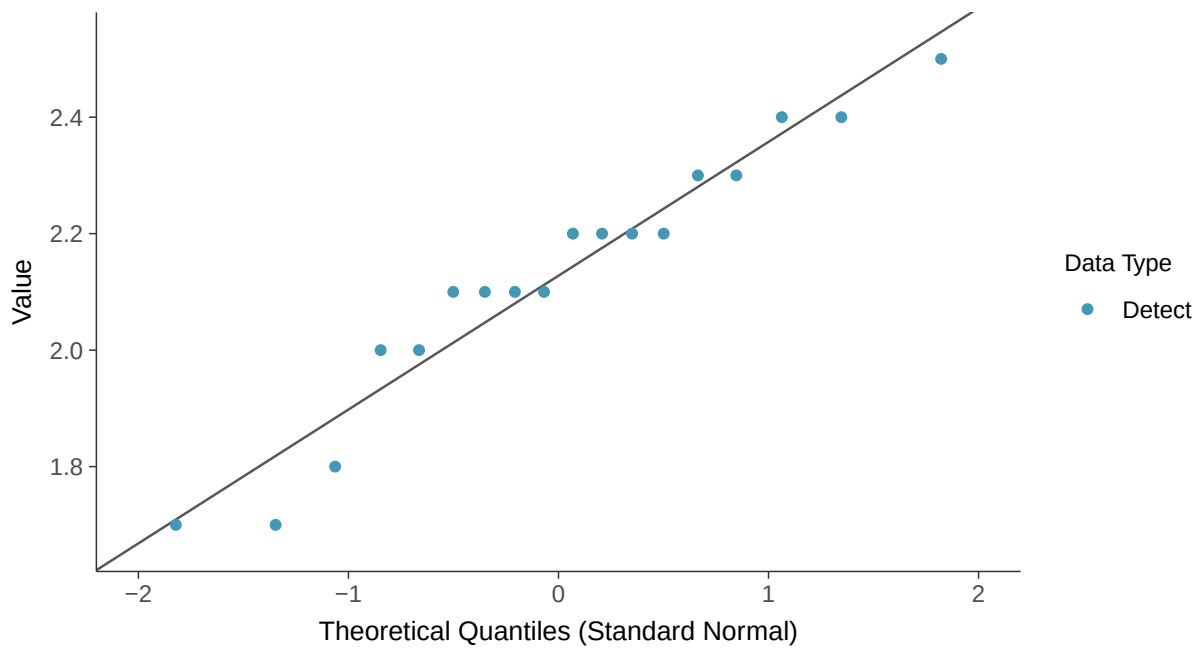
Lithium, W-1 (mg/l)





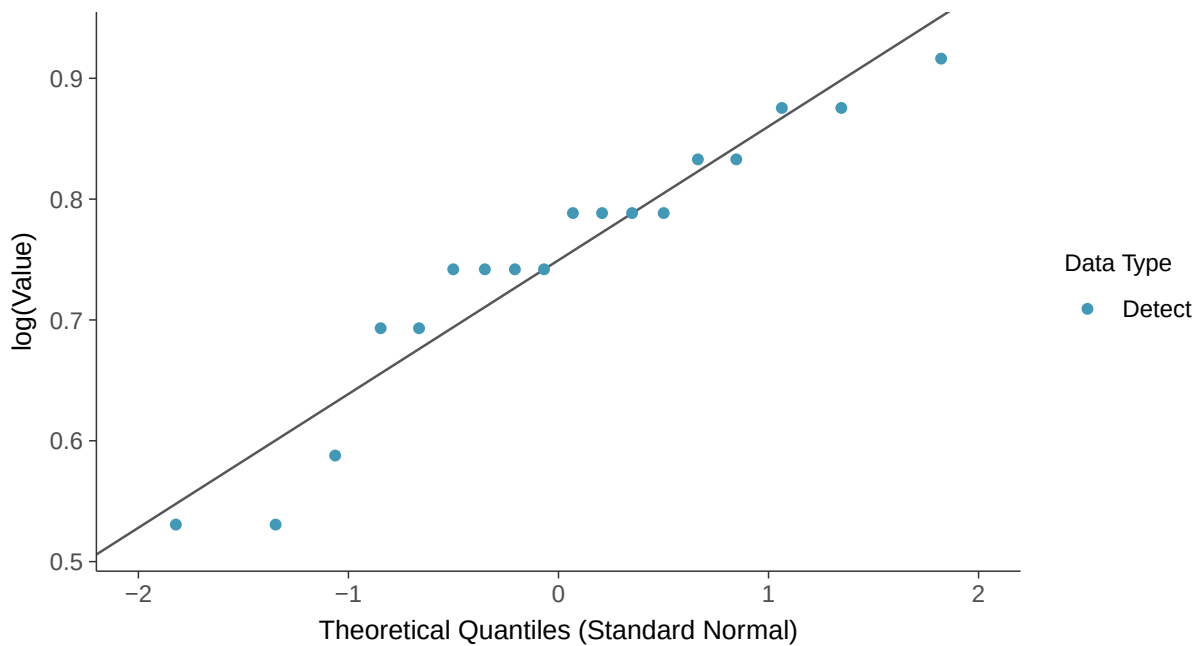
Normal Q-Q plot

Lithium, W-1 (mg/l)



Lognormal Q-Q plot

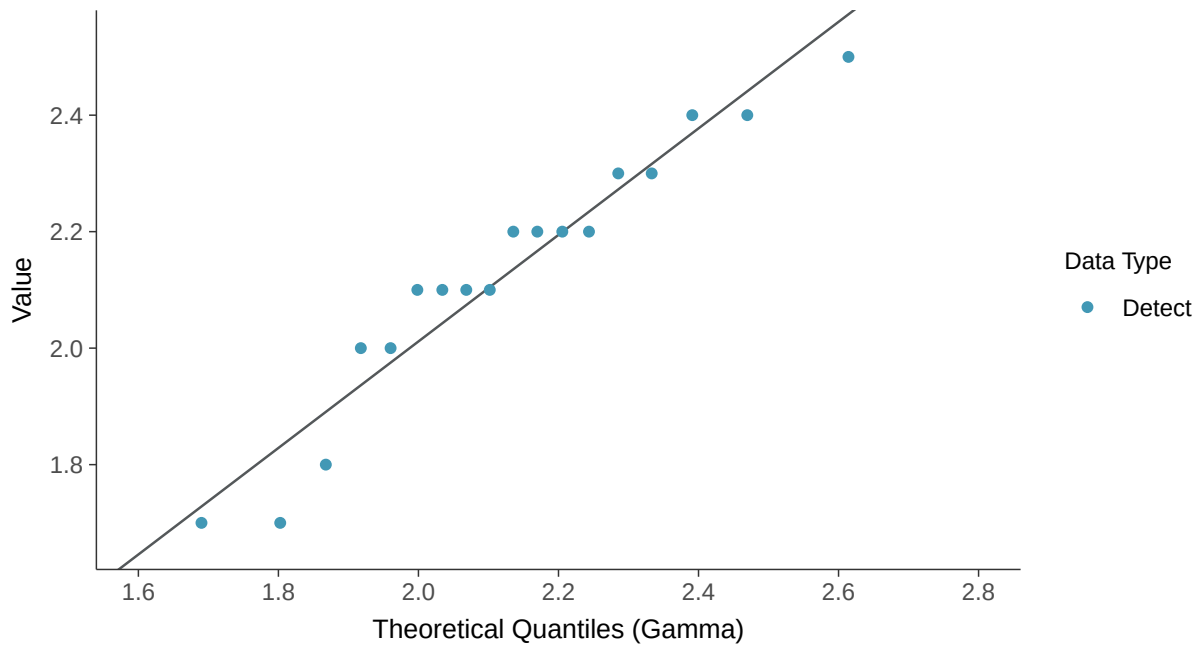
Lithium, W-1 (mg/l)





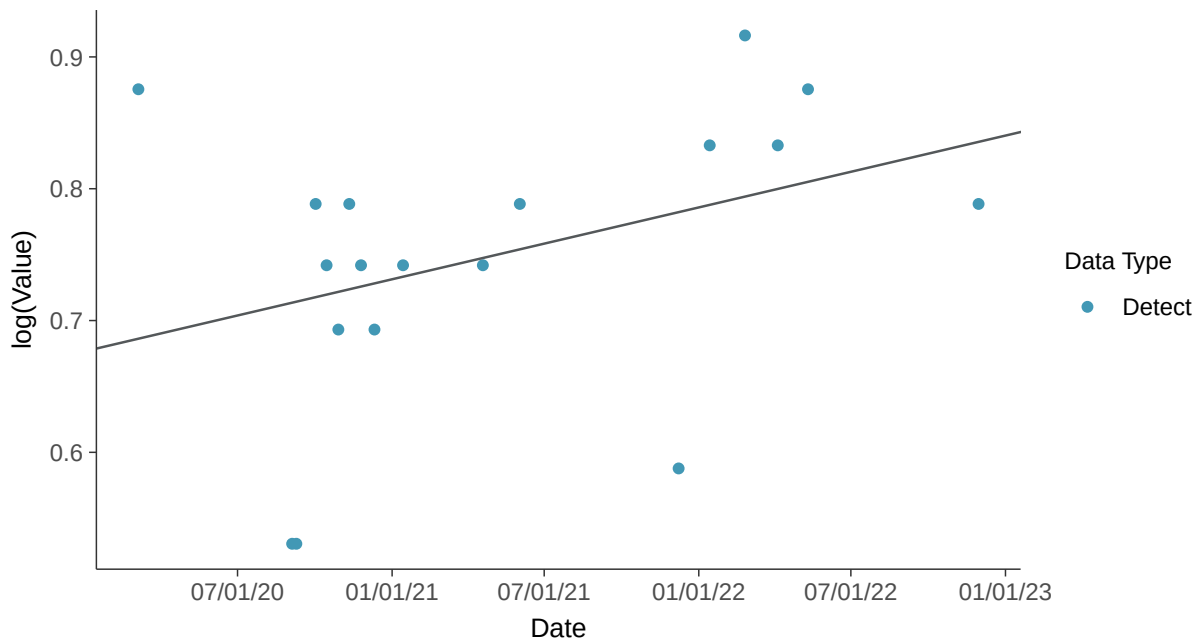
Gamma Q-Q plot

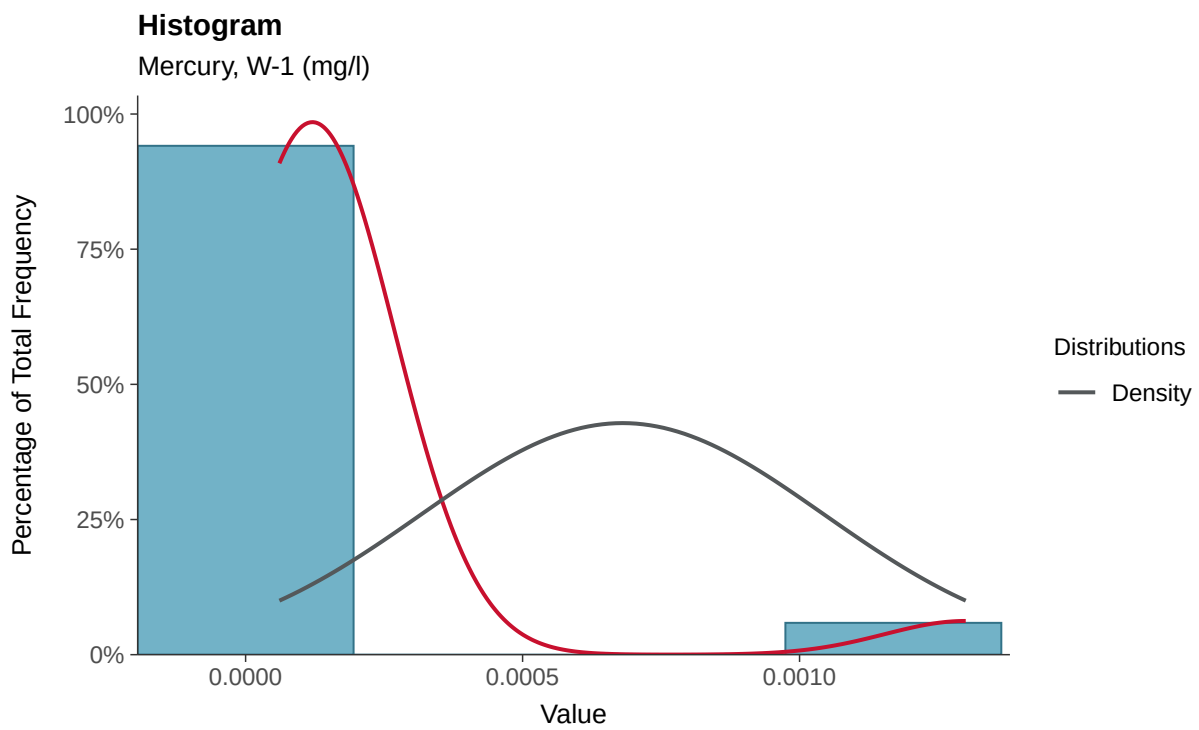
Lithium, W-1 (mg/l)

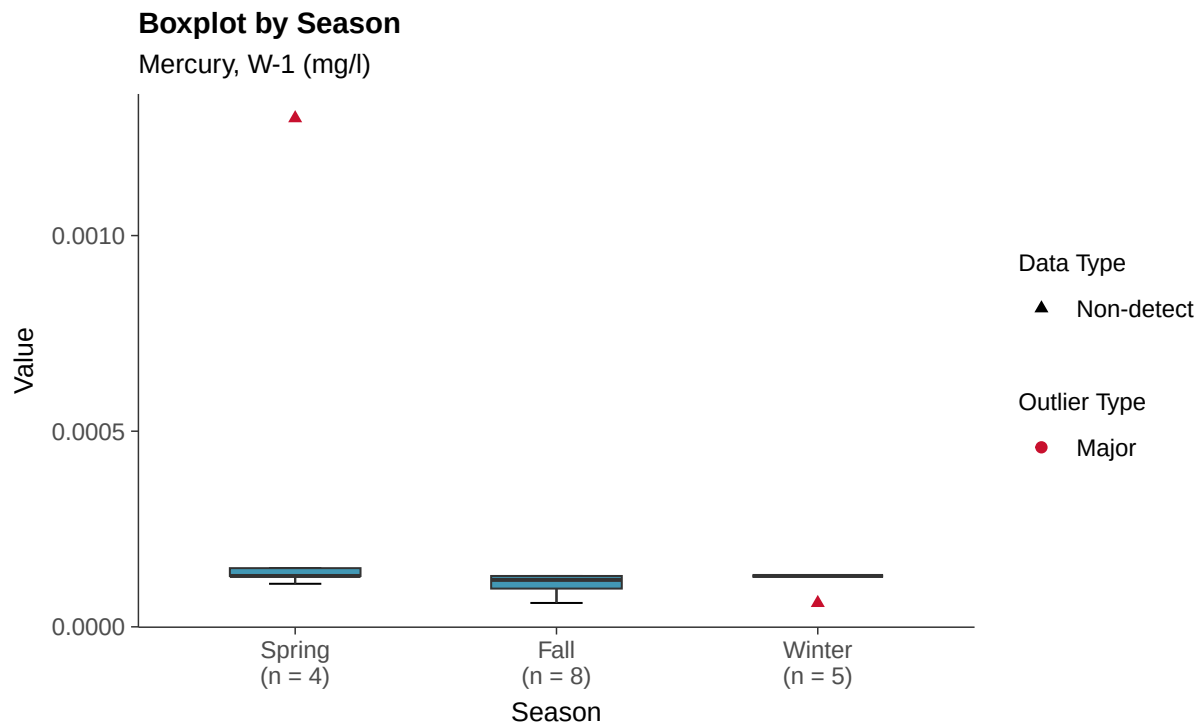
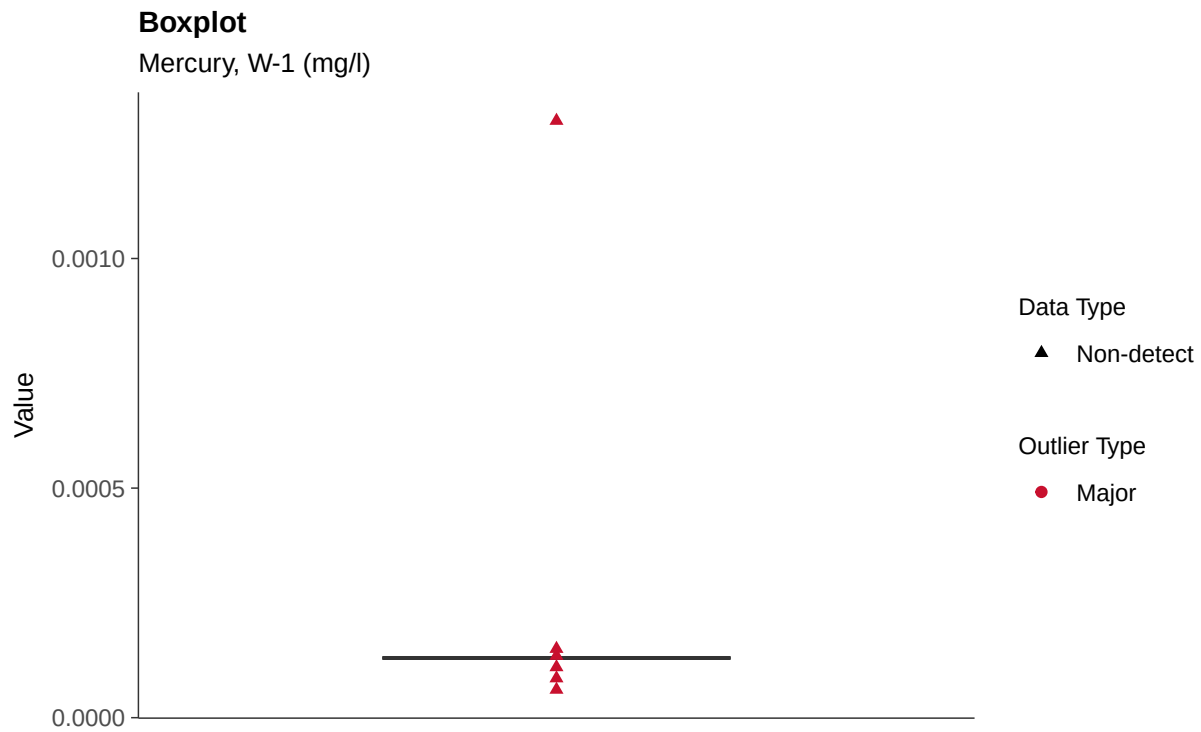


Trend Regression: Lognormal MLE

Lithium, W-1 (mg/l)



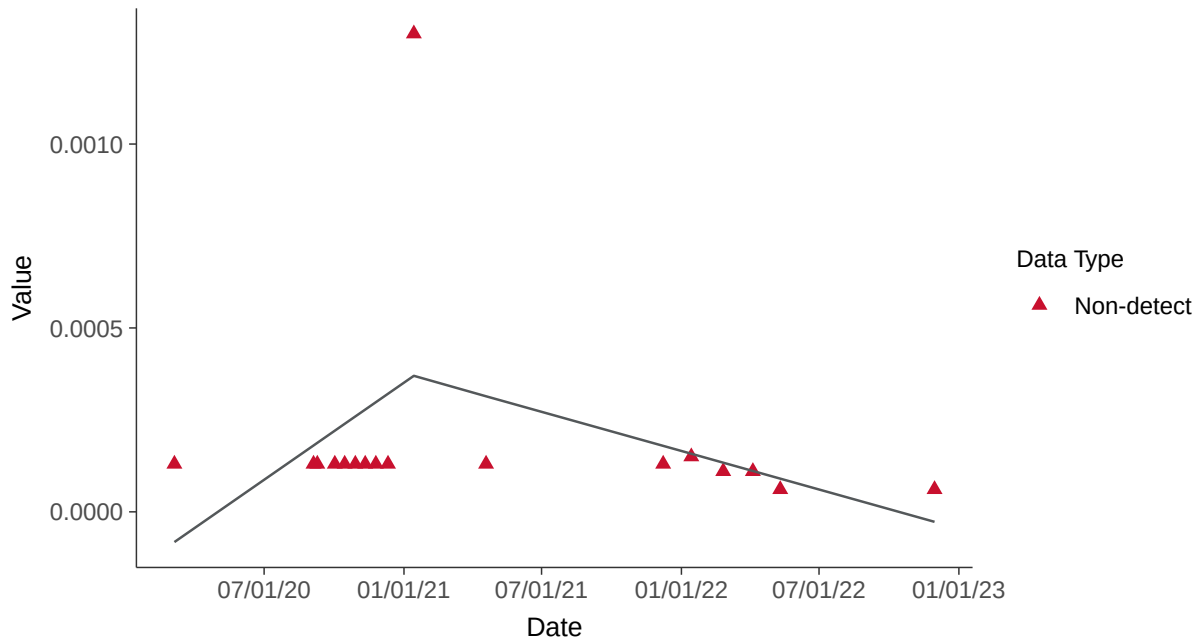
[illegible]





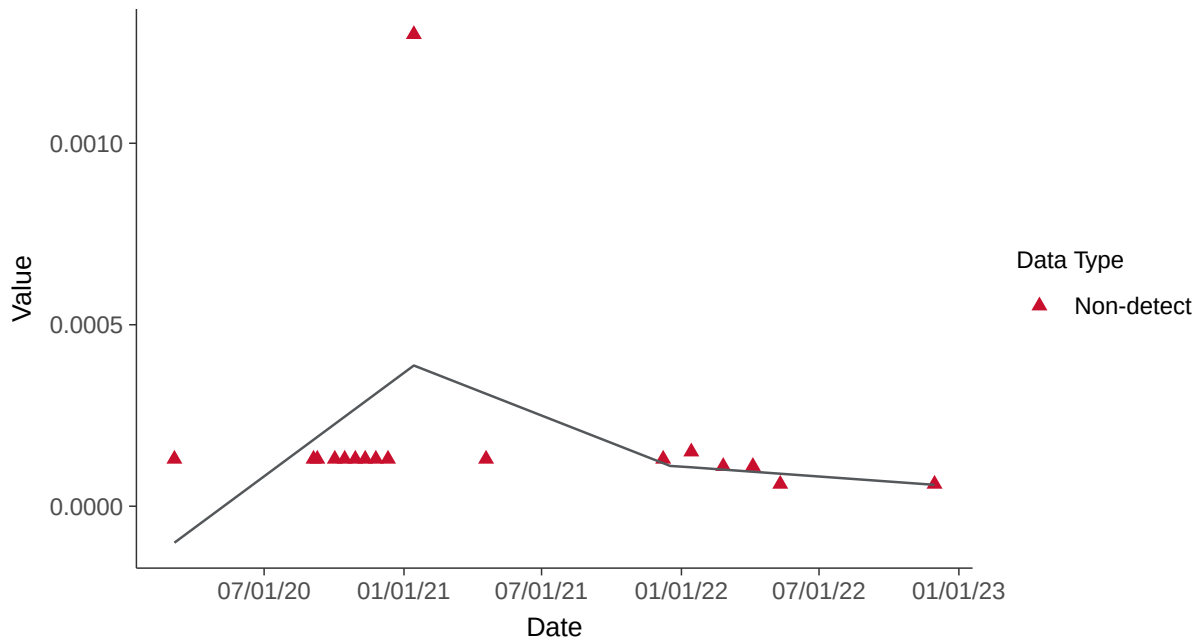
Trend Regression: Piecewise Linear-Linear

Mercury, W-1 (mg/l)



Trend Regression: Piecewise Linear-Linear-Linear

Mercury, W-1 (mg/l)

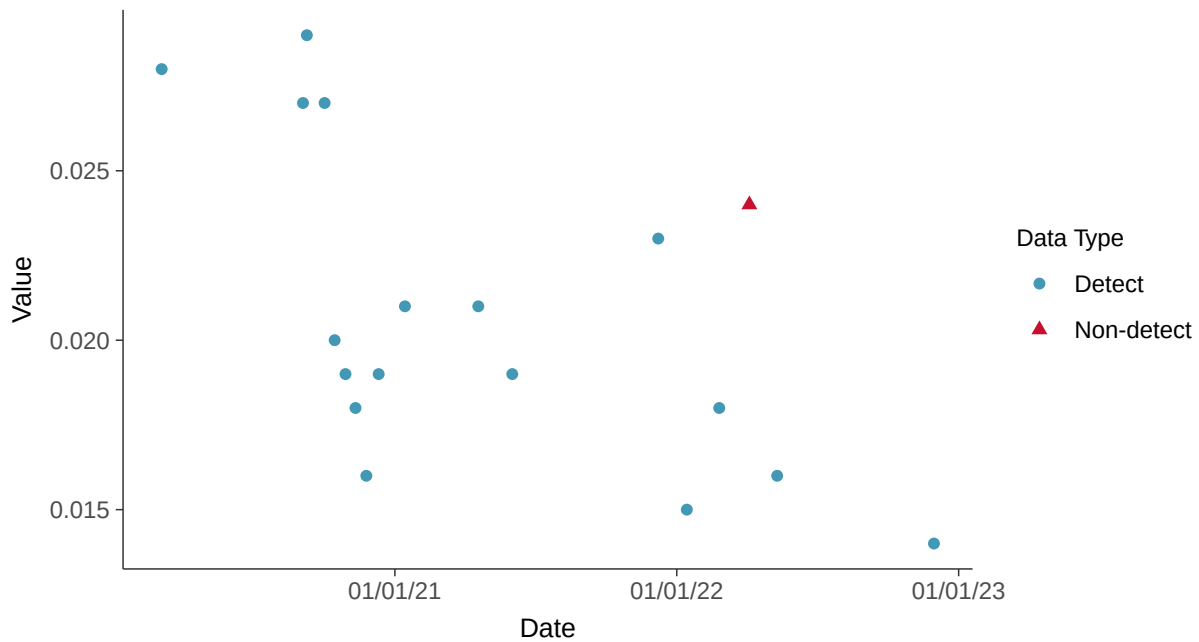


Appendix IV: Molybdenum, W-1

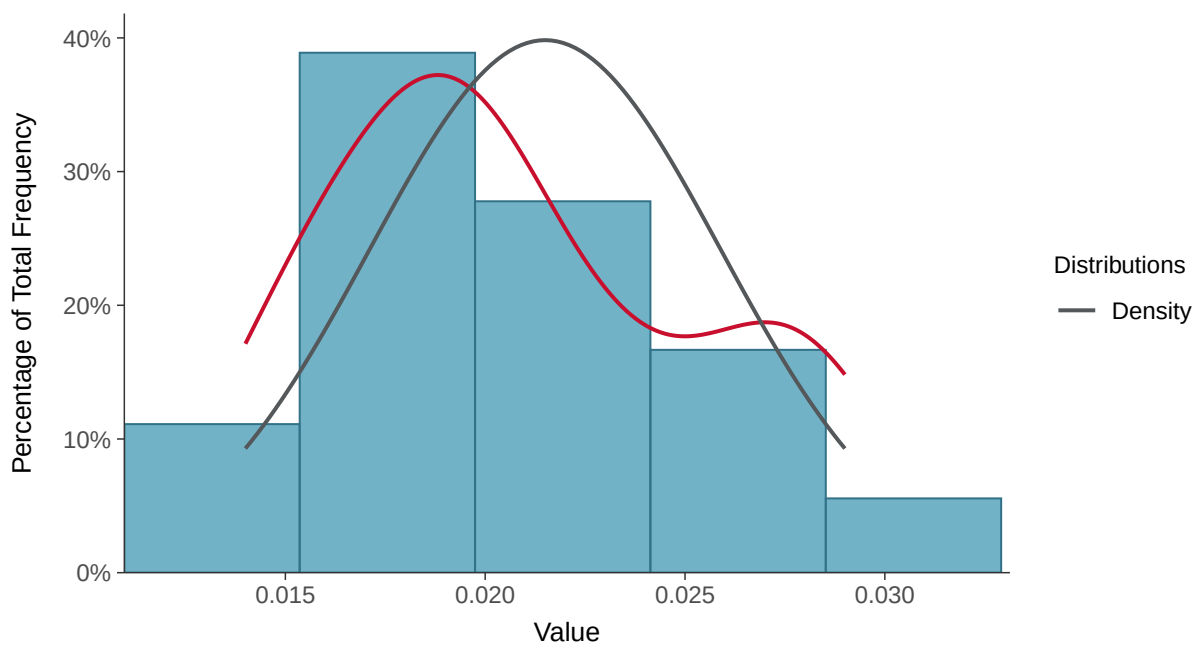
ID: 1_2_116

Scatter Plot

Molybdenum, W-1 (mg/l)

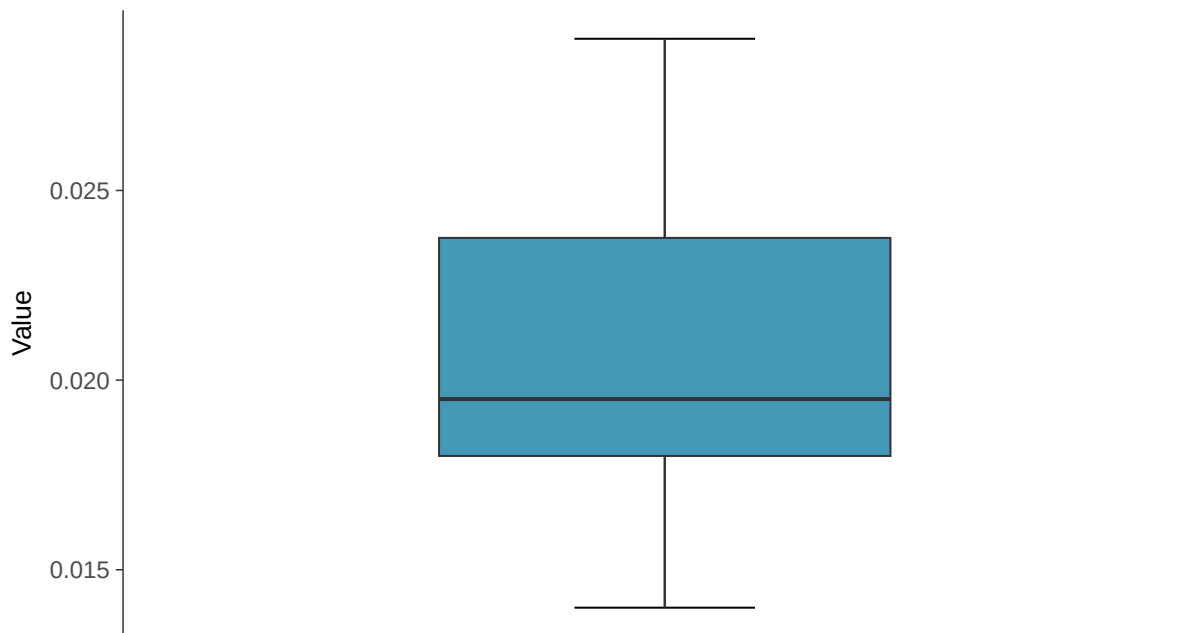
**Histogram**

Molybdenum, W-1 (mg/l)



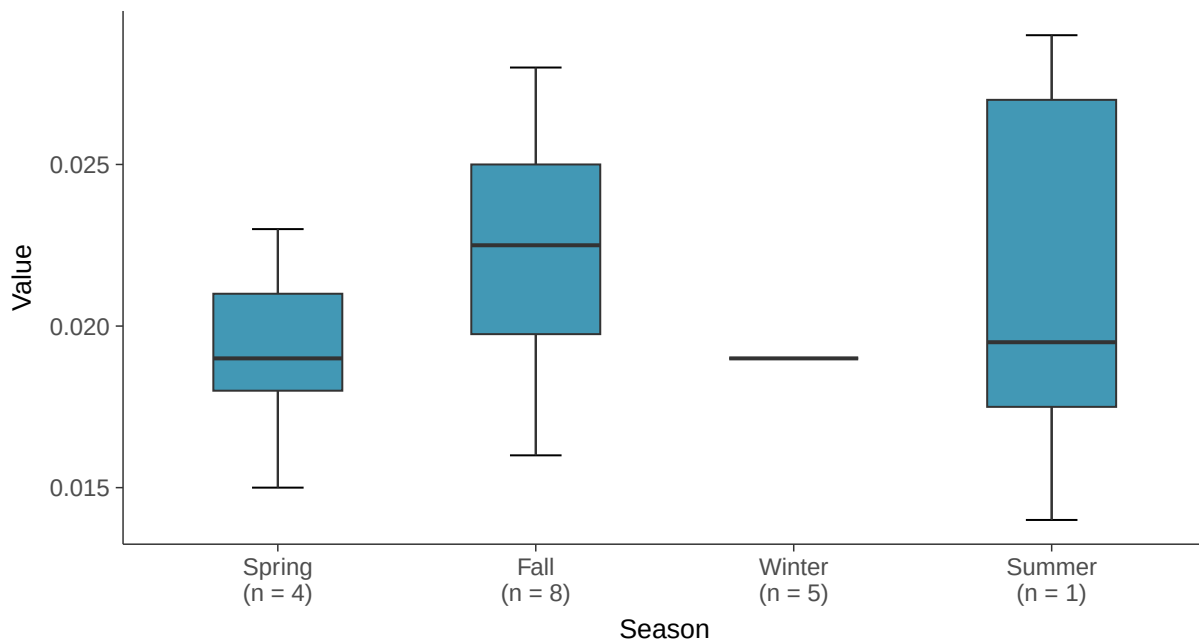
Boxplot

Molybdenum, W-1 (mg/l)



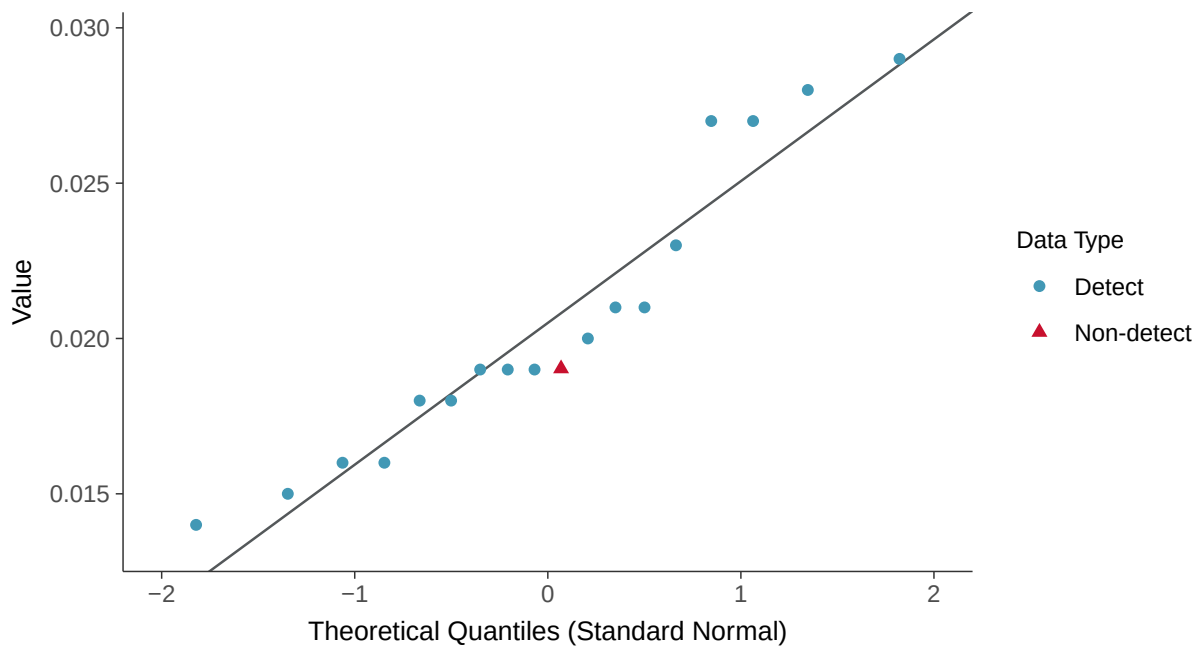
Boxplot by Season

Molybdenum, W-1 (mg/l)



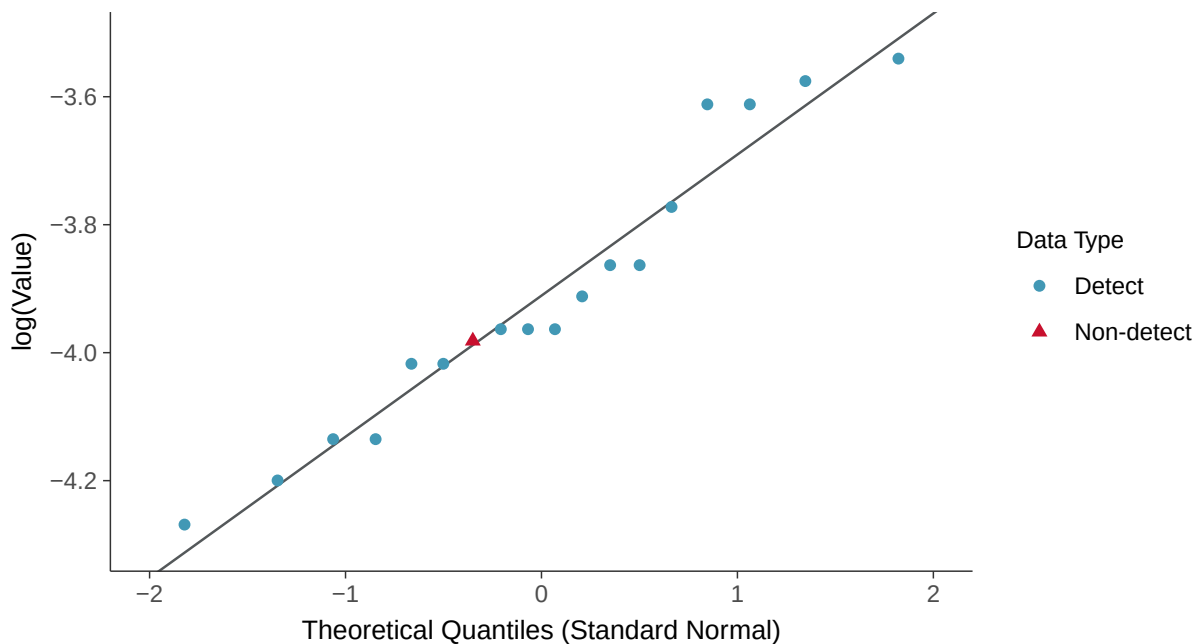
Normal Q-Q plot using ROS Imputed Estimates

Molybdenum, W-1 (mg/l)



Lognormal Q-Q plot using ROS Imputed Estimates

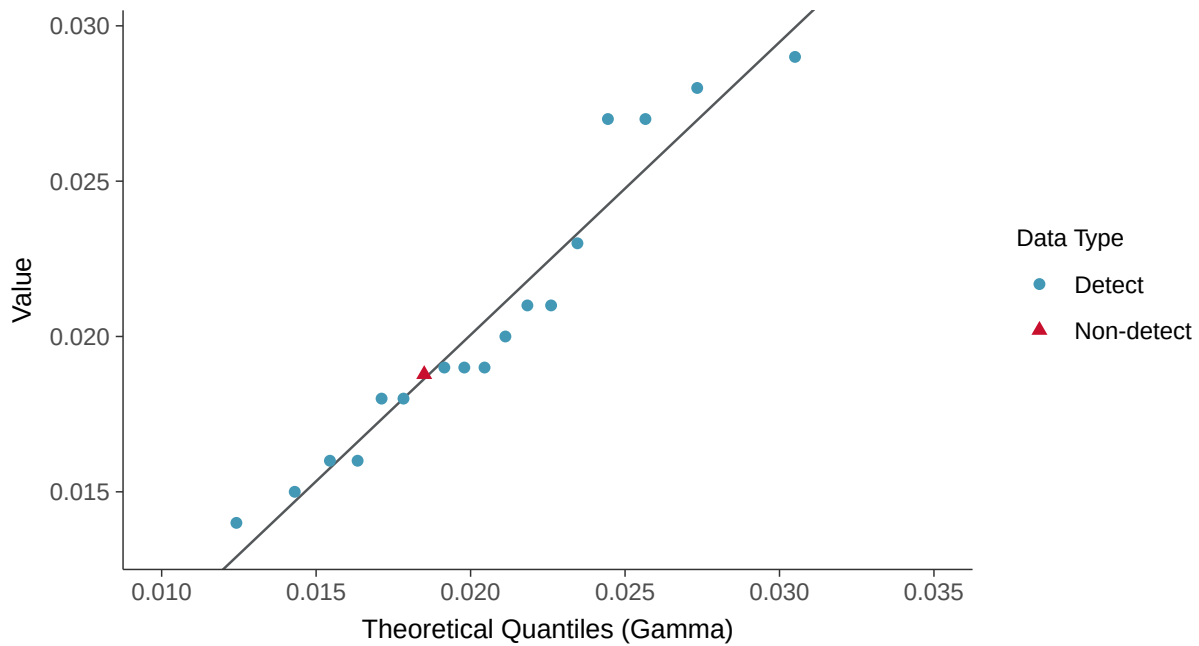
Molybdenum, W-1 (mg/l)





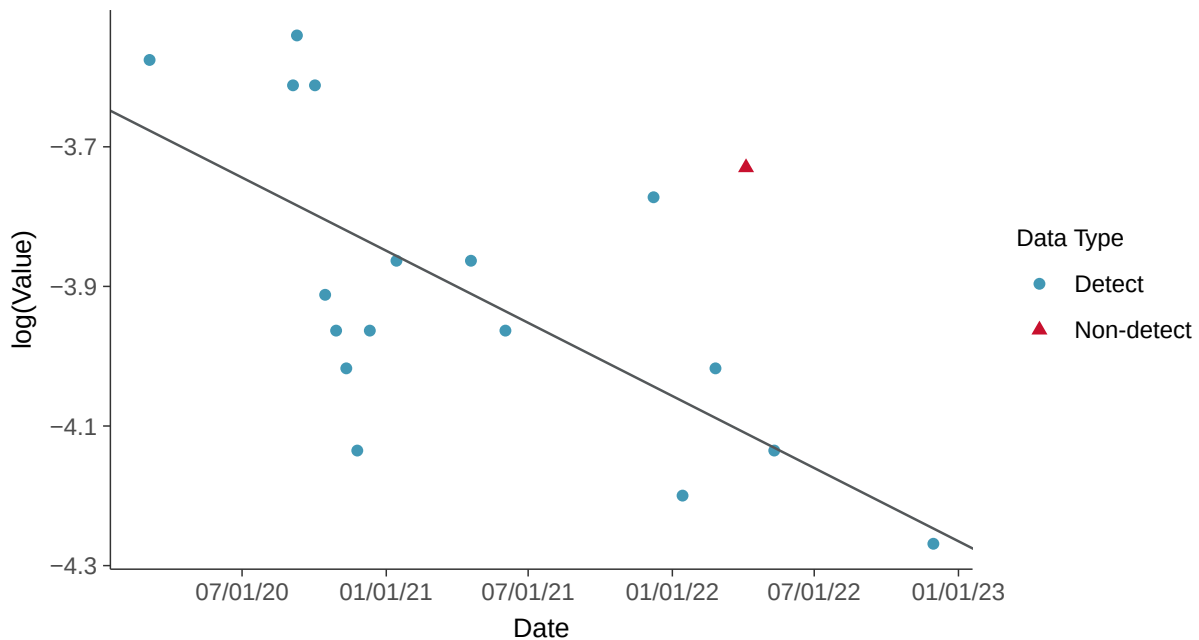
Gamma Q-Q plot using ROS Imputed Estimates

Molybdenum, W-1 (mg/l)



Trend Regression: Lognormal MLE

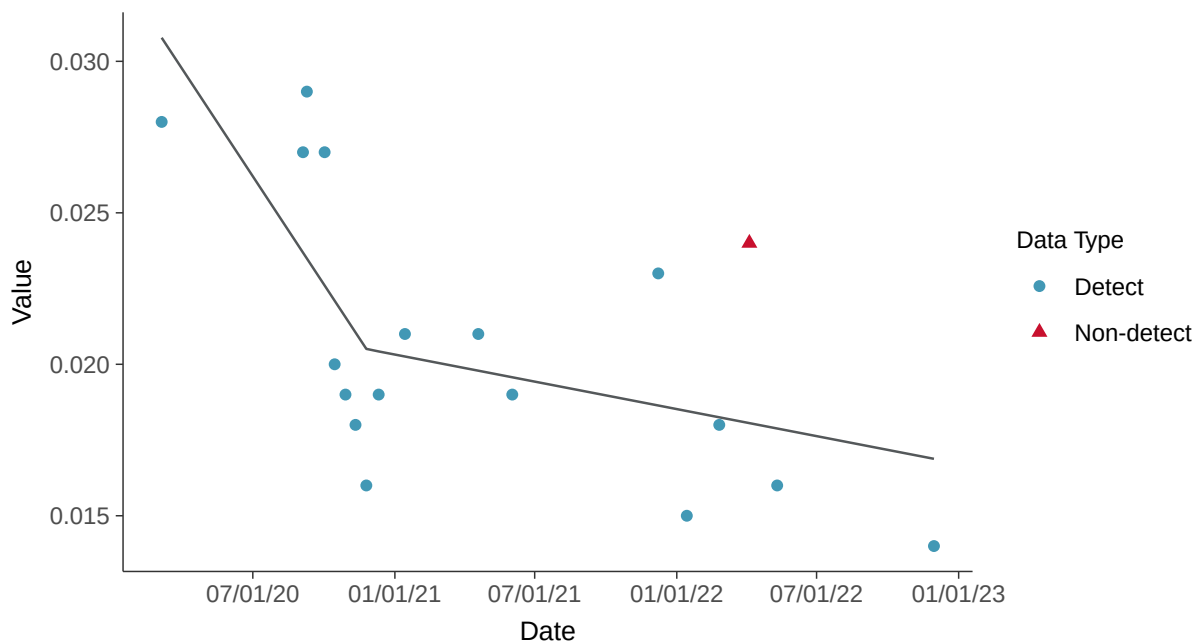
Molybdenum, W-1 (mg/l)





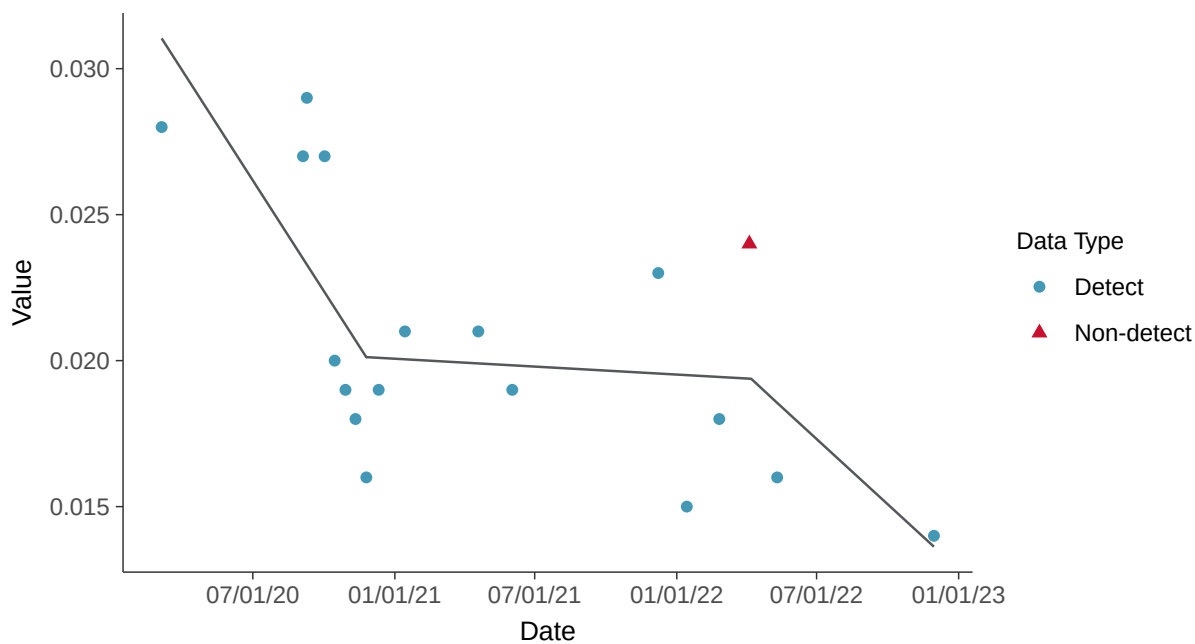
Trend Regression: Piecewise Linear-Linear

Molybdenum, W-1 (mg/l)



Trend Regression: Piecewise Linear-Linear-Linear

Molybdenum, W-1 (mg/l)

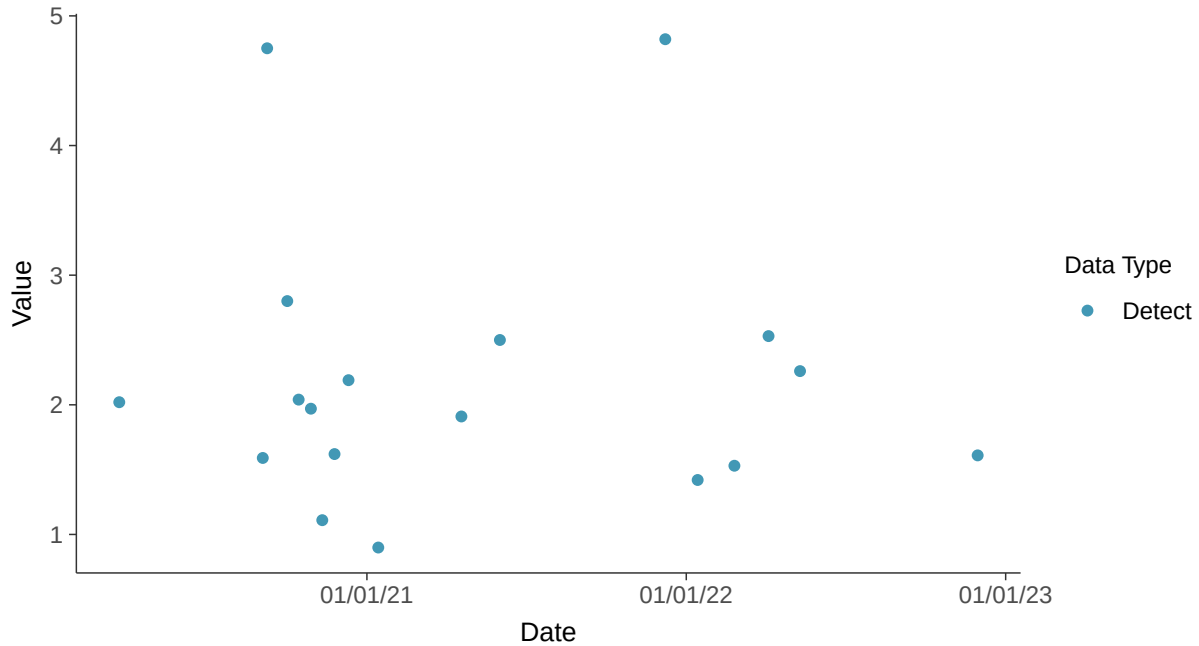


Appendix IV: Radium-226+228, W-1

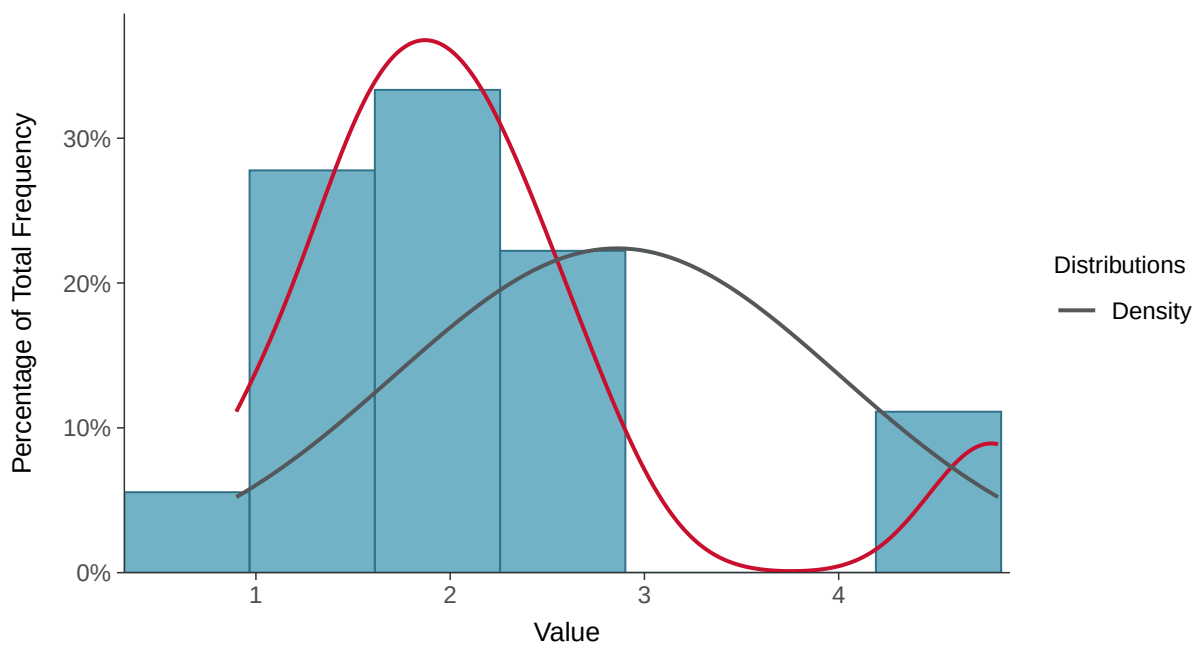
ID: 1_2_120

Scatter Plot

Radium-226+228, W-1 (pci/l)

**Histogram**

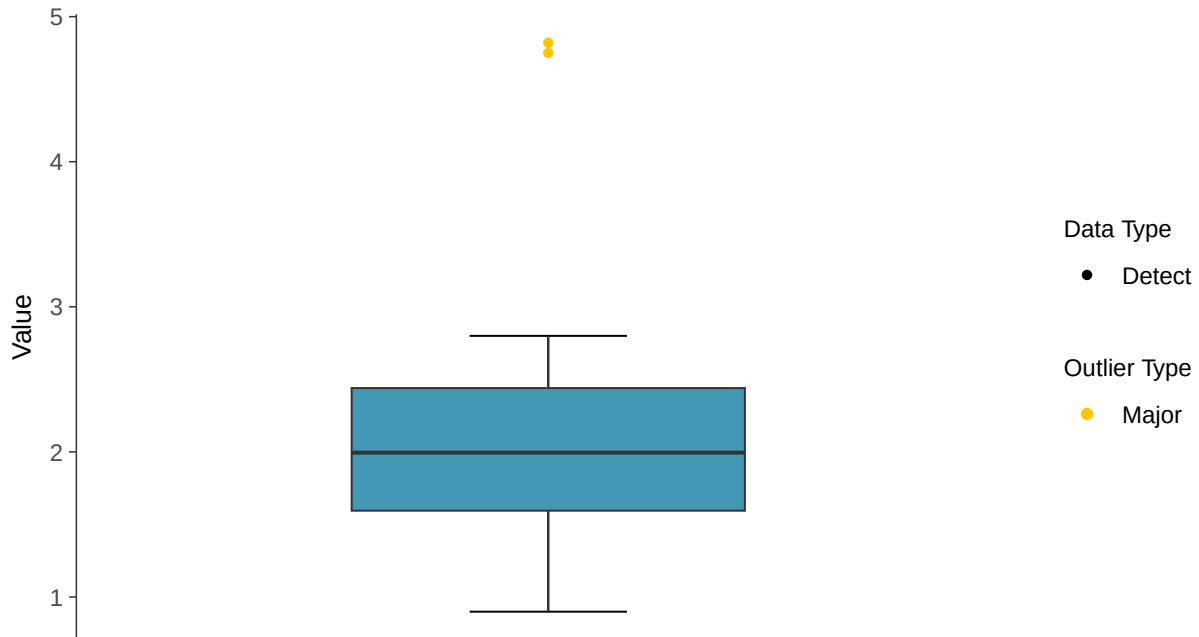
Radium-226+228, W-1 (pci/l)



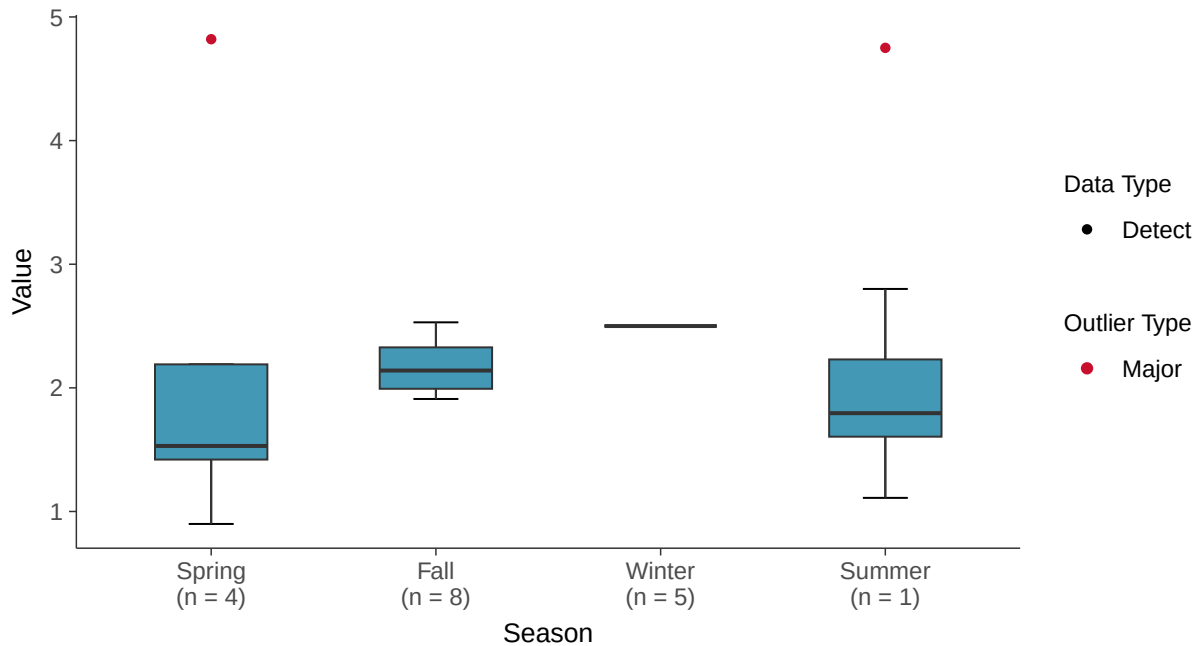
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Radium-226+228, W-1 (pci/l)

**Boxplot by Season**

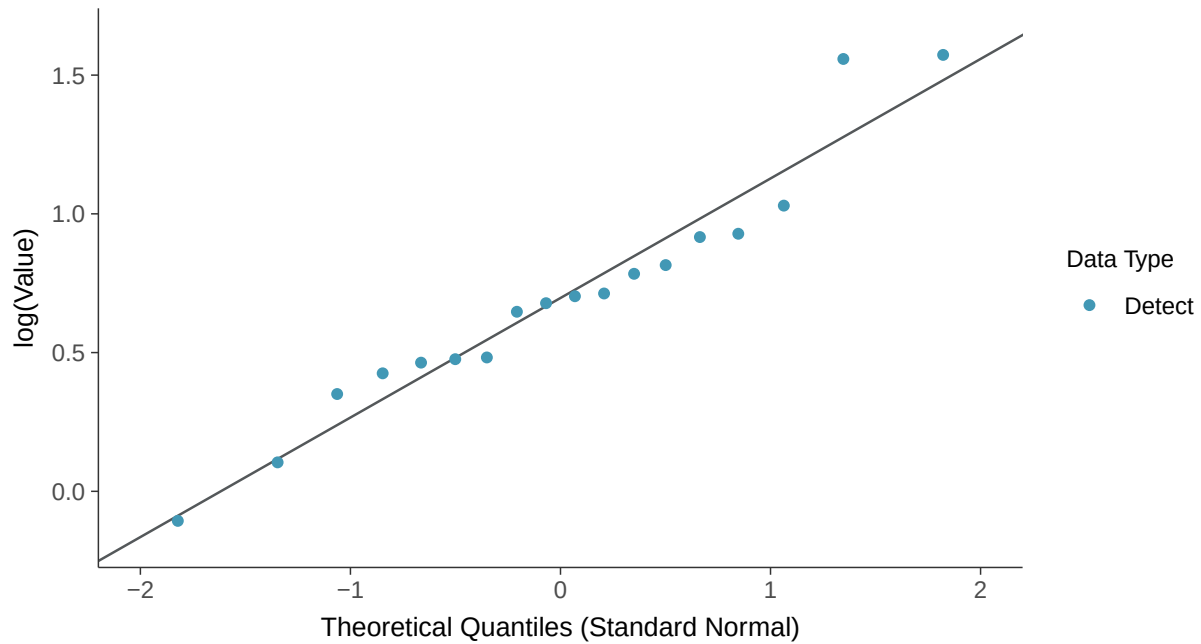
Radium-226+228, W-1 (pci/l)



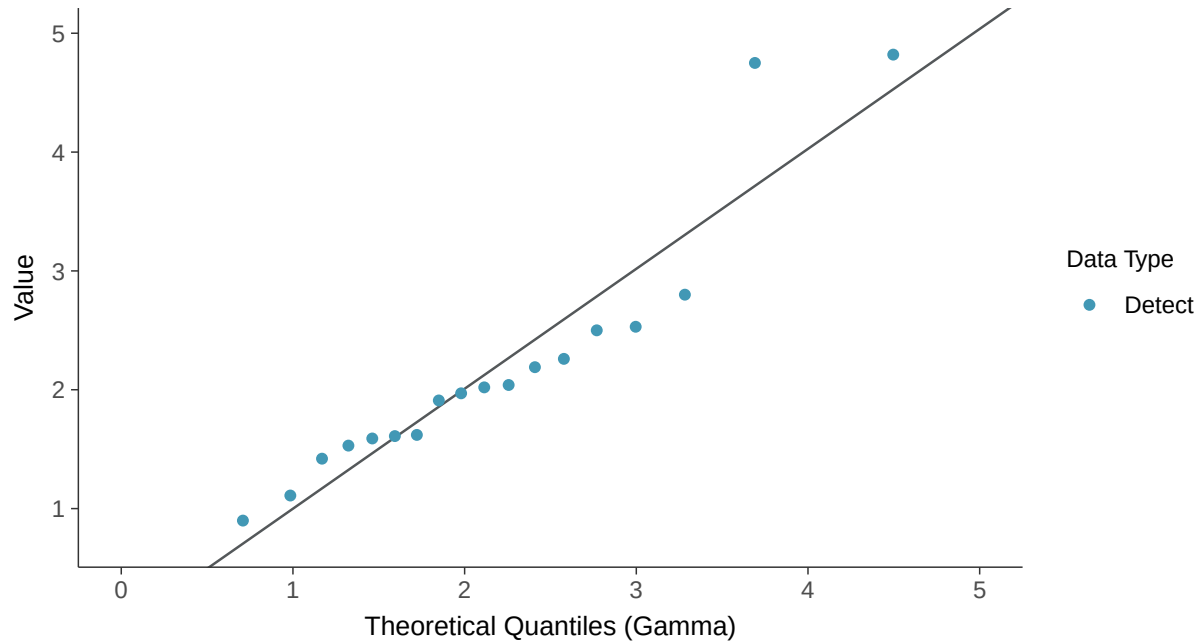
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Lognormal Q-Q plot

Radium-226+228, W-1 (pci/l)

**Gamma Q-Q plot**

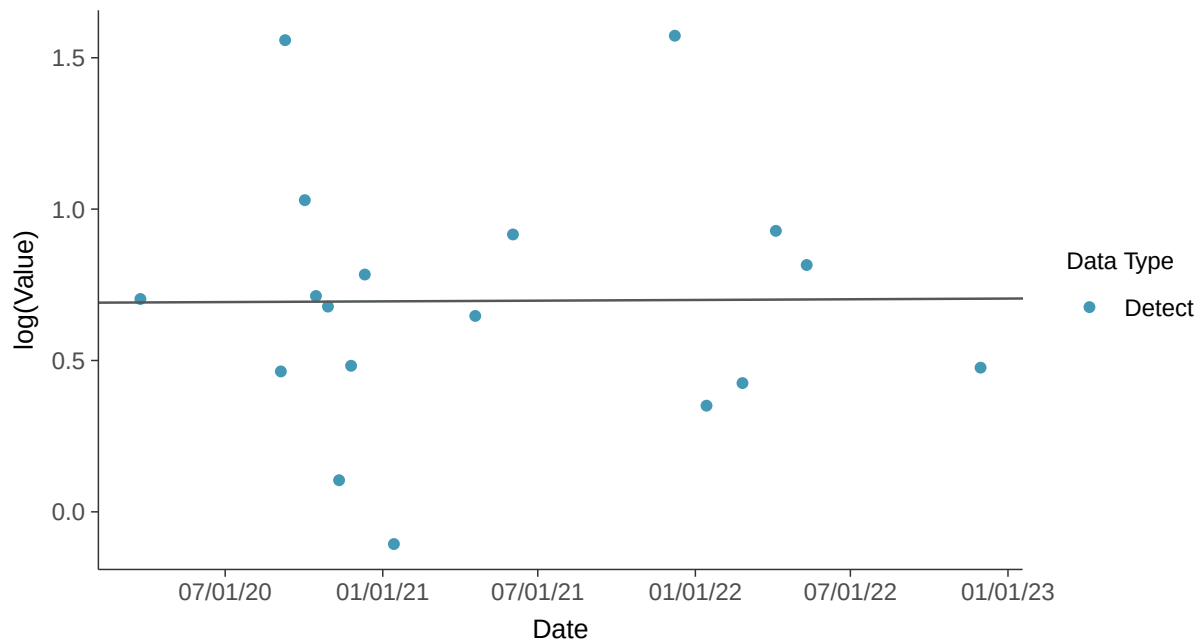
Radium-226+228, W-1 (pci/l)





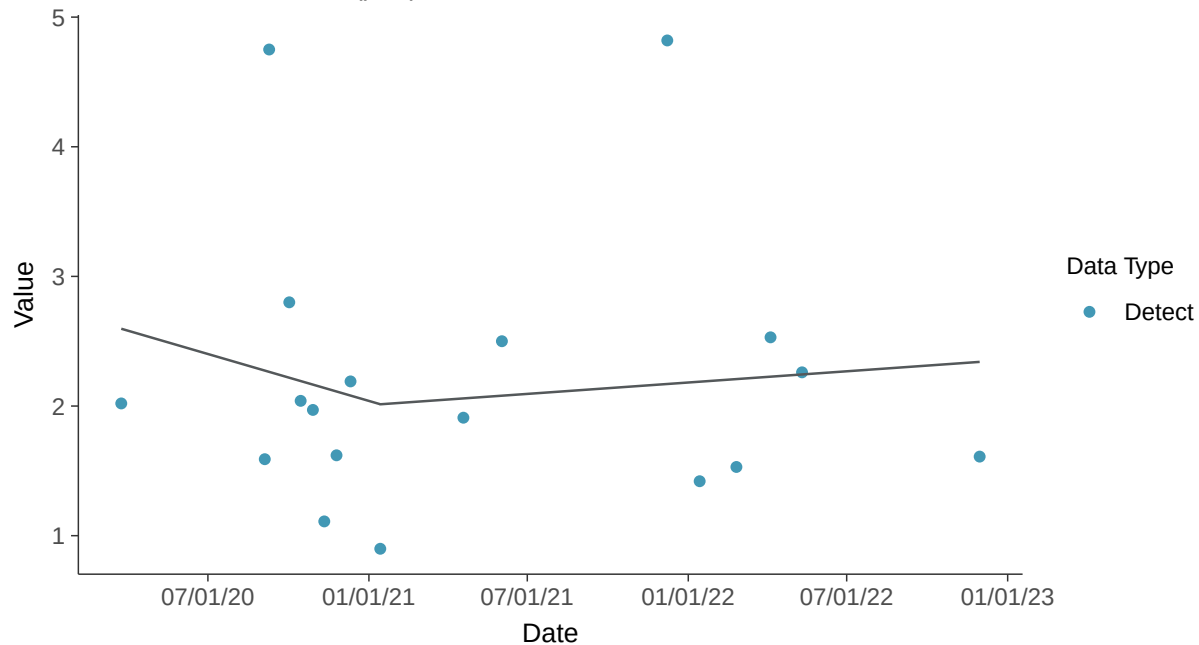
Trend Regression: Lognormal MLE

Radium-226+228, W-1 (pci/l)



Trend Regression: Piecewise Linear-Linear

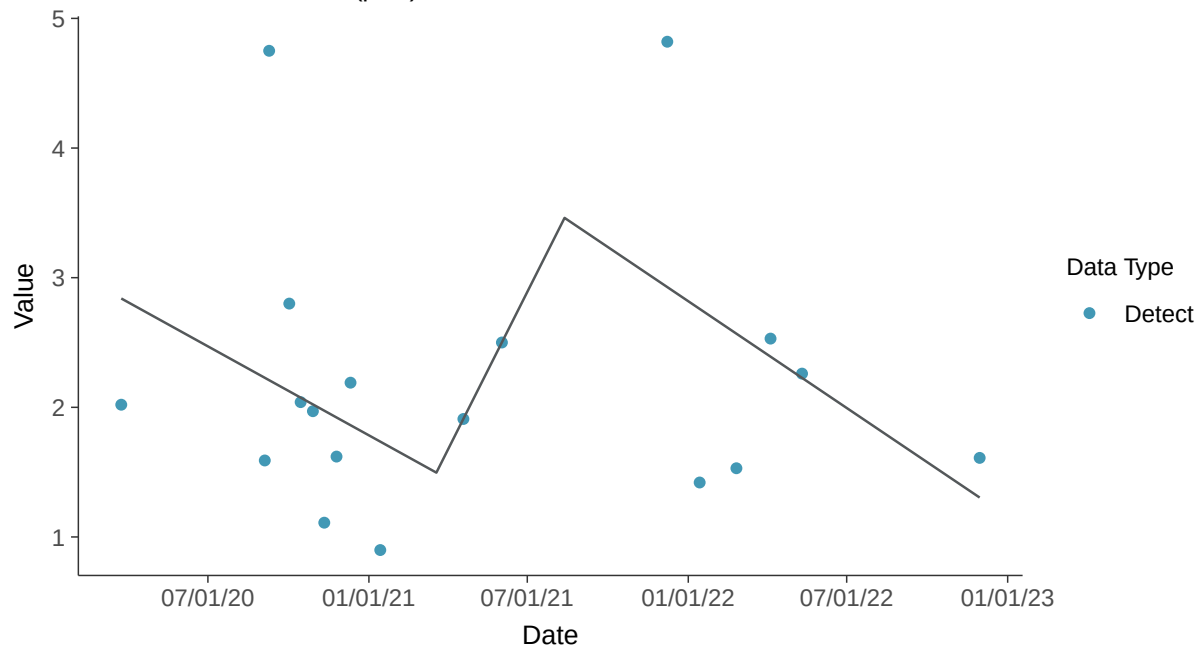
Radium-226+228, W-1 (pci/l)





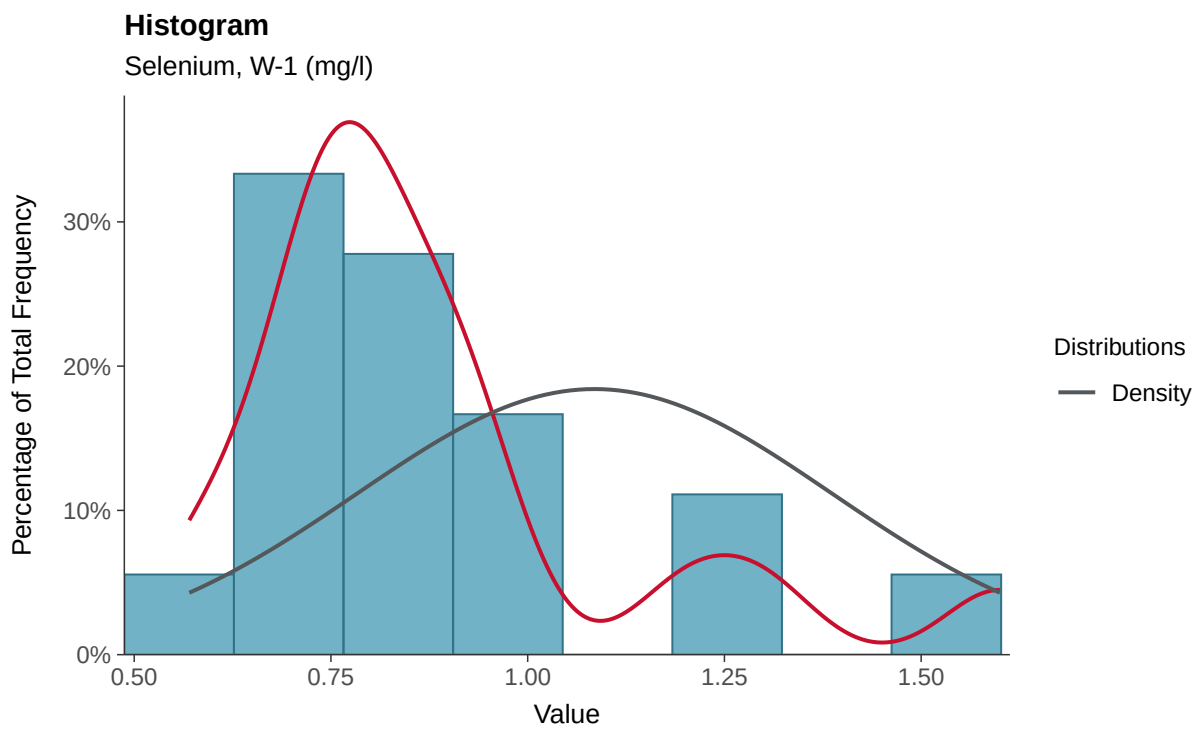
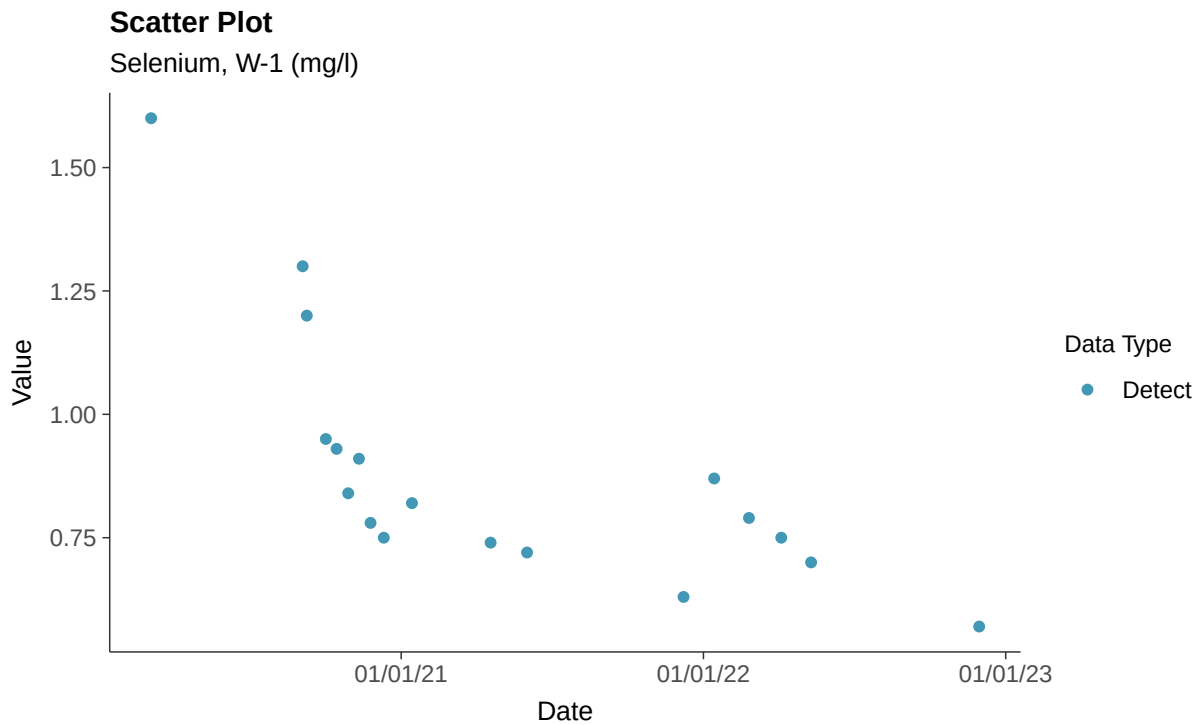
Trend Regression: Piecewise Linear-Linear-Linear

Radium-226+228, W-1 (pci/l)



Appendix IV: Selenium, W-1

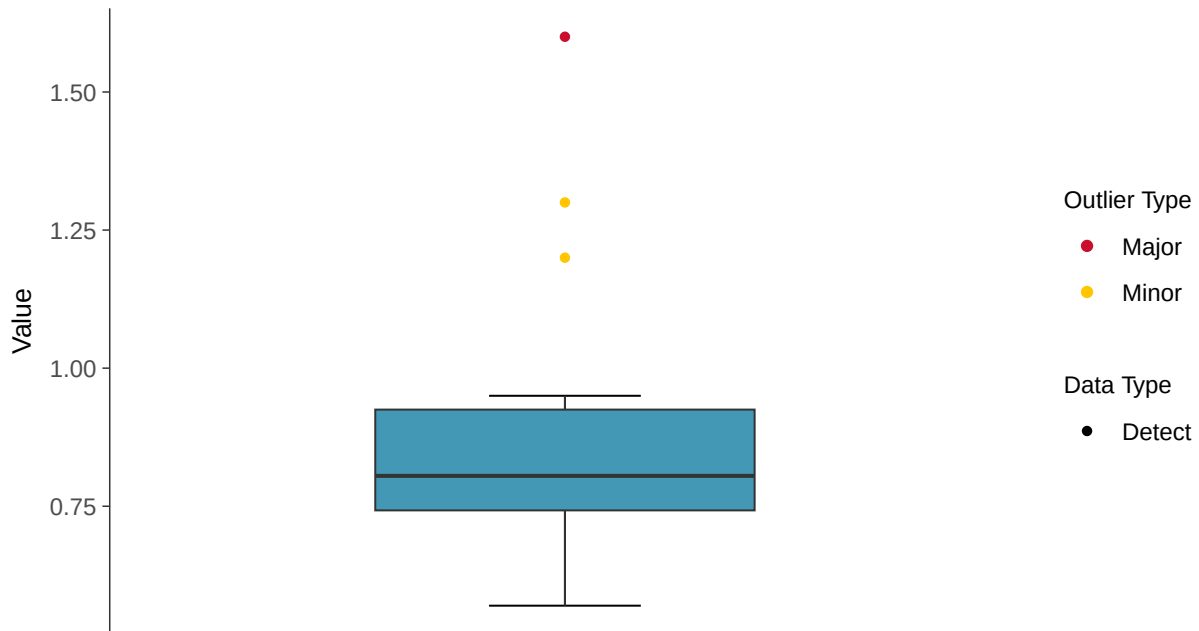
ID: 1_2_122



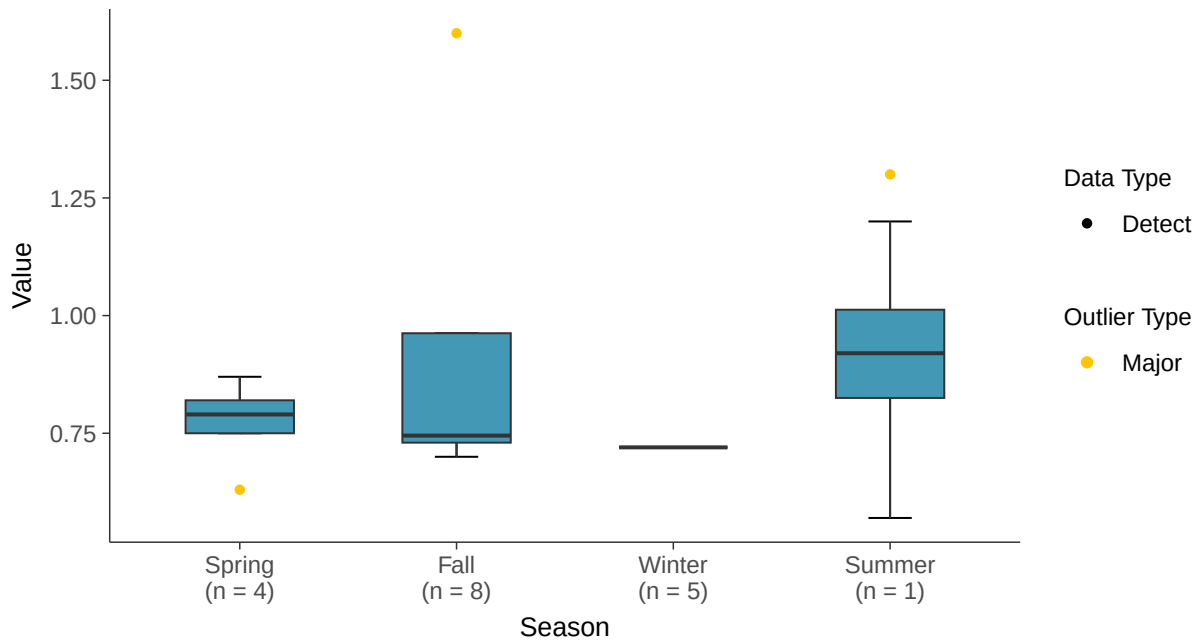
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Selenium, W-1 (mg/l)

**Boxplot by Season**

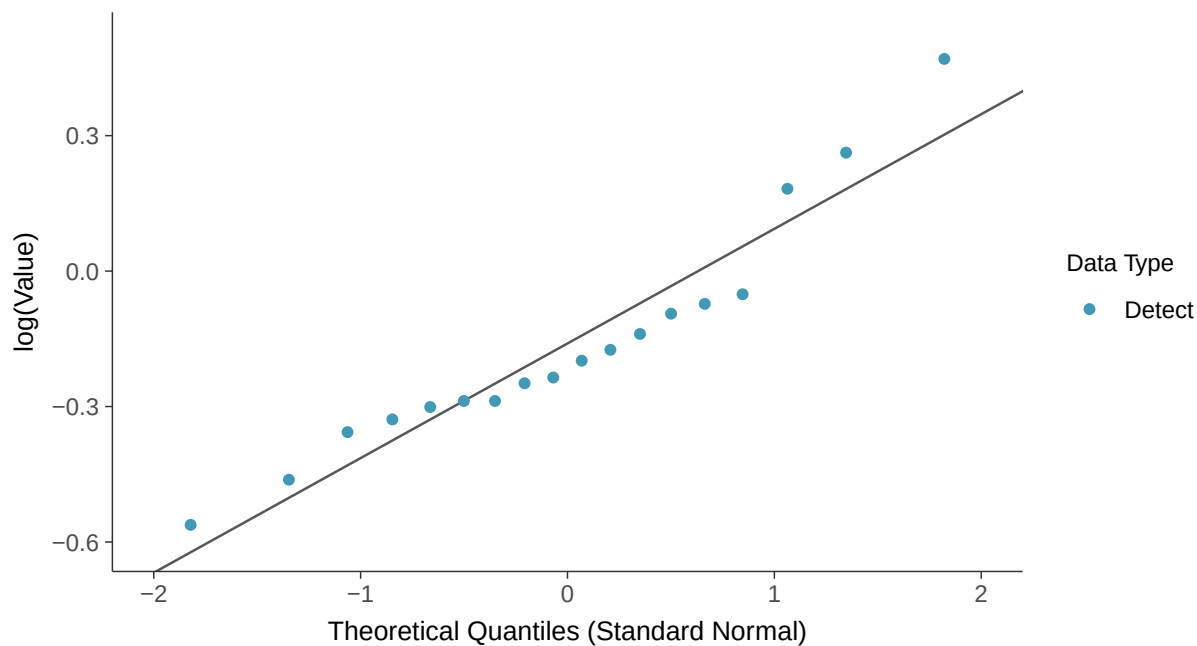
Selenium, W-1 (mg/l)





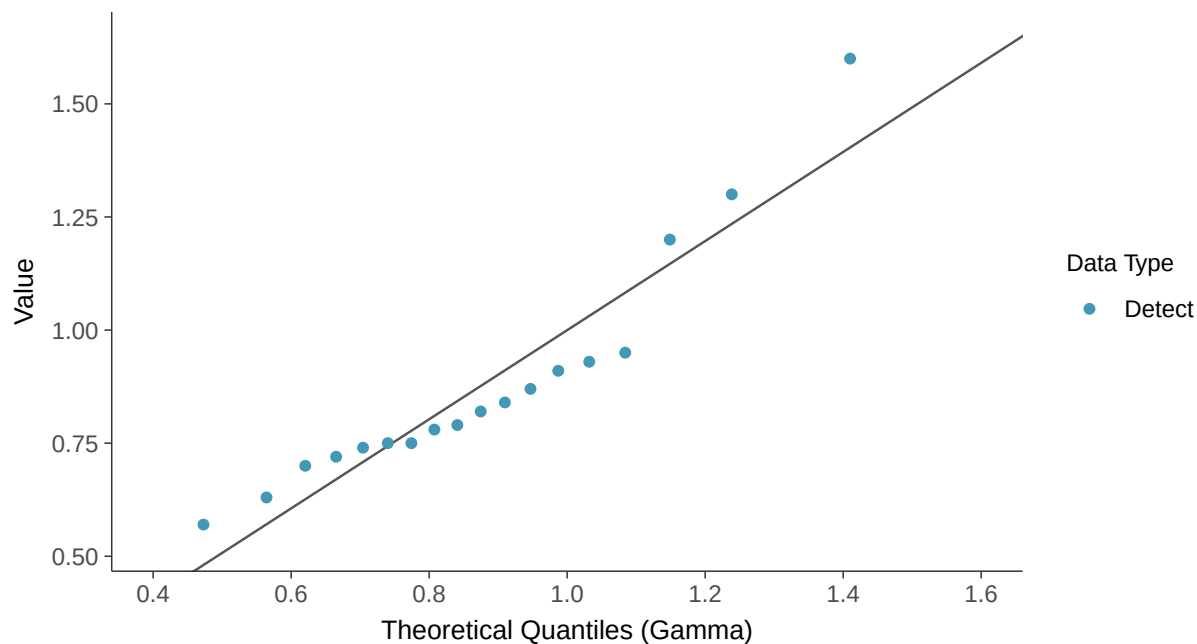
Lognormal Q-Q plot

Selenium, W-1 (mg/l)



Gamma Q-Q plot

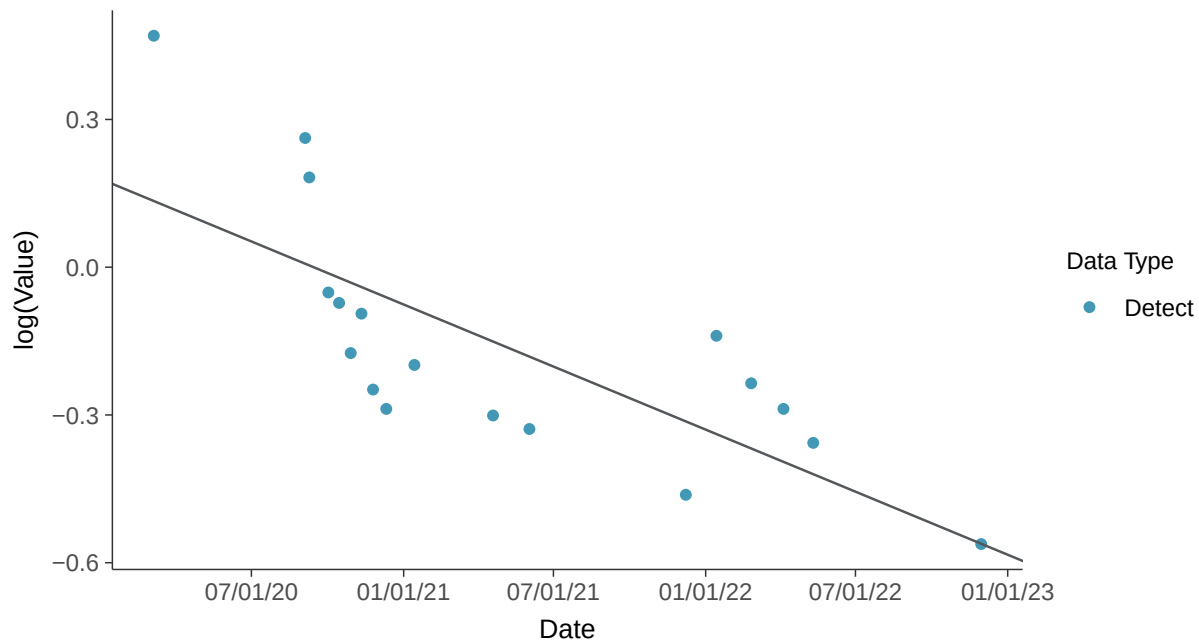
Selenium, W-1 (mg/l)





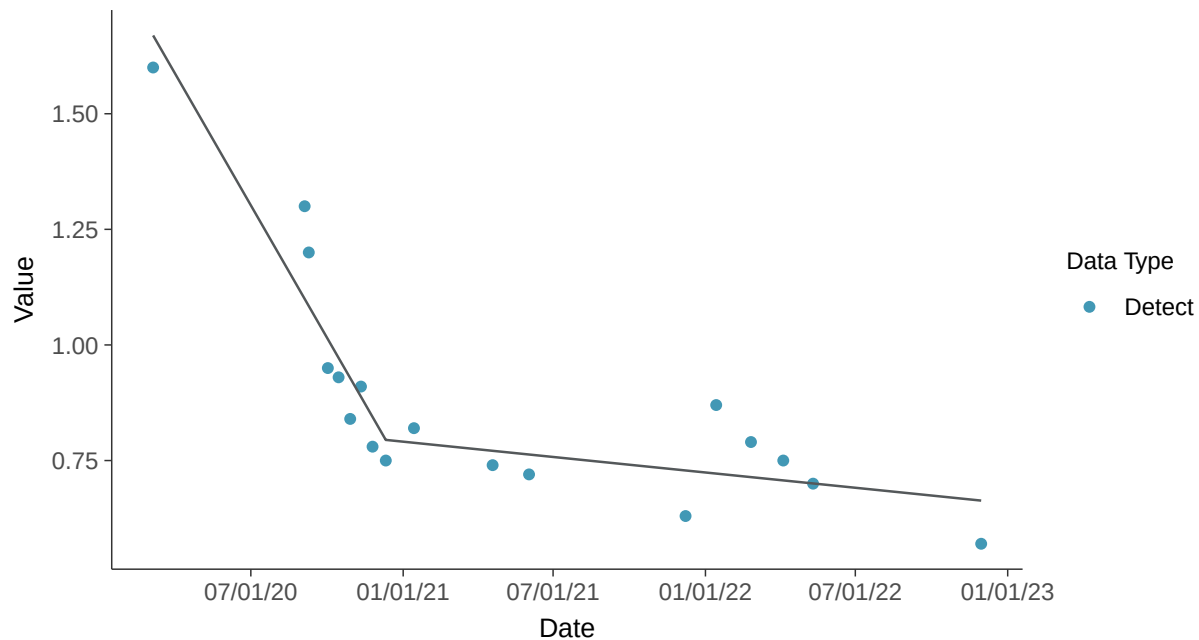
Trend Regression: Lognormal MLE

Selenium, W-1 (mg/l)



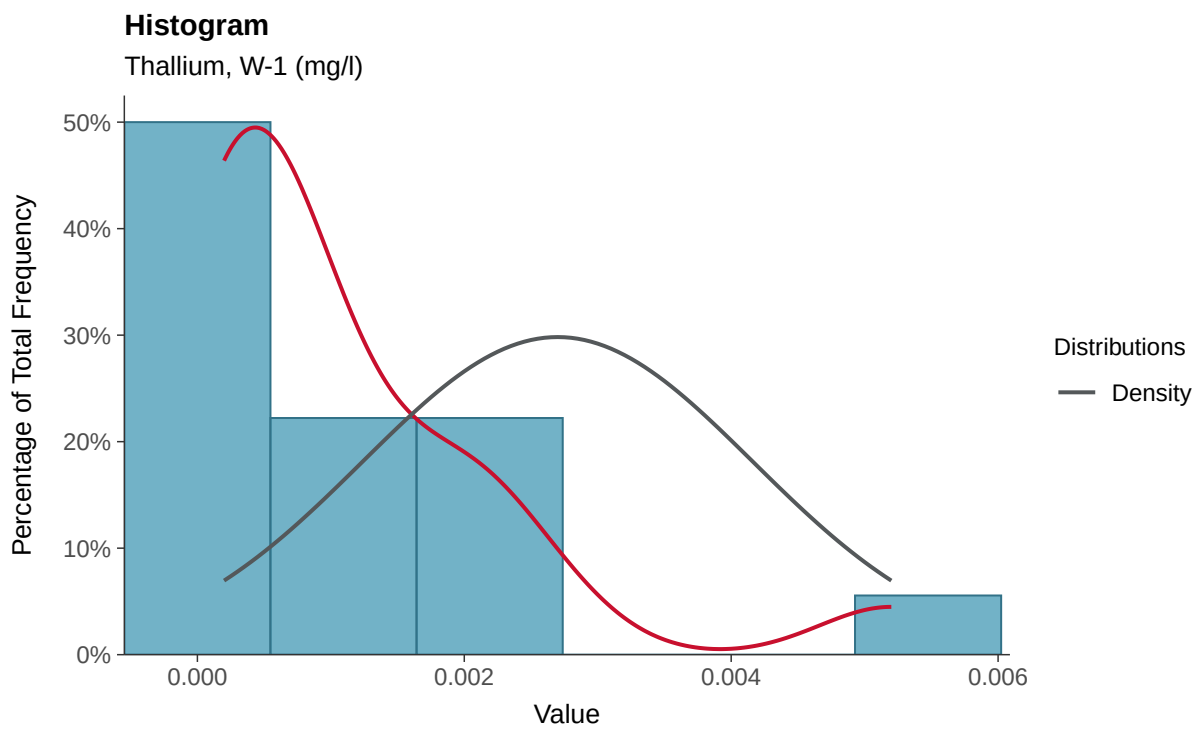
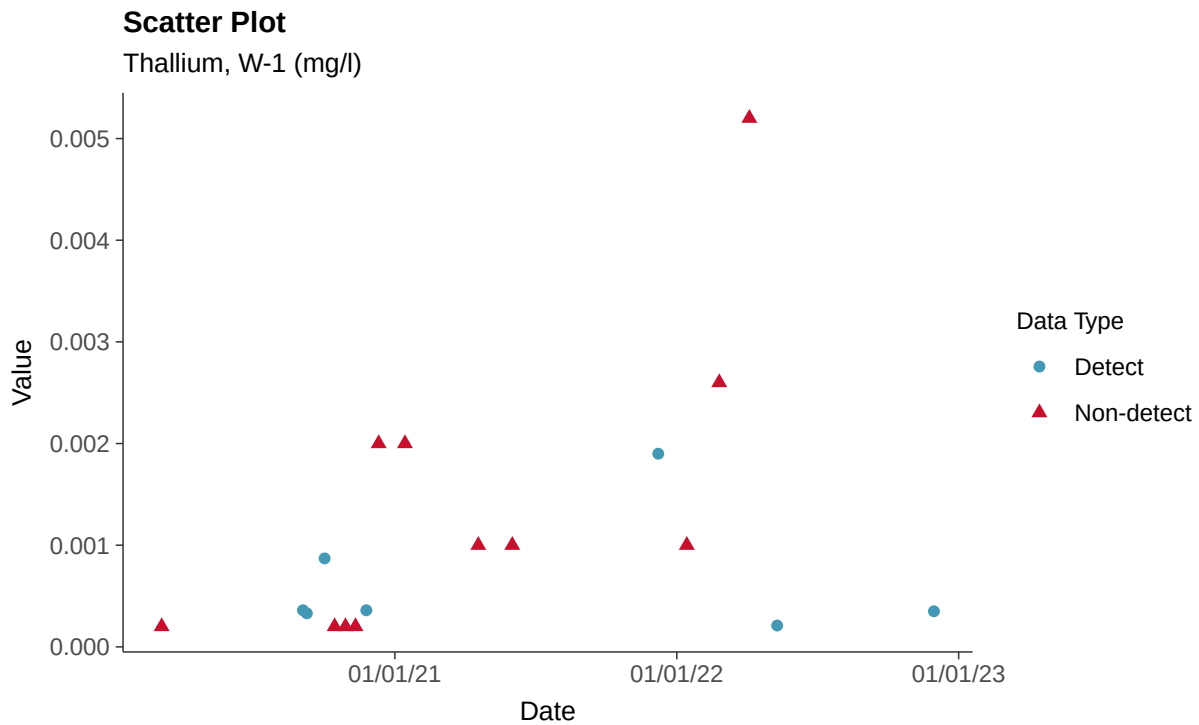
Trend Regression: Piecewise Linear-Linear

Selenium, W-1 (mg/l)



Appendix IV: Thallium, W-1

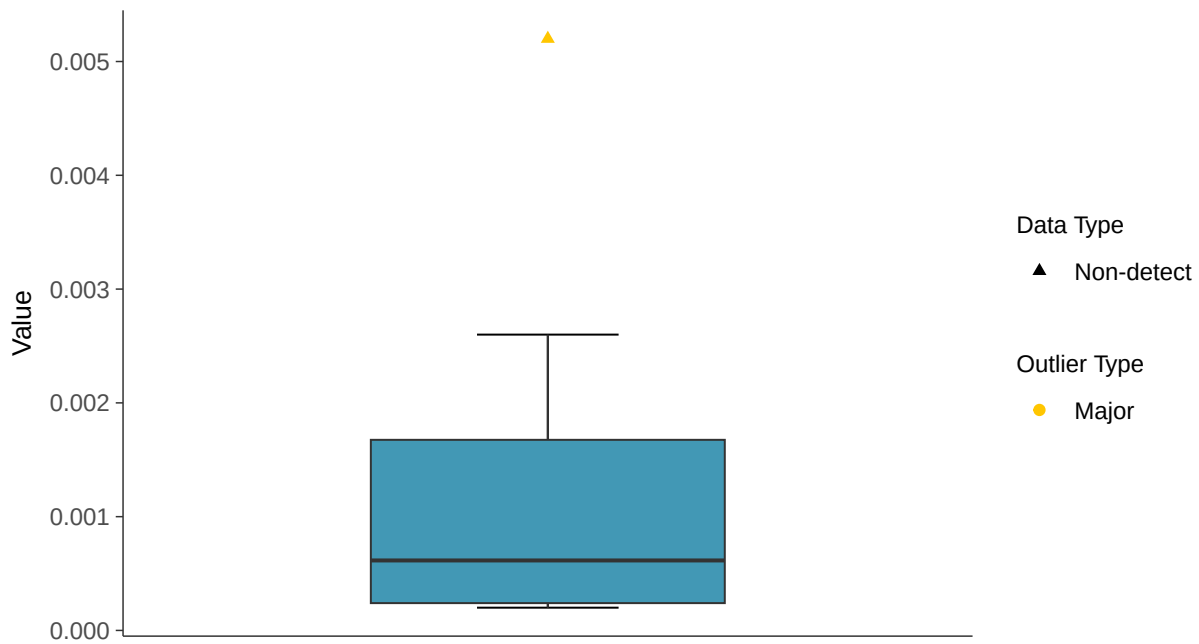
ID: 1_2_126



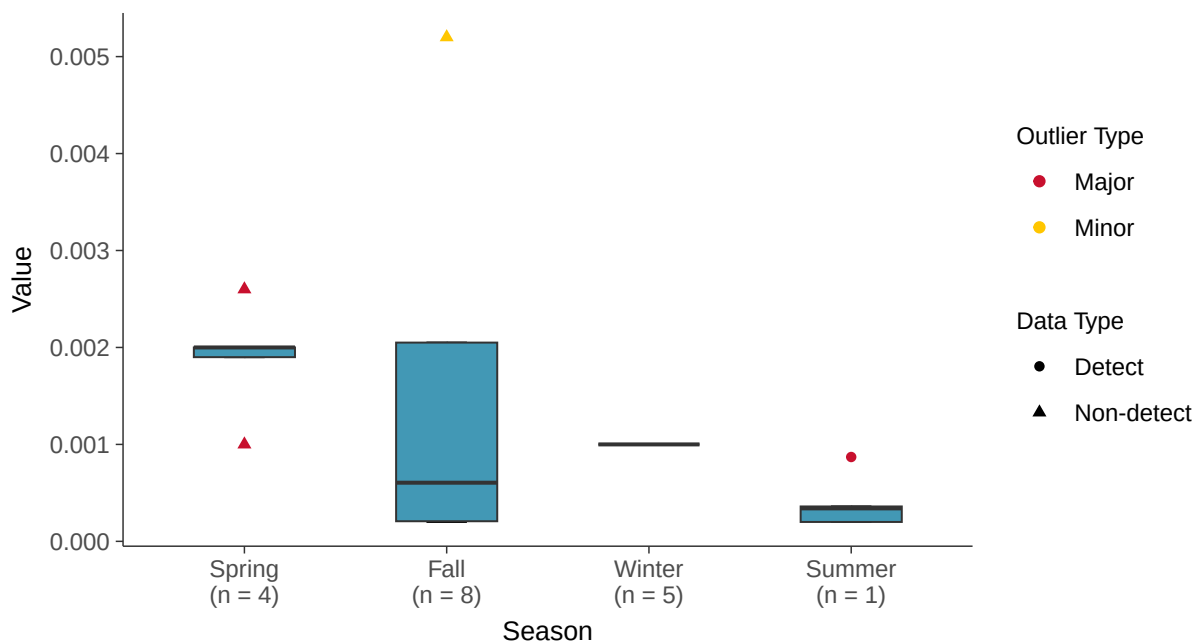
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Thallium, W-1 (mg/l)

**Boxplot by Season**

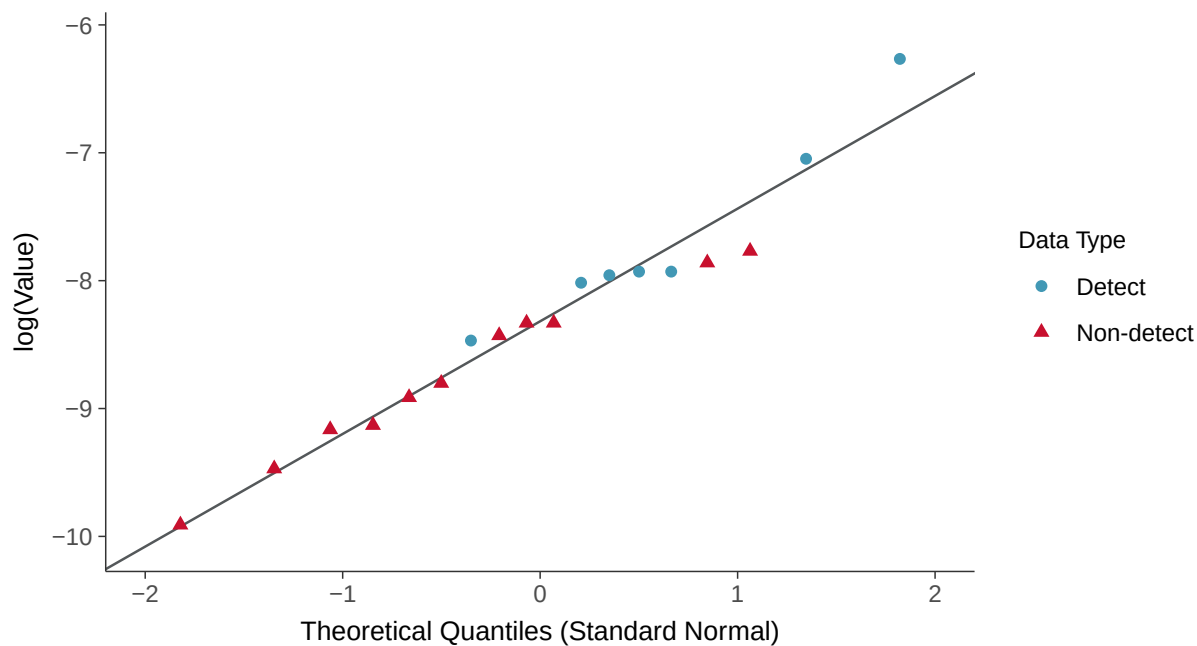
Thallium, W-1 (mg/l)





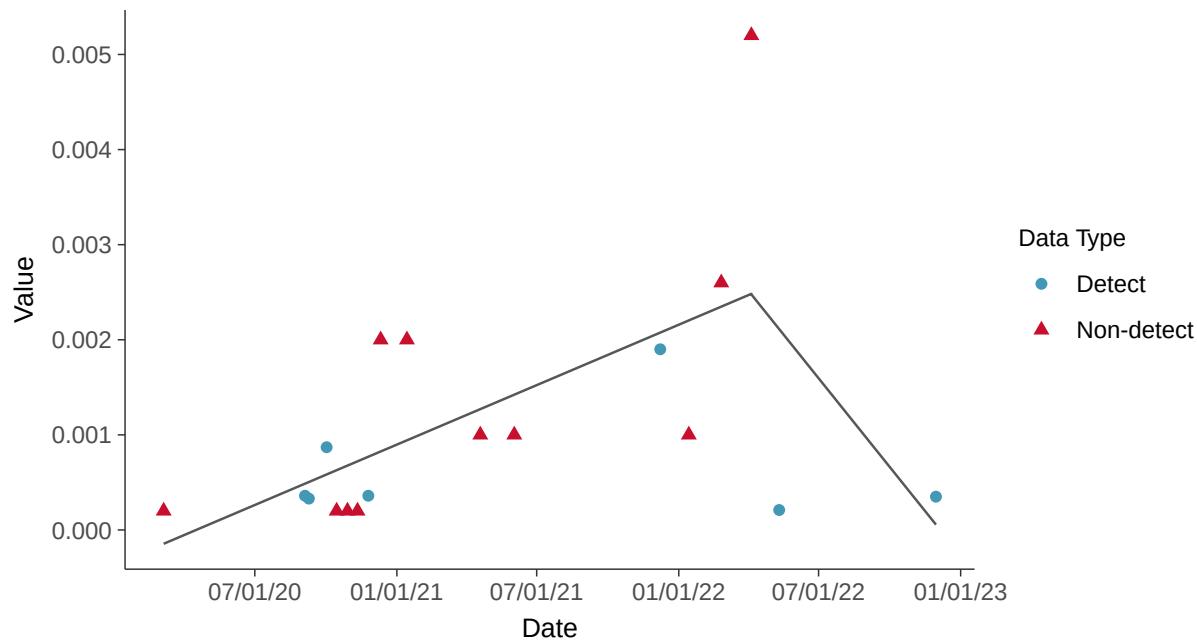
Lognormal Q-Q plot using ROS Imputed Estimates

Thallium, W-1 (mg/l)



Trend Regression: Piecewise Linear-Linear

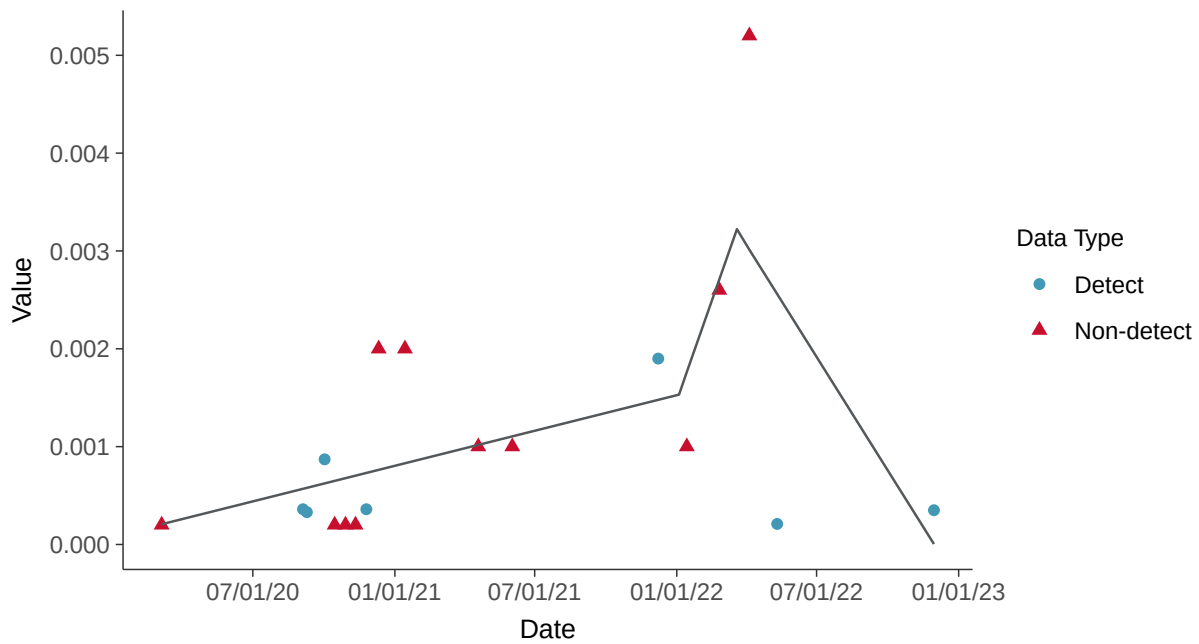
Thallium, W-1 (mg/l)





Trend Regression: Piecewise Linear-Linear-Linear

Thallium, W-1 (mg/l)

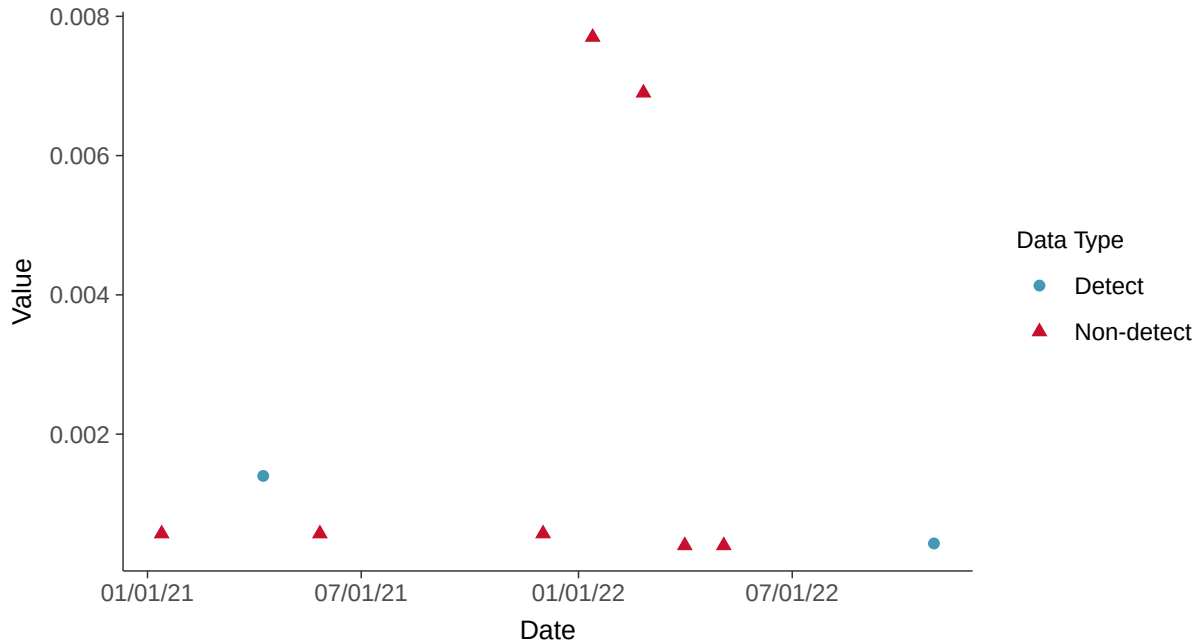


Appendix IV: Antimony, W-11

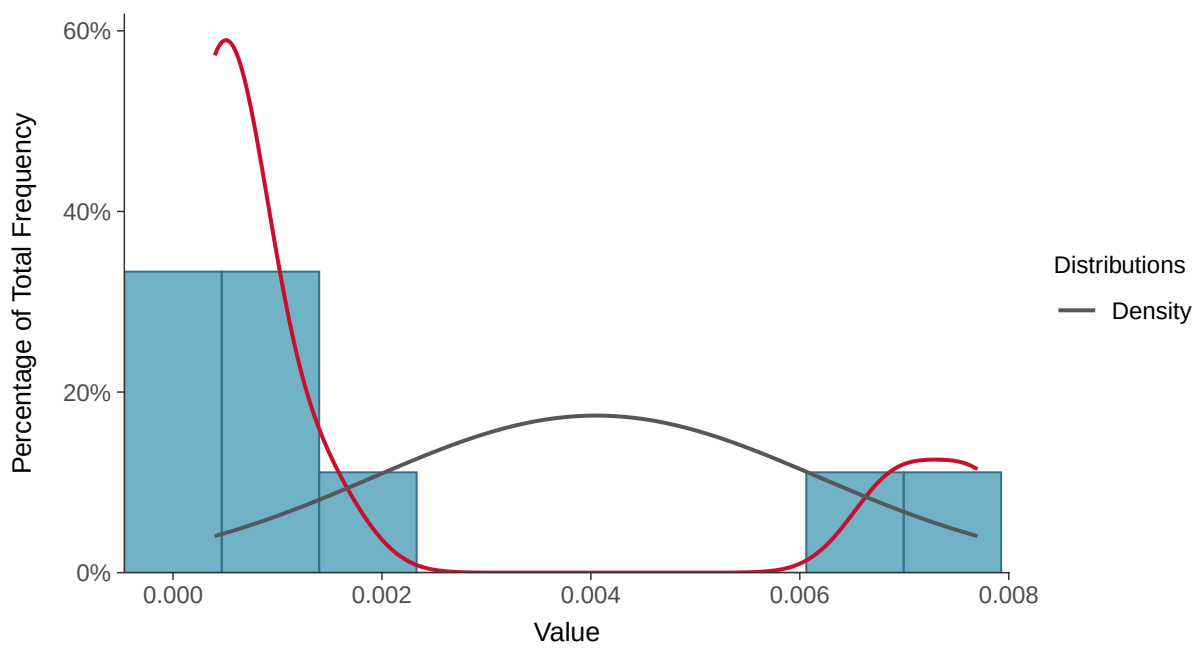
ID: 2_2_101

Scatter Plot

Antimony, W-11 (mg/l)

**Histogram**

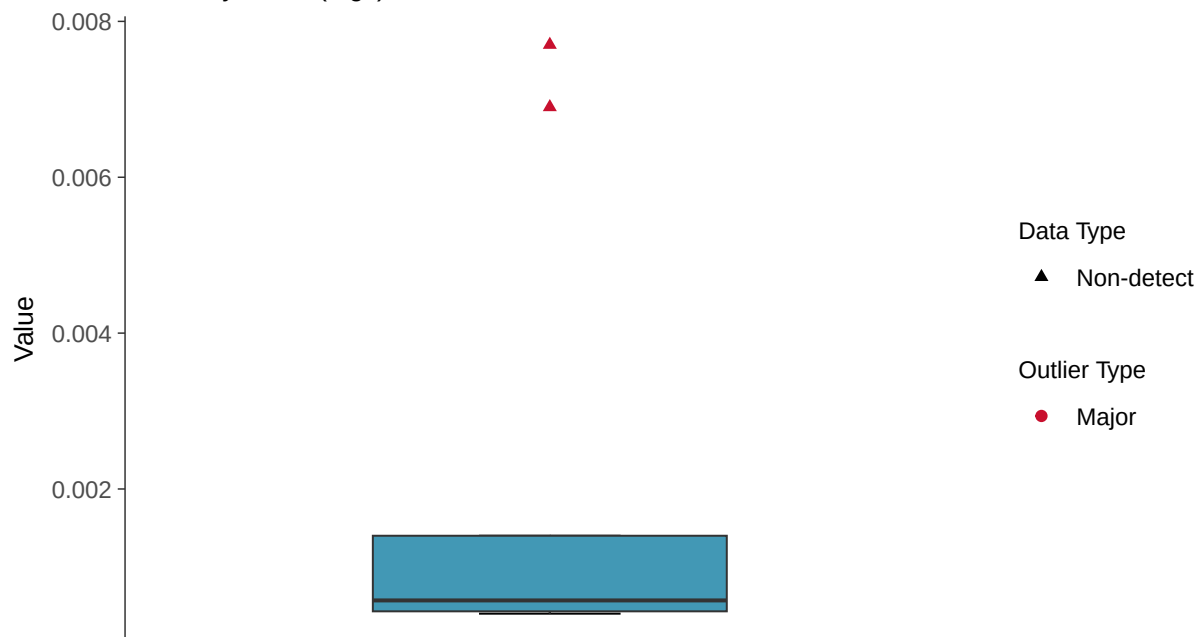
Antimony, W-11 (mg/l)





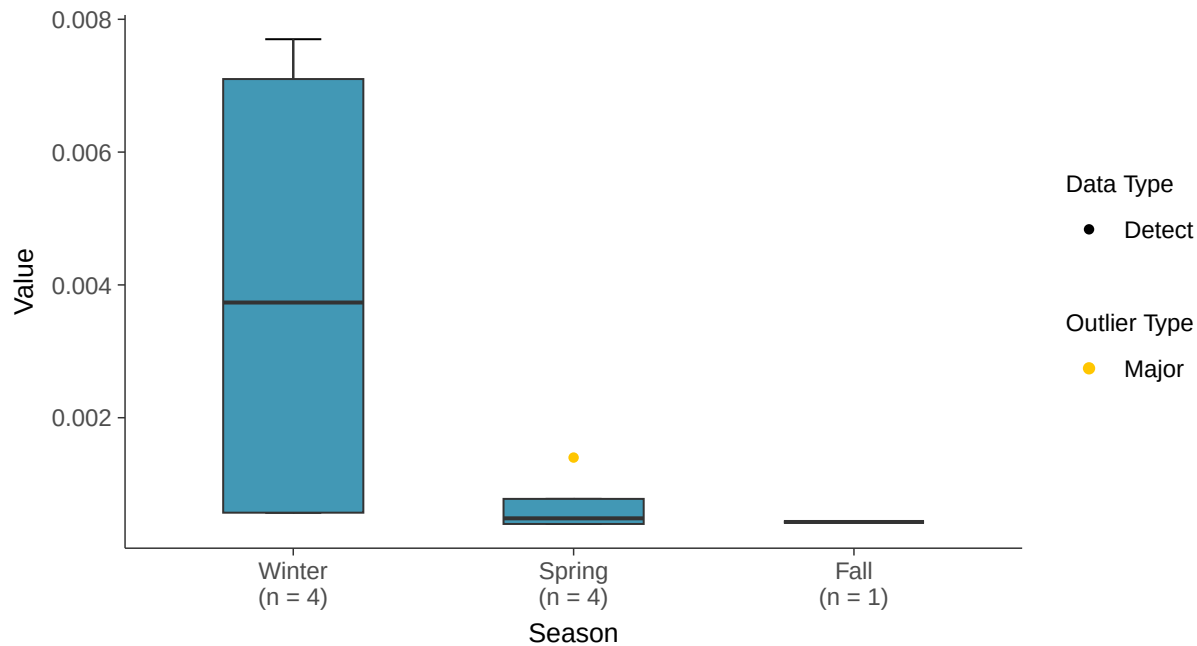
Boxplot

Antimony, W-11 (mg/l)



Boxplot by Season

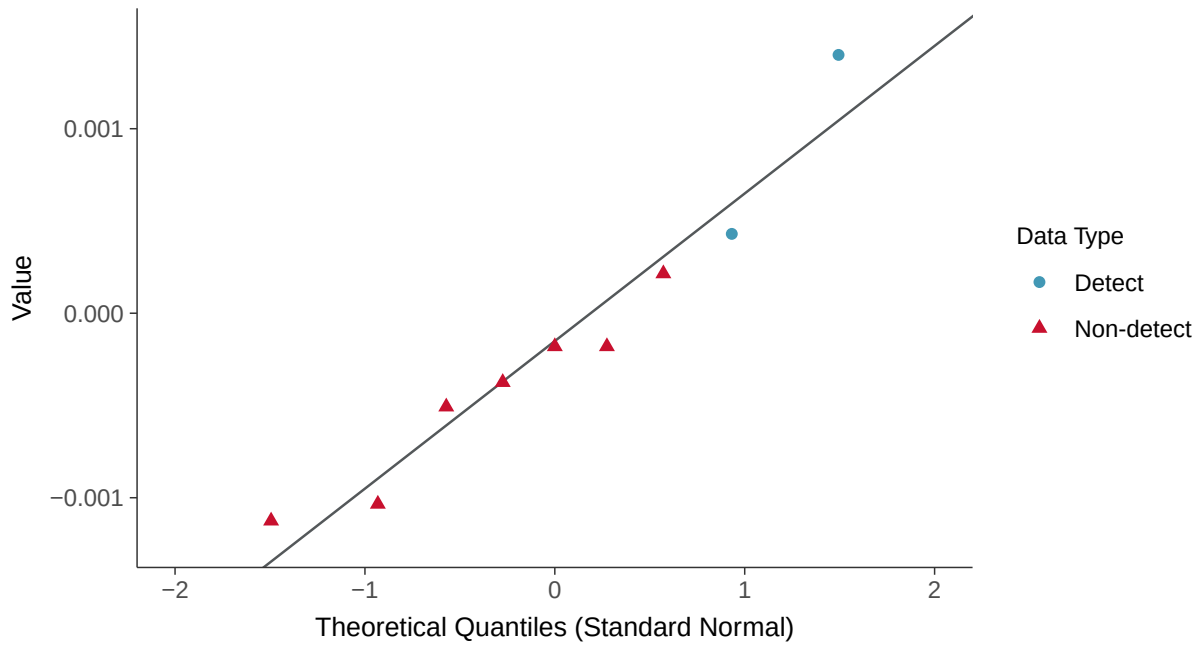
Antimony, W-11 (mg/l)





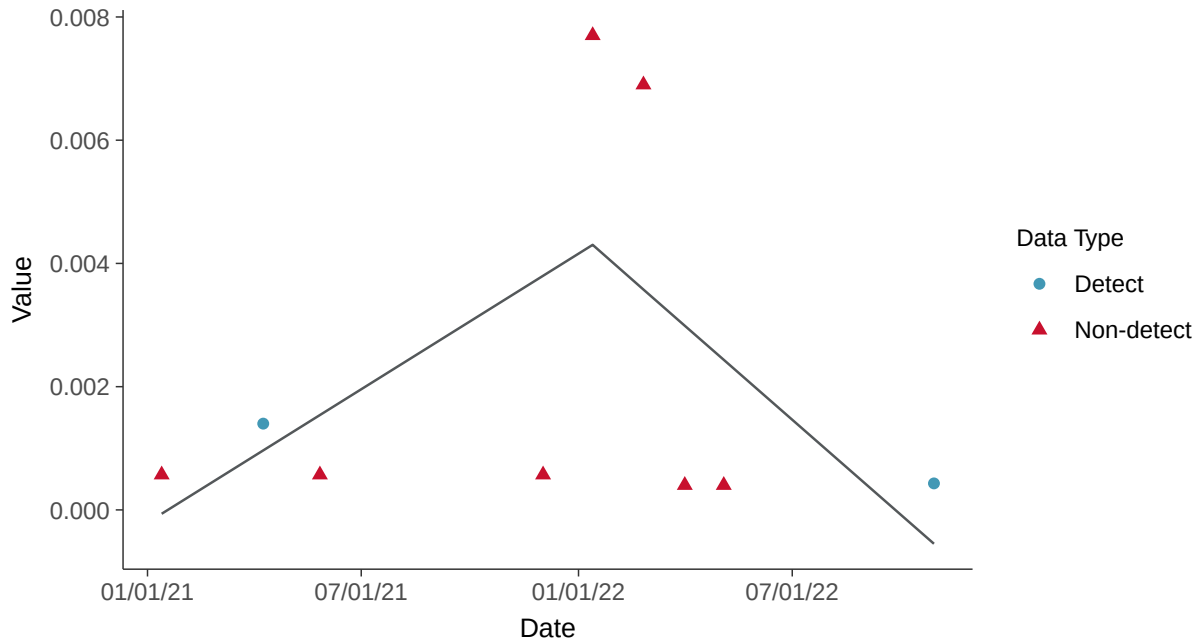
Normal Q-Q plot using ROS Imputed Estimates

Antimony, W-11 (mg/l)



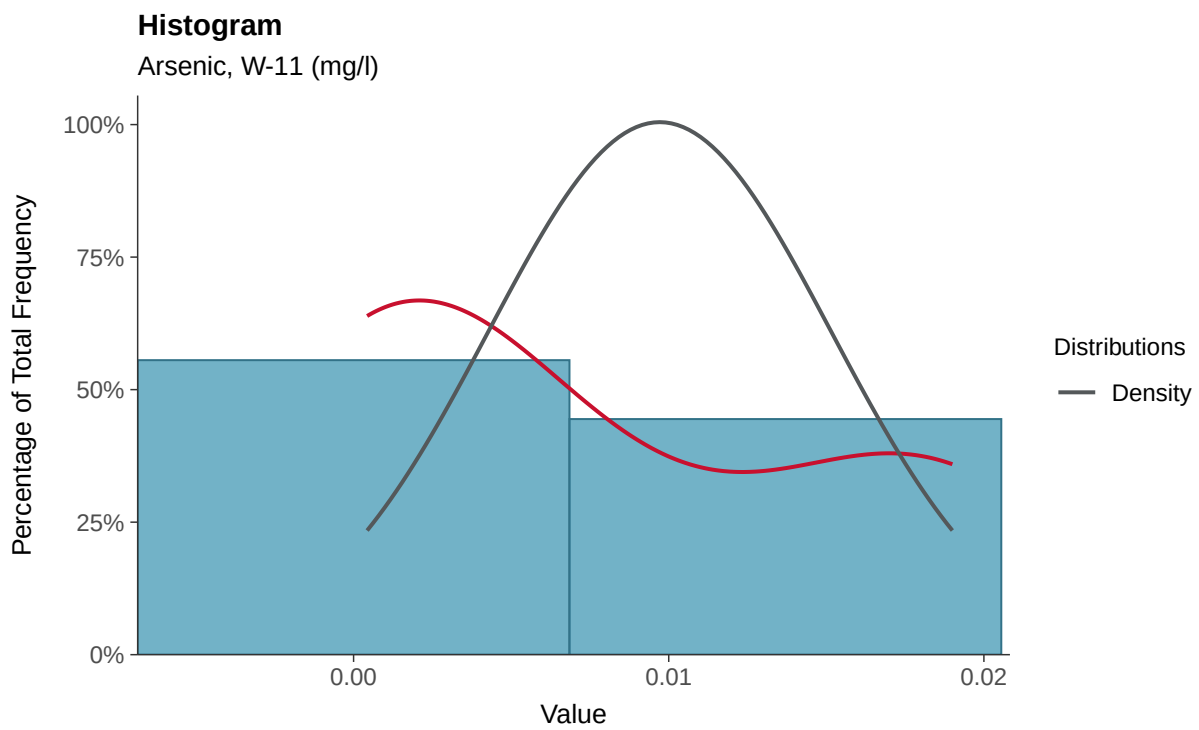
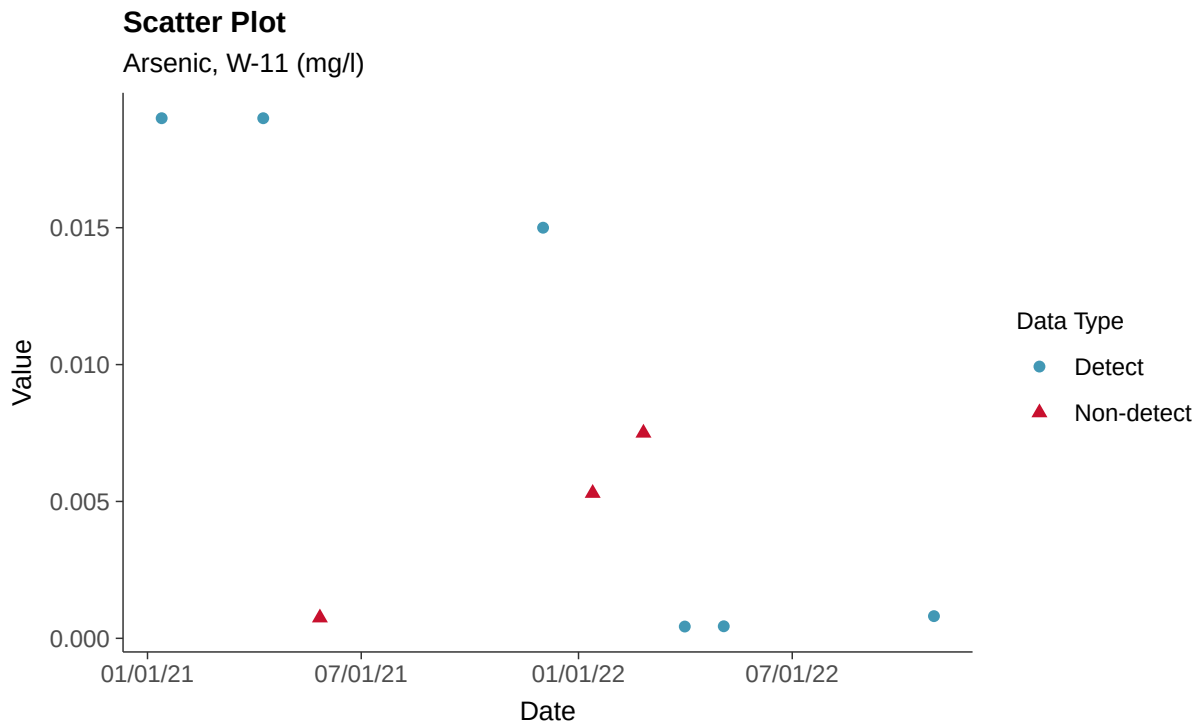
Trend Regression: Piecewise Linear-Linear

Antimony, W-11 (mg/l)



Appendix IV: Arsenic, W-11

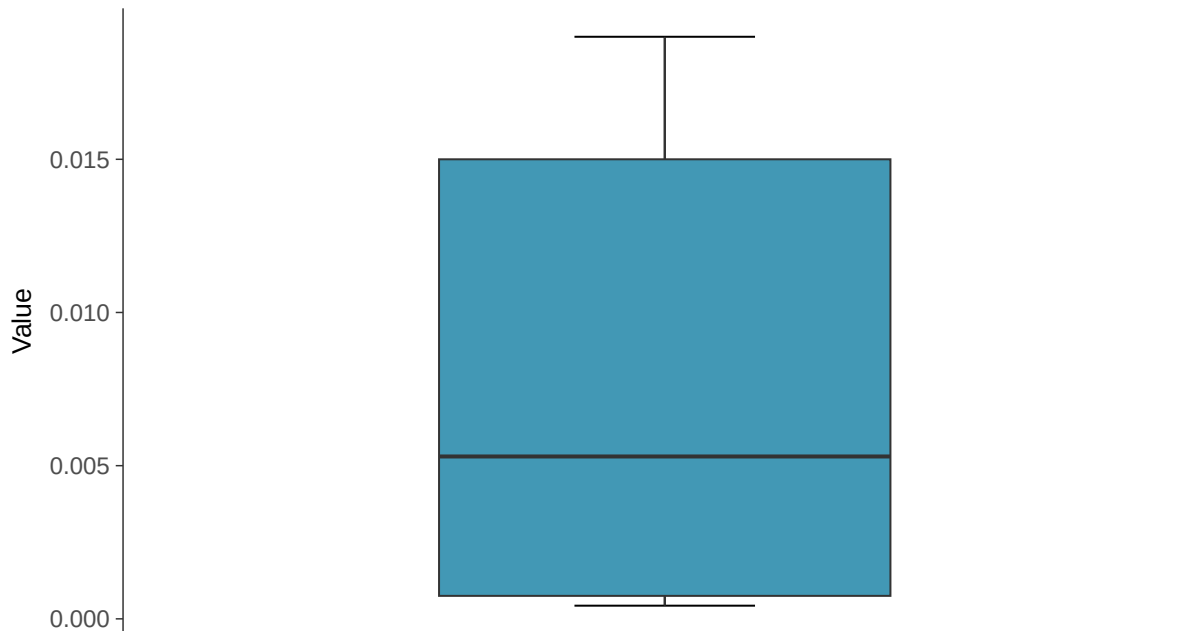
ID: 2_2_102





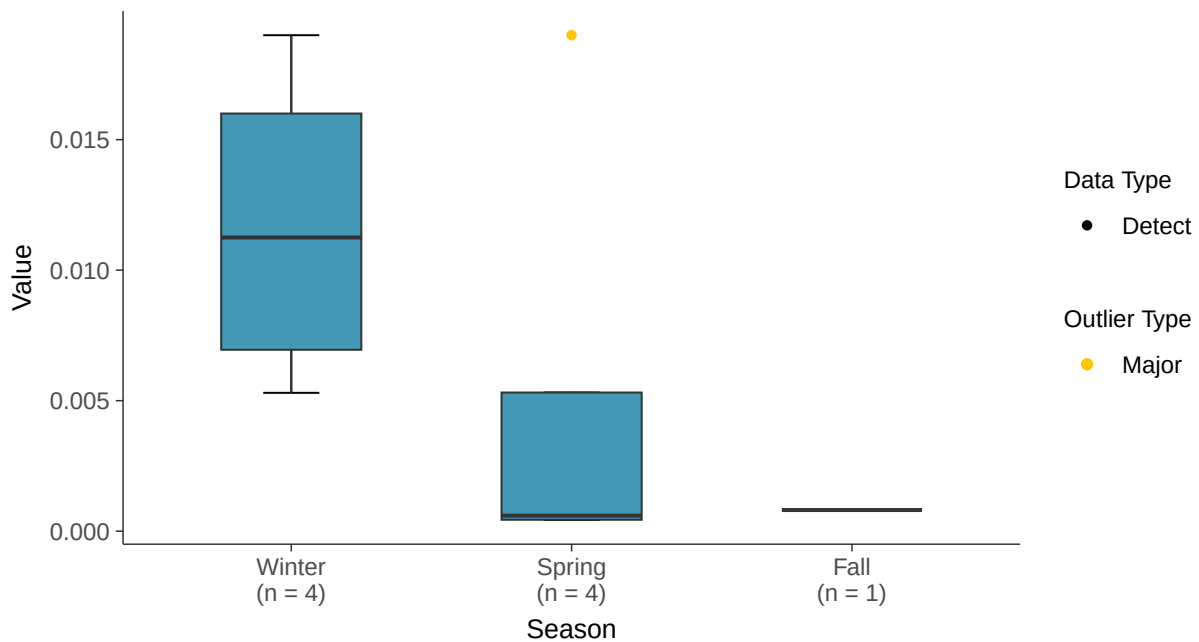
Boxplot

Arsenic, W-11 (mg/l)



Boxplot by Season

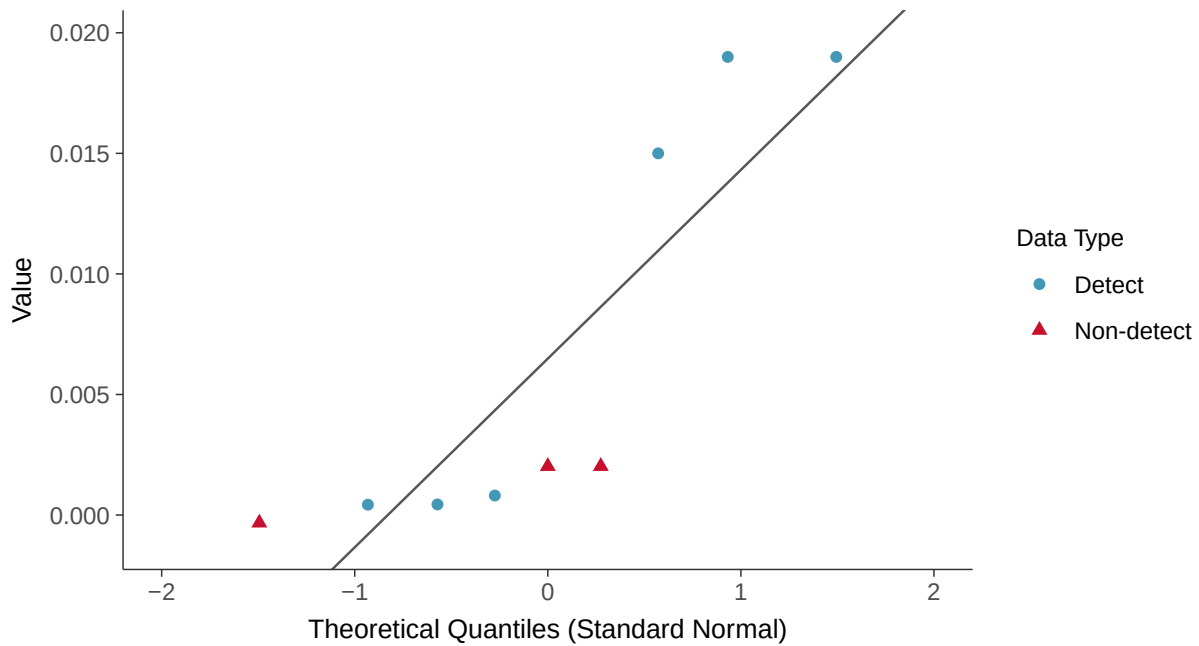
Arsenic, W-11 (mg/l)





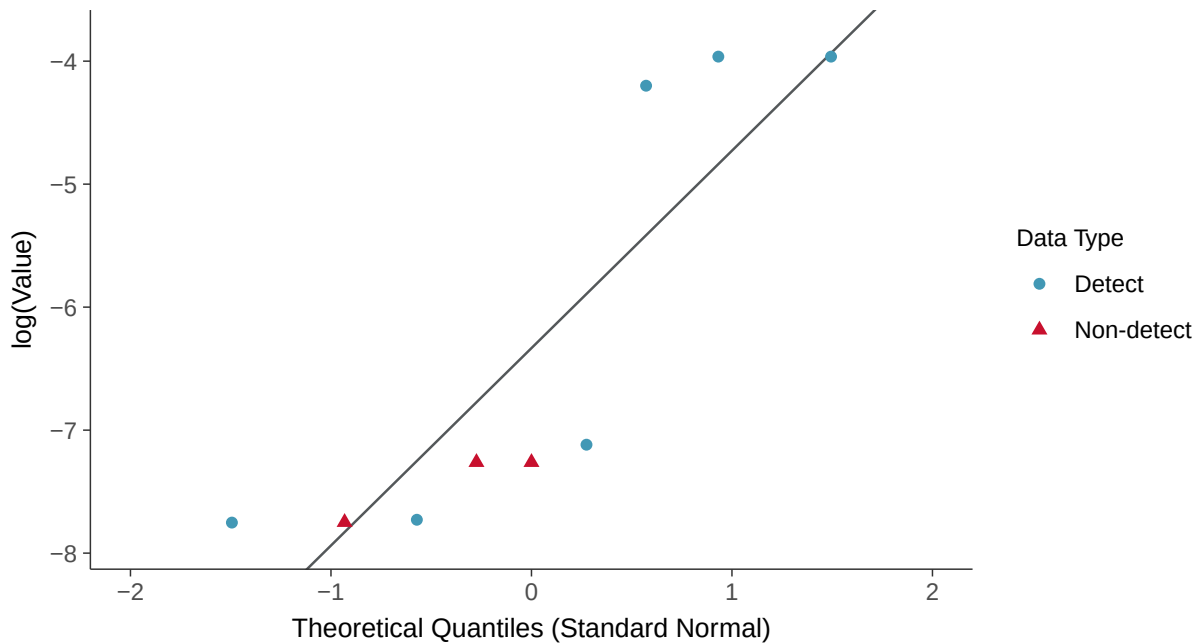
Normal Q-Q plot using ROS Imputed Estimates

Arsenic, W-11 (mg/l)



Lognormal Q-Q plot using ROS Imputed Estimates

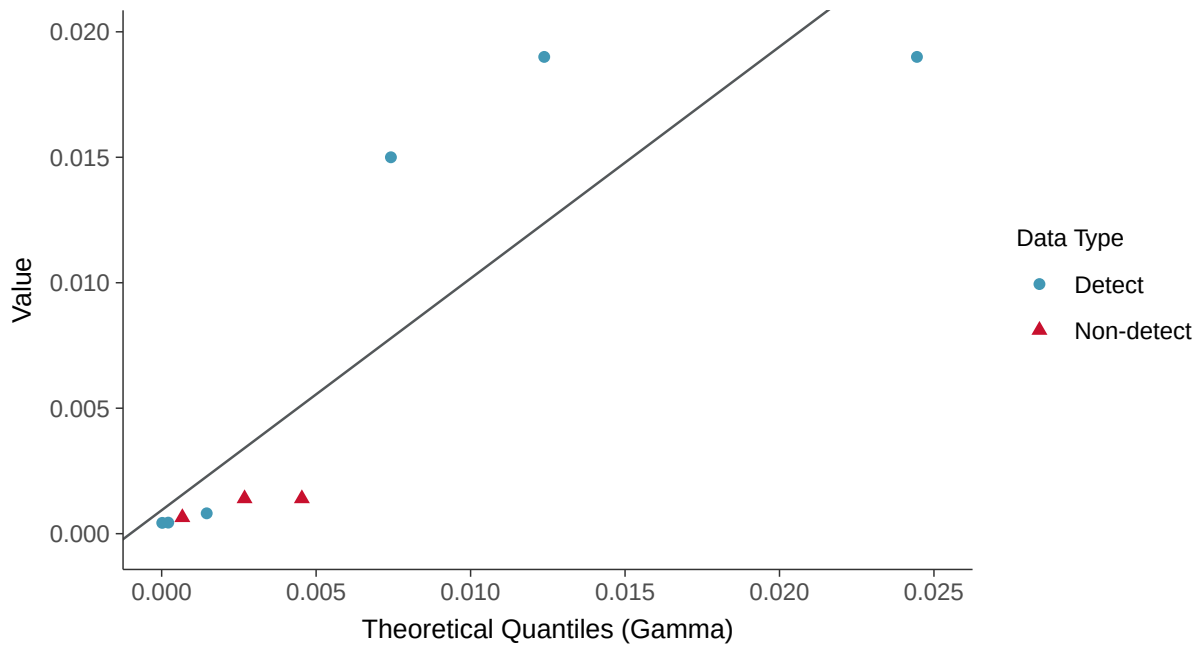
Arsenic, W-11 (mg/l)



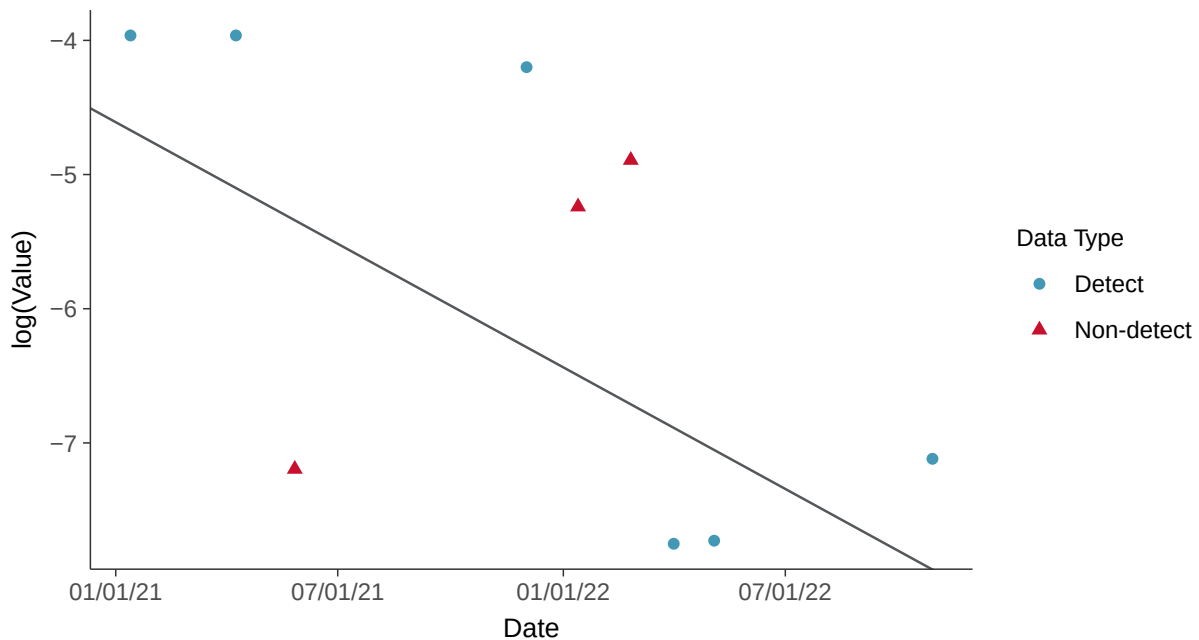
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Gamma Q-Q plot using ROS Imputed Estimates

Arsenic, W-11 (mg/l)

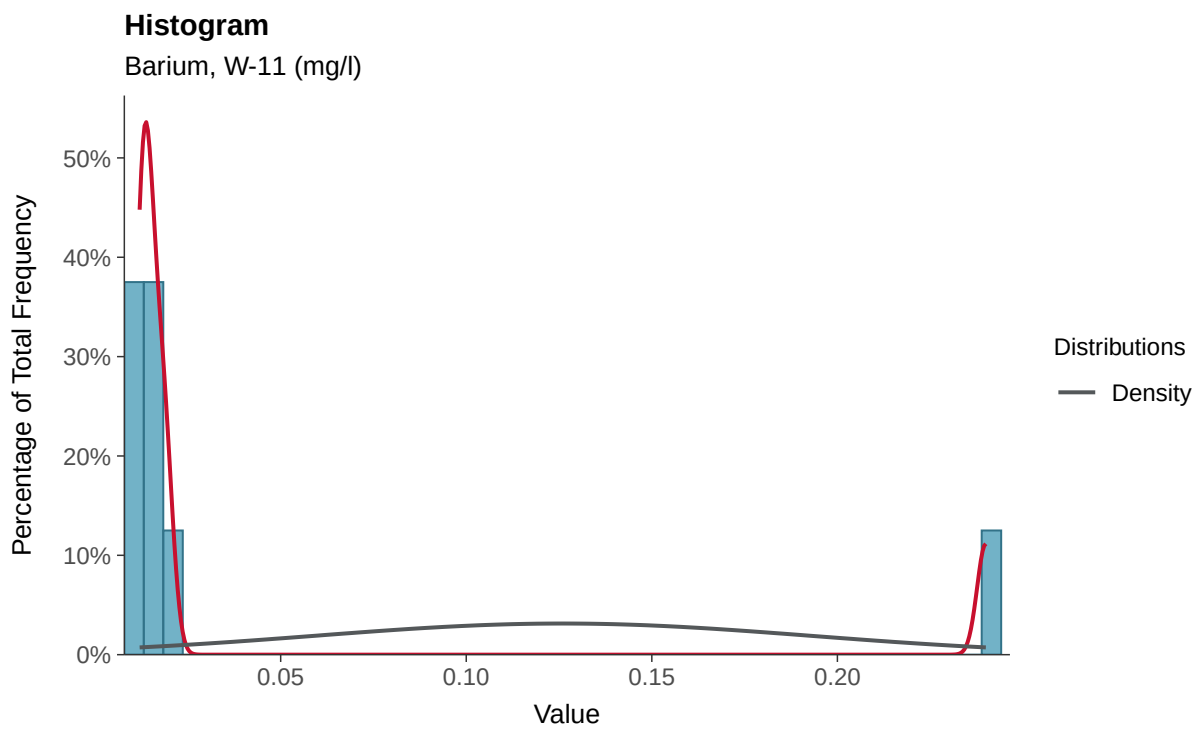
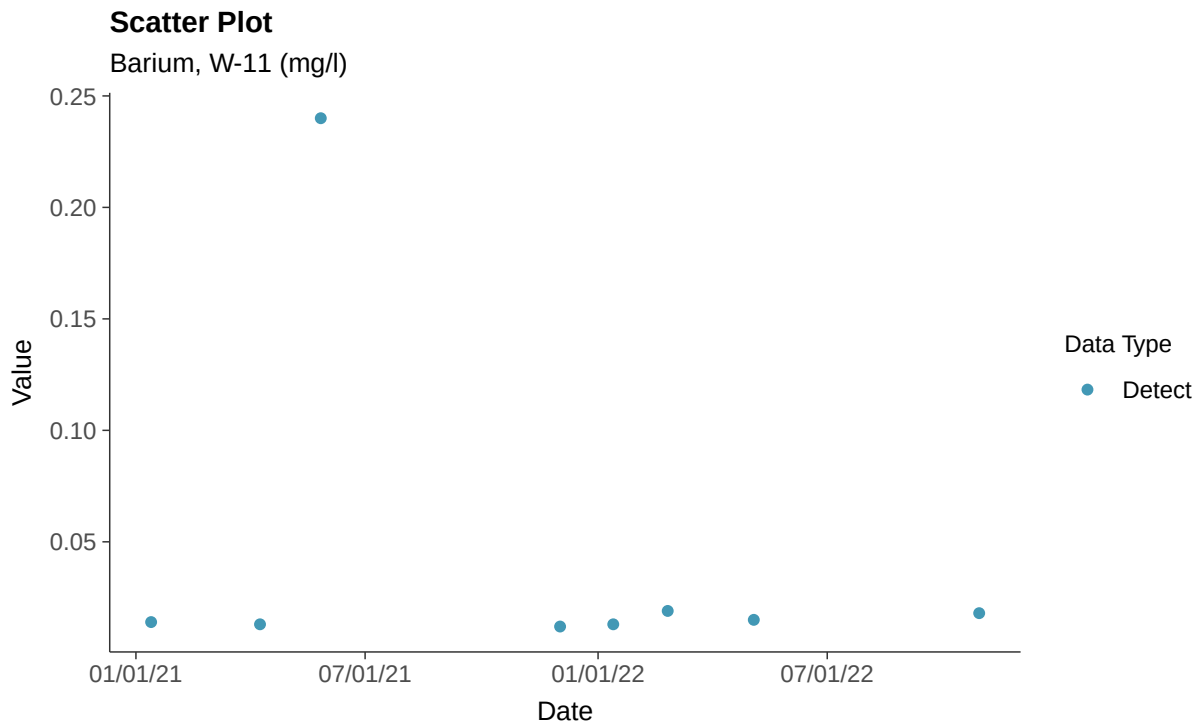
**Trend Regression: Lognormal MLE**

Arsenic, W-11 (mg/l)



Appendix IV: Barium, W-11

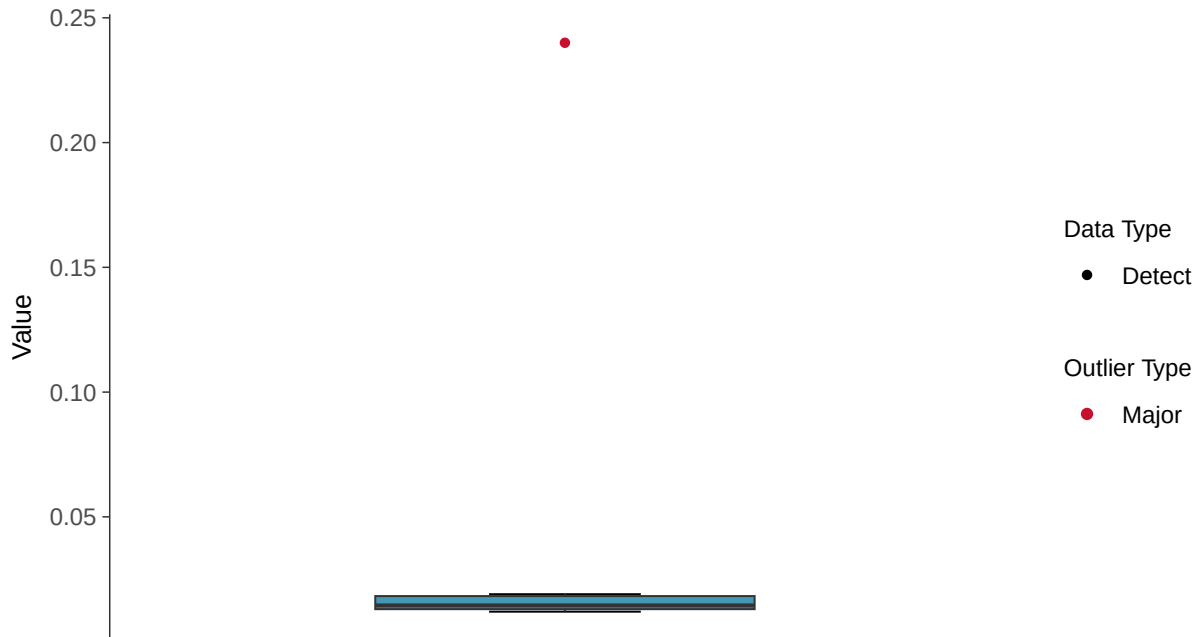
ID: 2_2_103



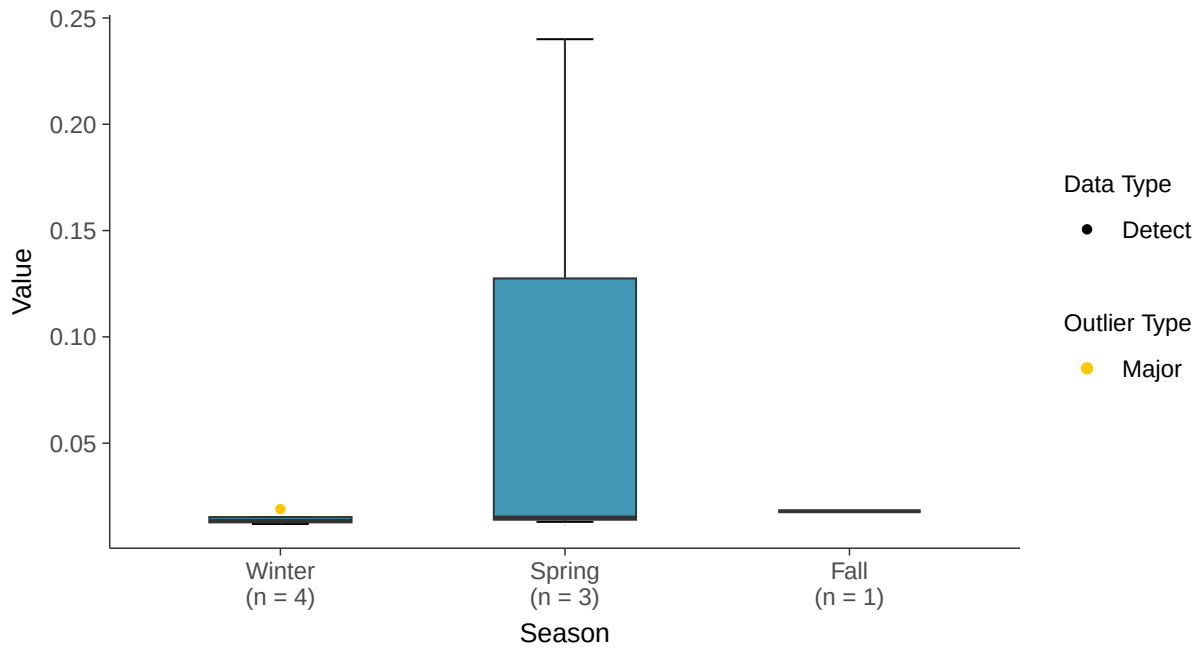
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Barium, W-11 (mg/l)

**Boxplot by Season**

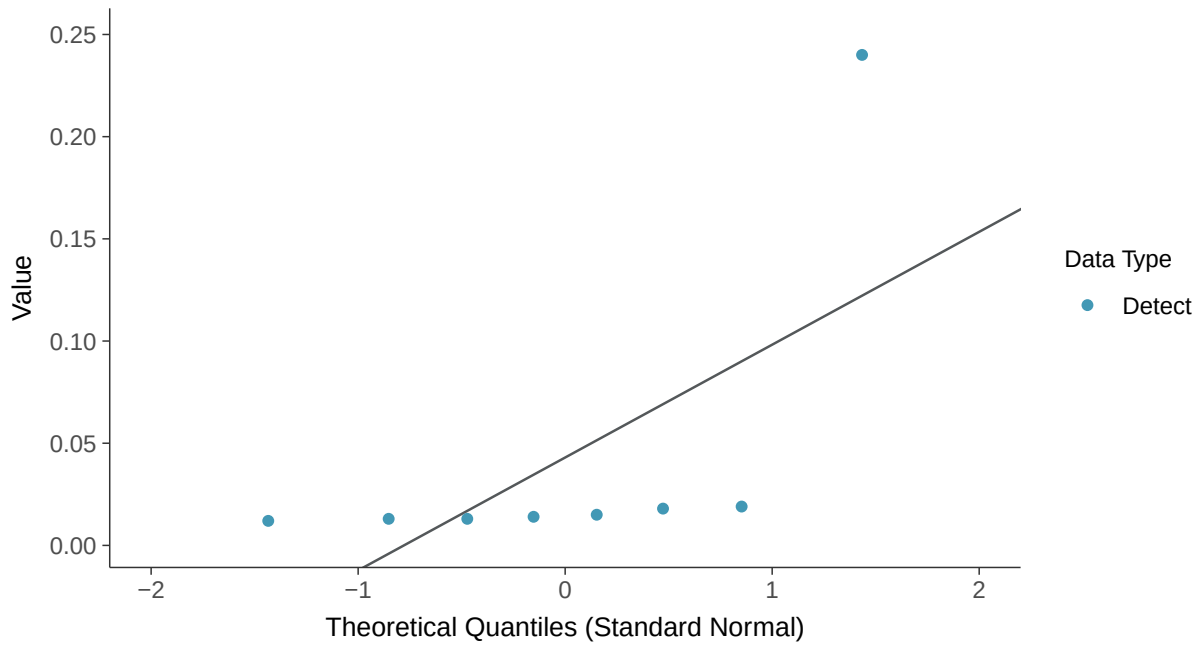
Barium, W-11 (mg/l)



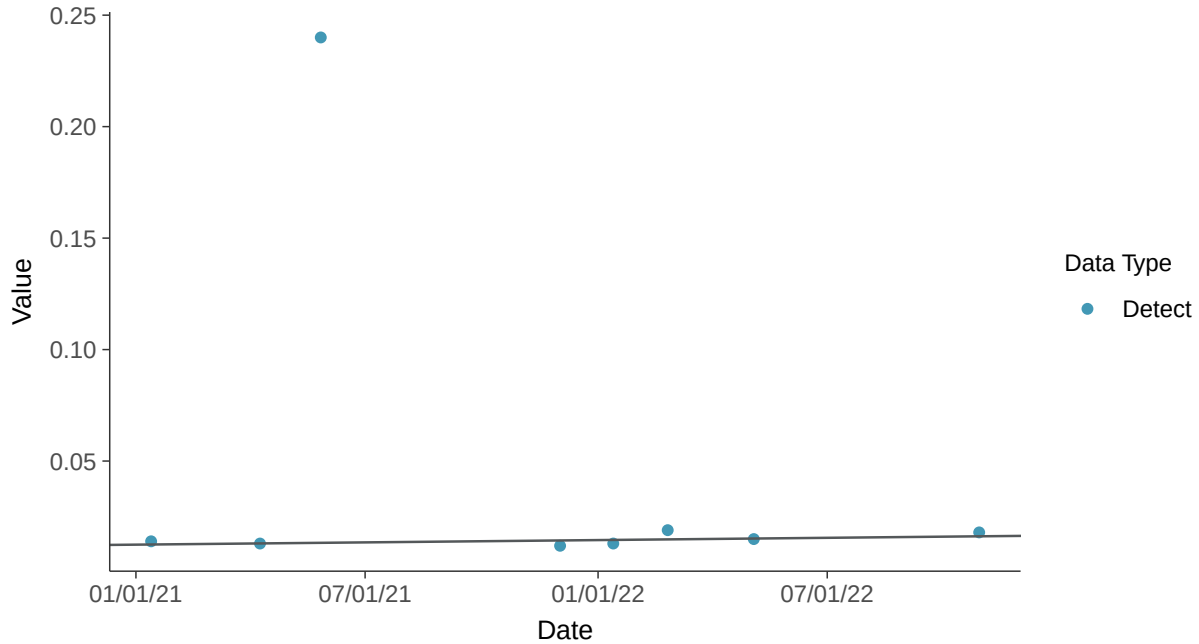
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Normal Q-Q plot

Barium, W-11 (mg/l)

**Trend Regression: Mann-Kendall/Theil-Sen Estimate**

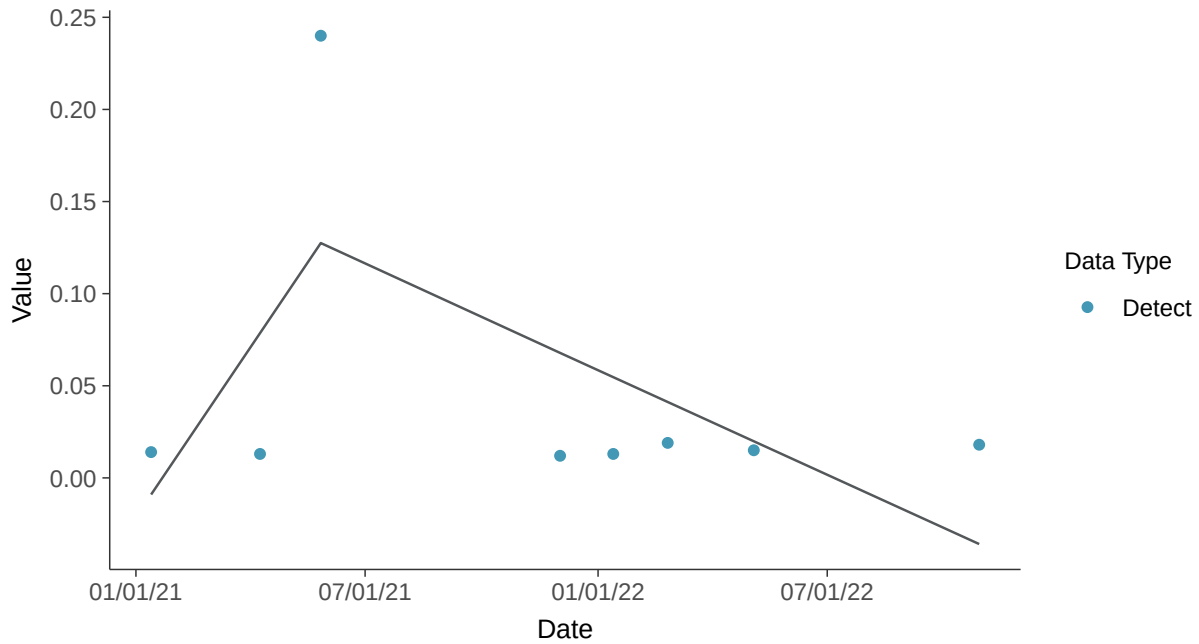
Barium, W-11 (mg/l)





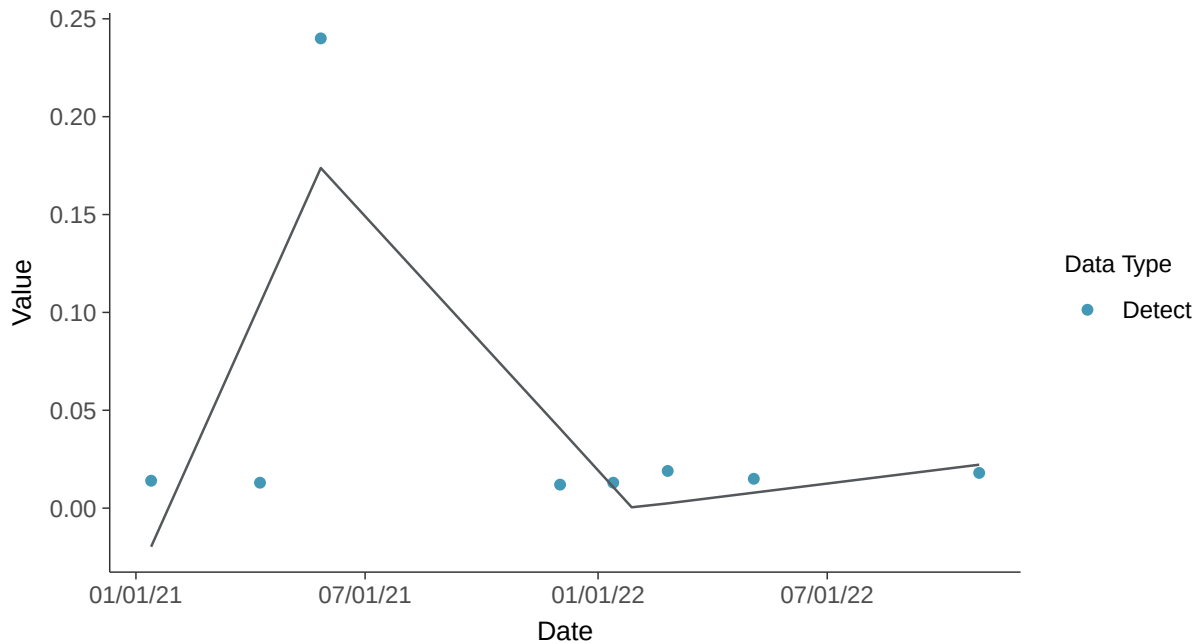
Trend Regression: Piecewise Linear-Linear

Barium, W-11 (mg/l)



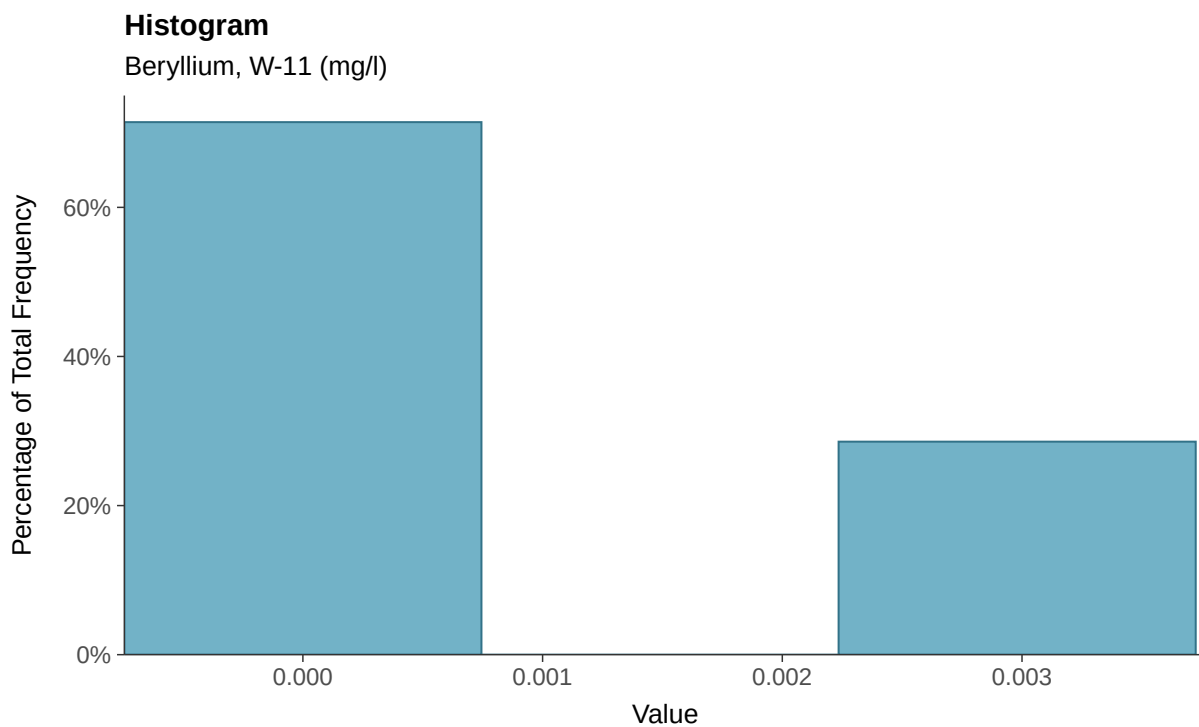
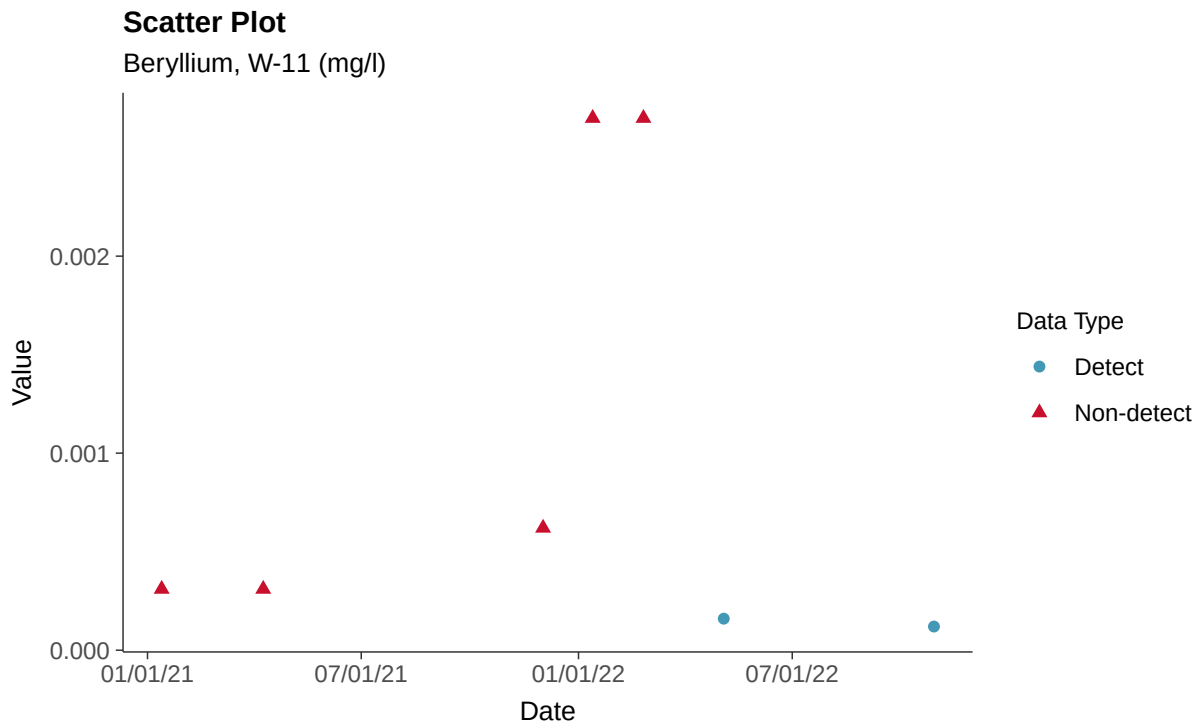
Trend Regression: Piecewise Linear-Linear-Linear

Barium, W-11 (mg/l)



Appendix IV: Beryllium, W-11

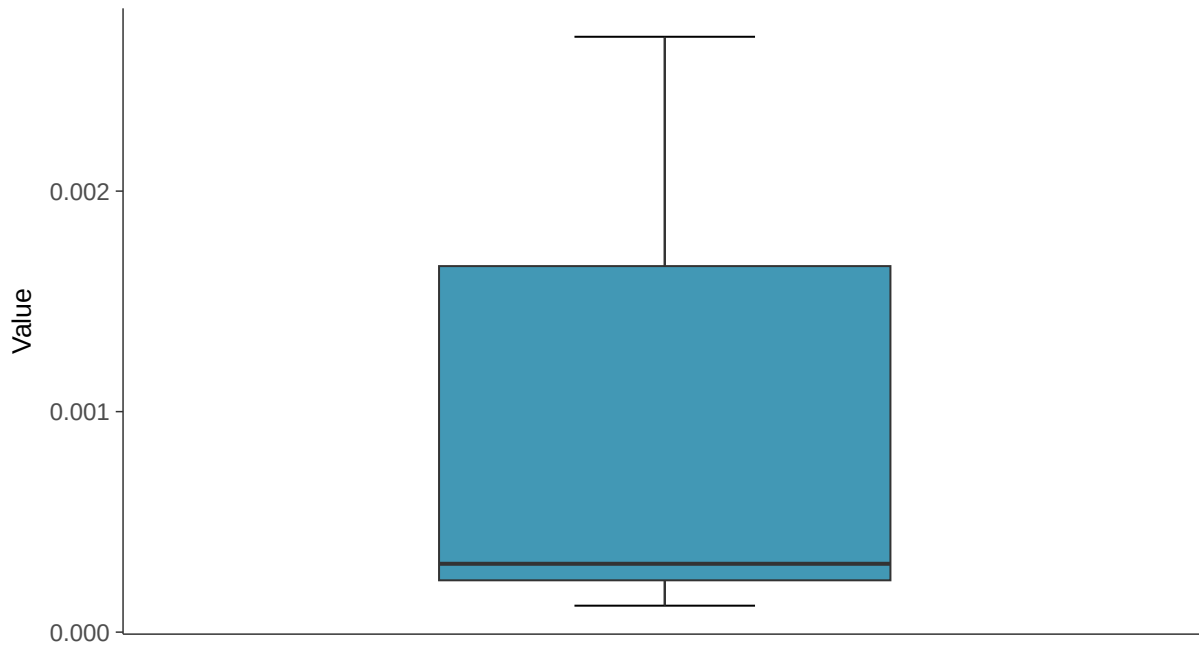
ID: 2_2_104





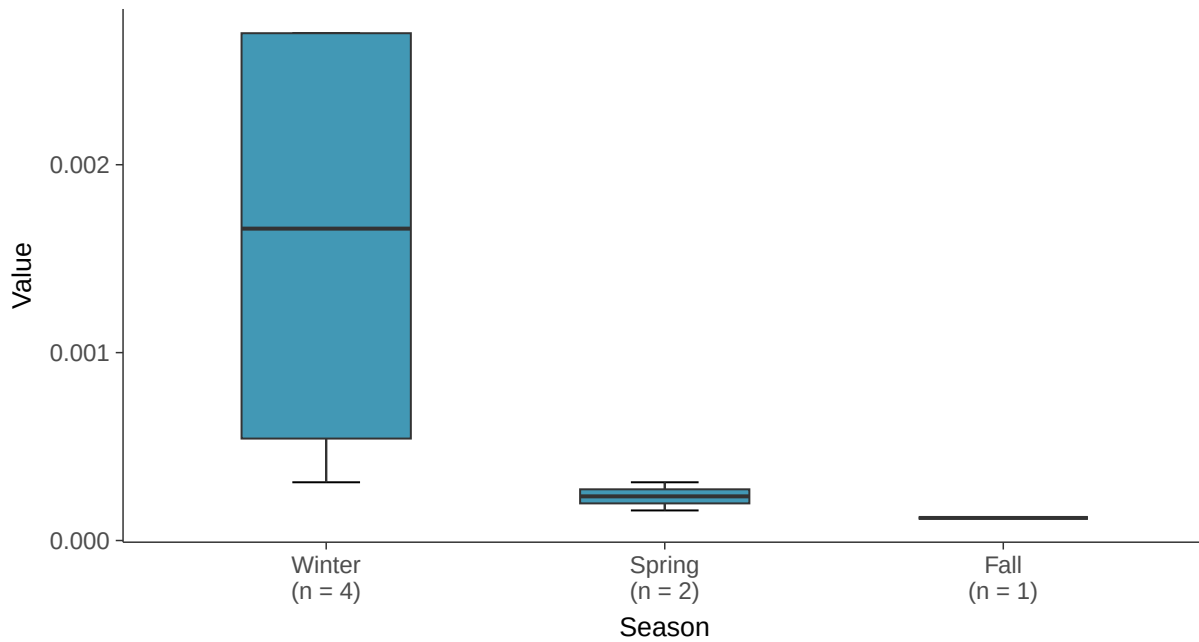
Boxplot

Beryllium, W-11 (mg/l)



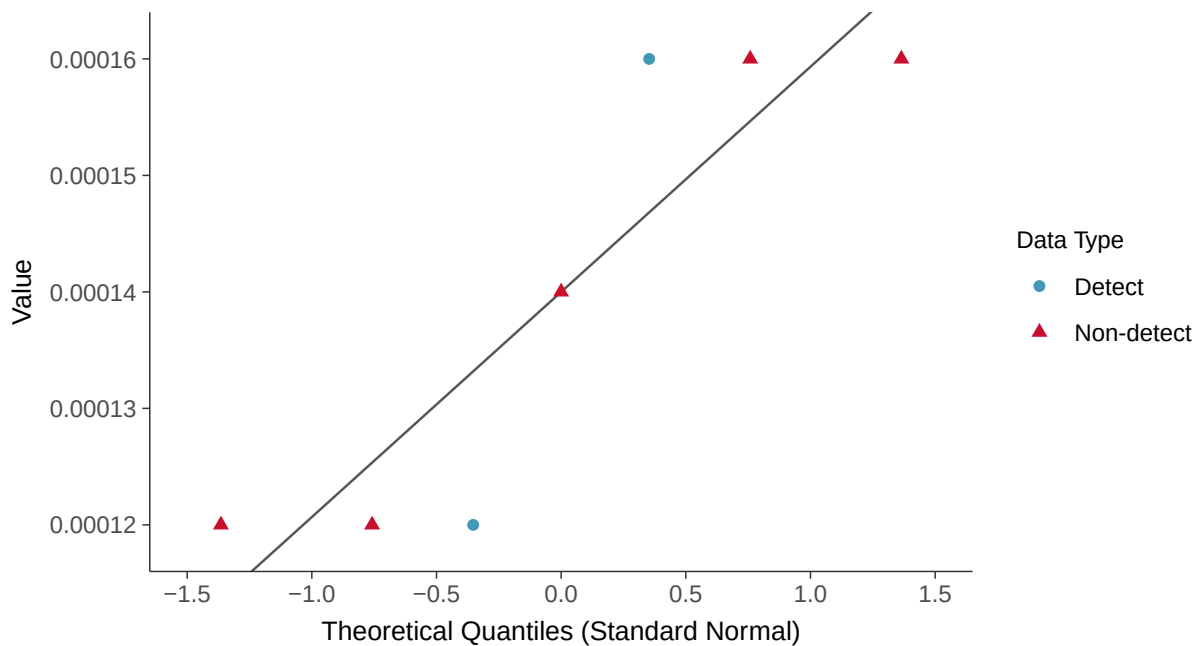
Boxplot by Season

Beryllium, W-11 (mg/l)



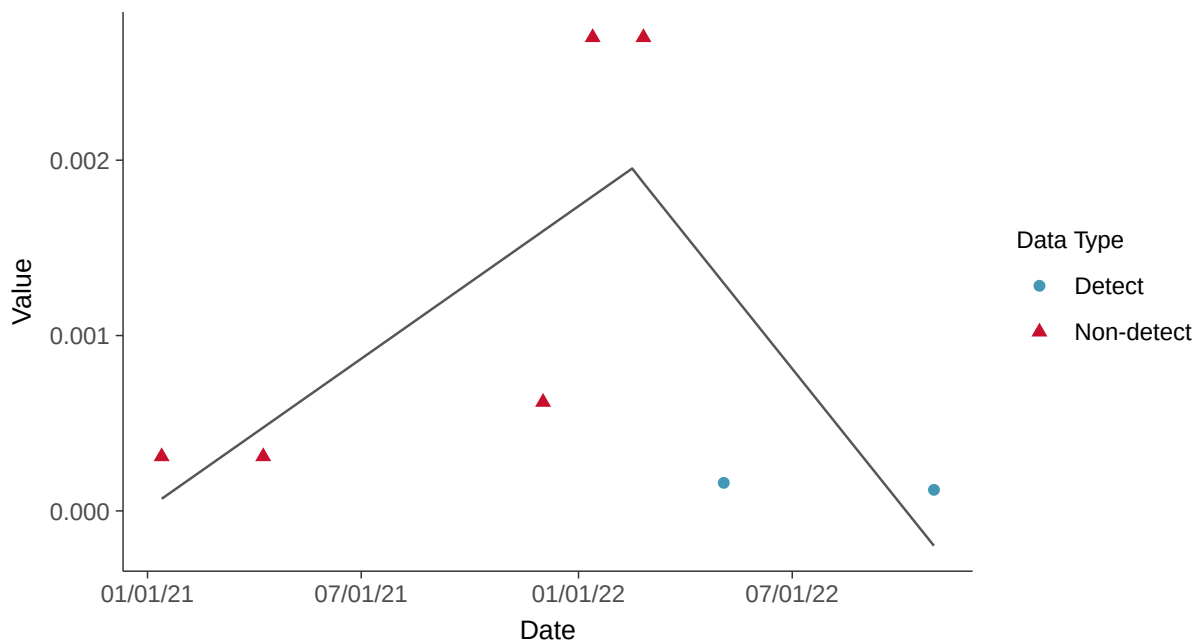
Normal Q-Q plot using ROS Imputed Estimates

Beryllium, W-11 (mg/l)



Trend Regression: Piecewise Linear-Linear

Beryllium, W-11 (mg/l)

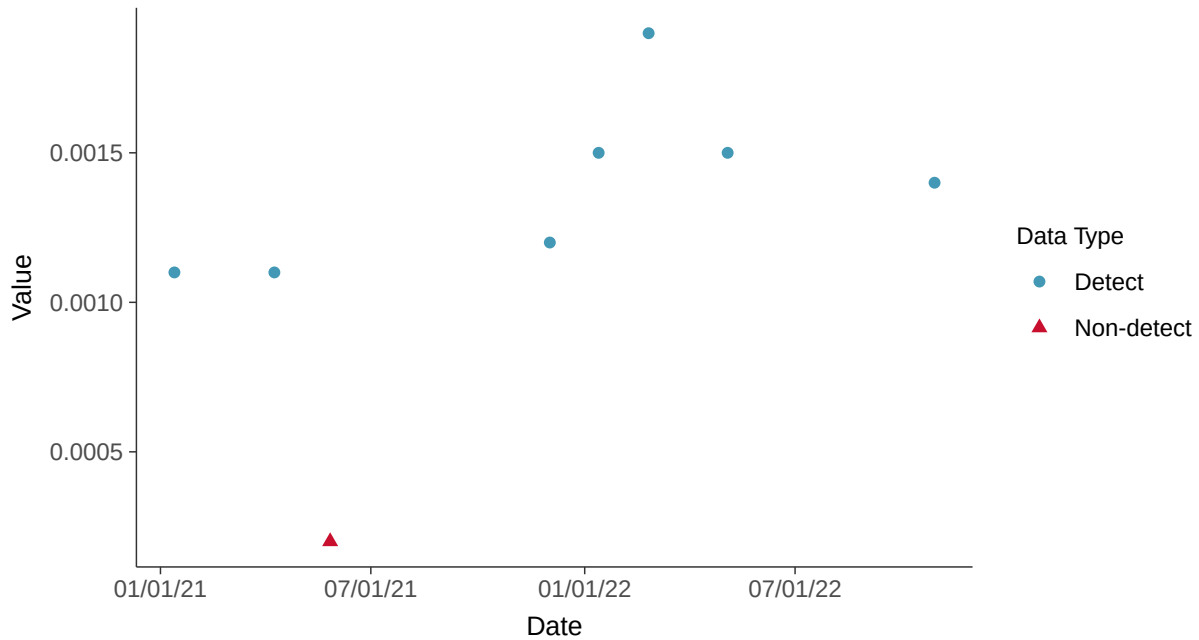


Appendix IV: Cadmium, W-11

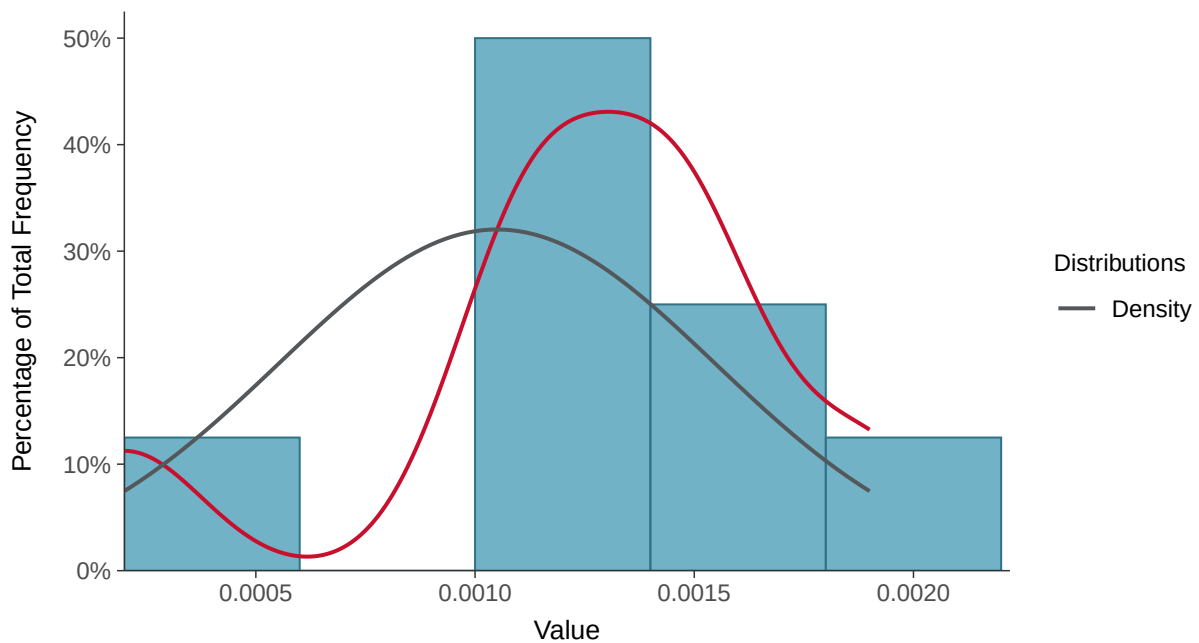
ID: 2_2_106

Scatter Plot

Cadmium, W-11 (mg/l)

**Histogram**

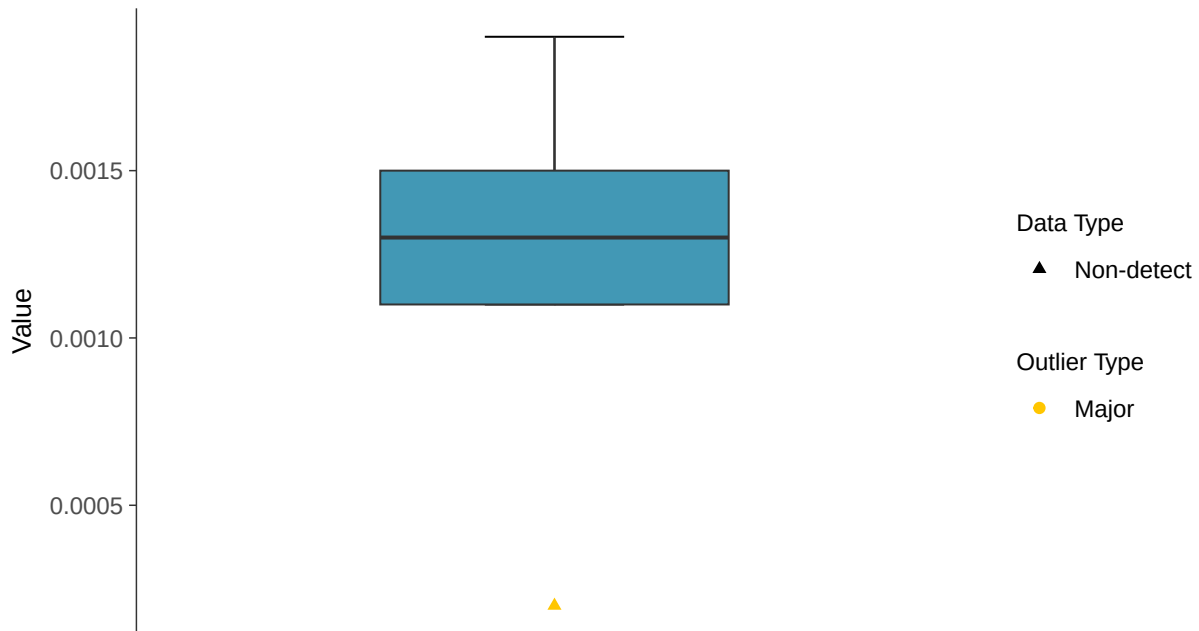
Cadmium, W-11 (mg/l)





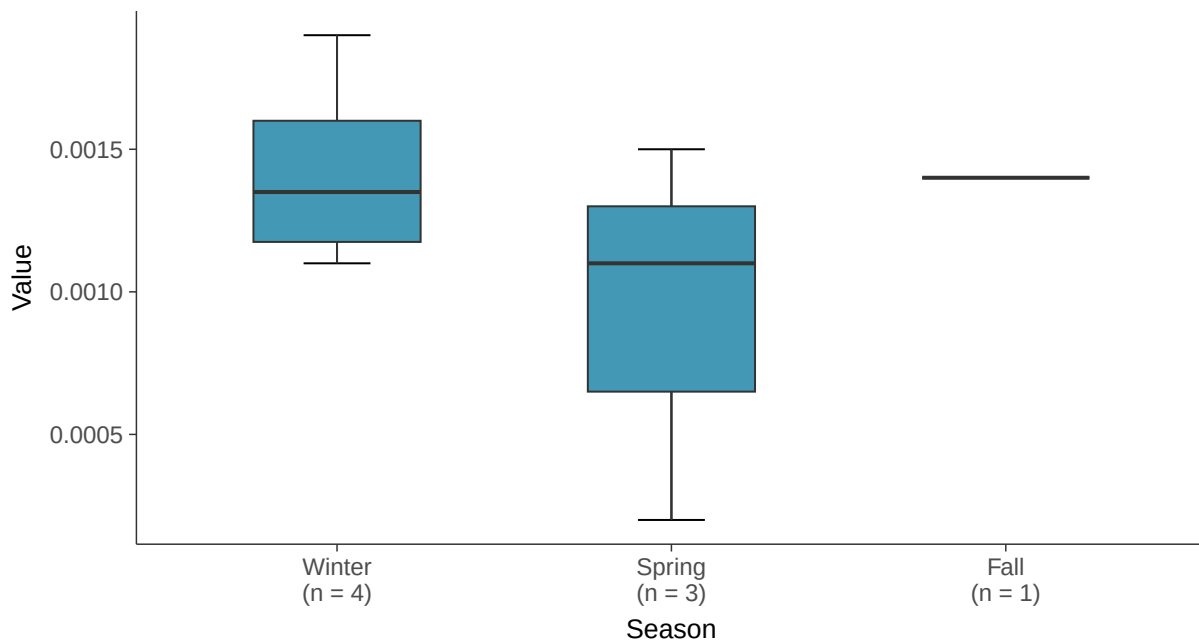
Boxplot

Cadmium, W-11 (mg/l)



Boxplot by Season

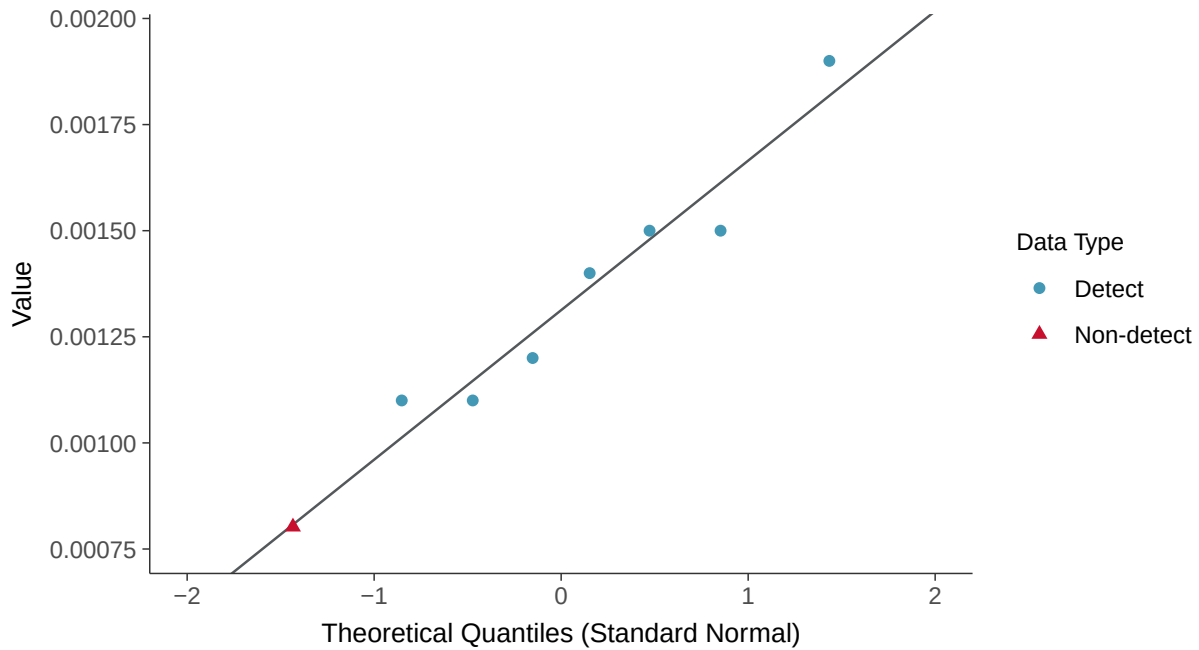
Cadmium, W-11 (mg/l)



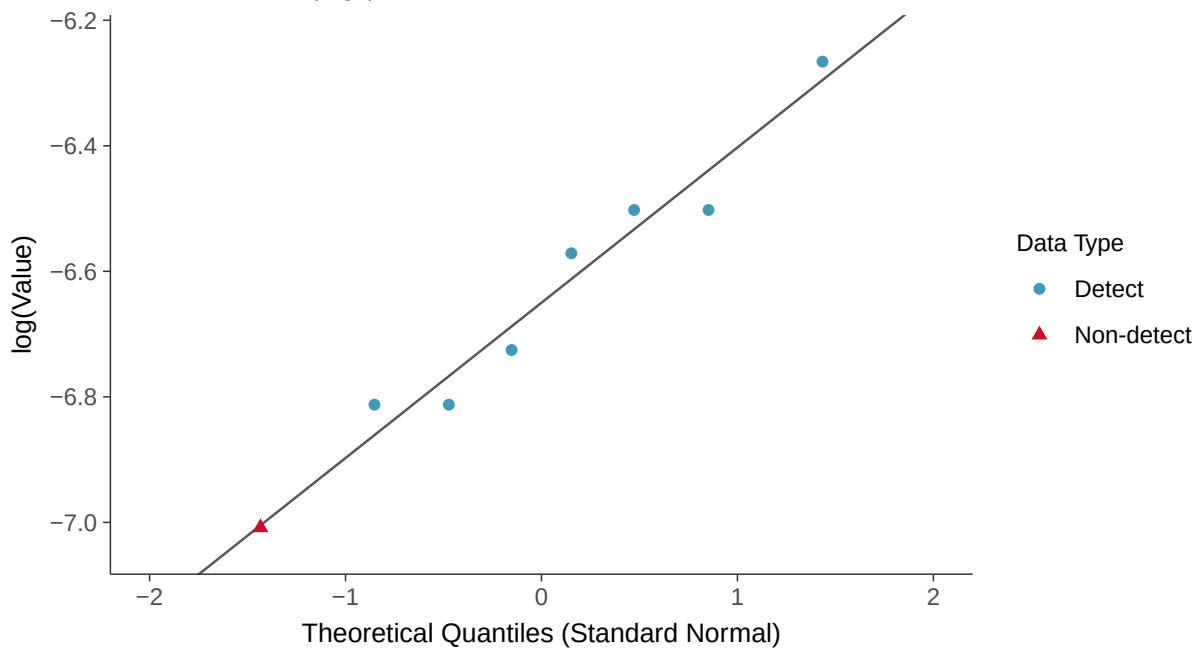
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Normal Q-Q plot using ROS Imputed Estimates

Cadmium, W-11 (mg/l)

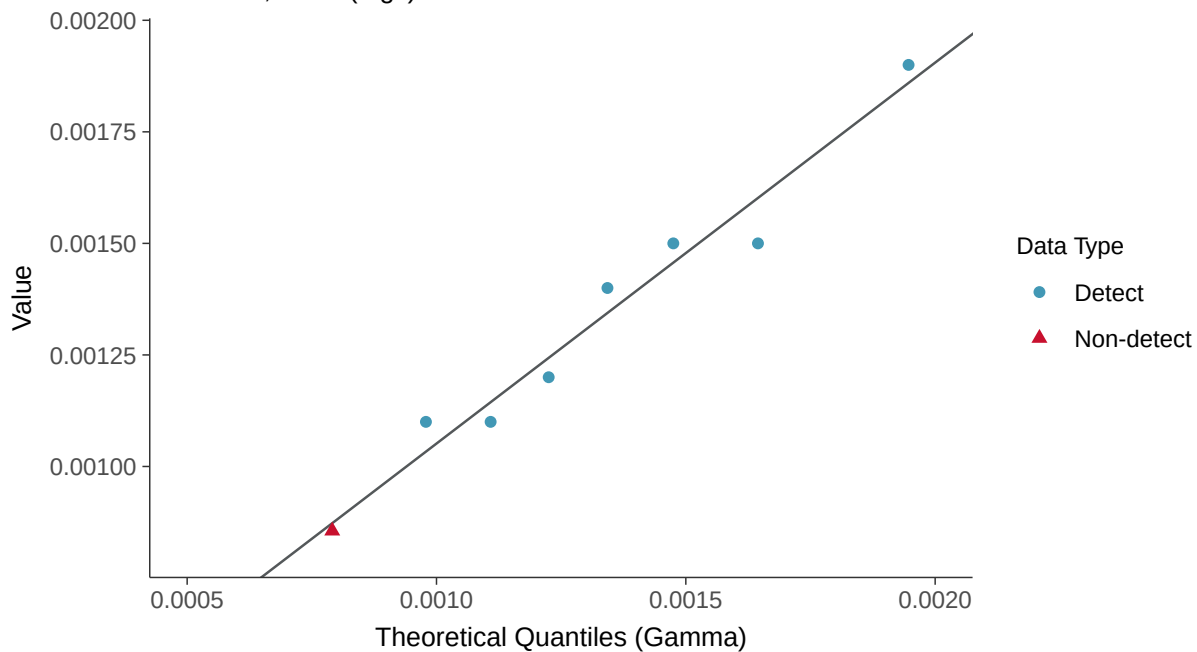
**Lognormal Q-Q plot using ROS Imputed Estimates**

Cadmium, W-11 (mg/l)



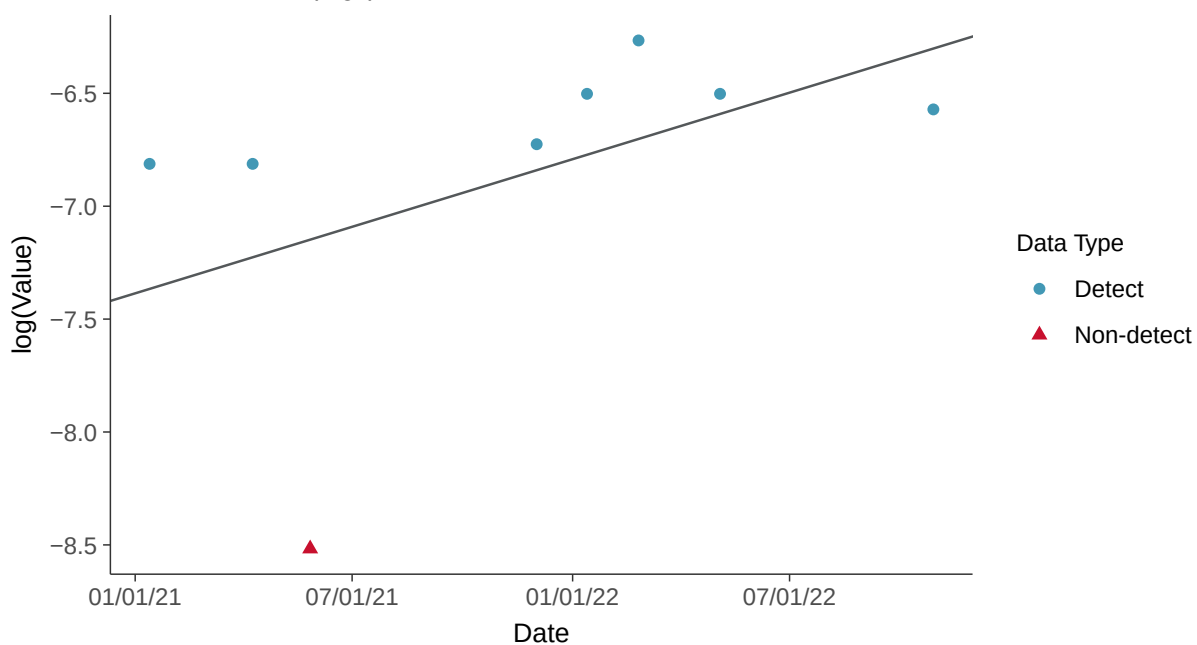
Gamma Q-Q plot using ROS Imputed Estimates

Cadmium, W-11 (mg/l)



Trend Regression: Lognormal MLE

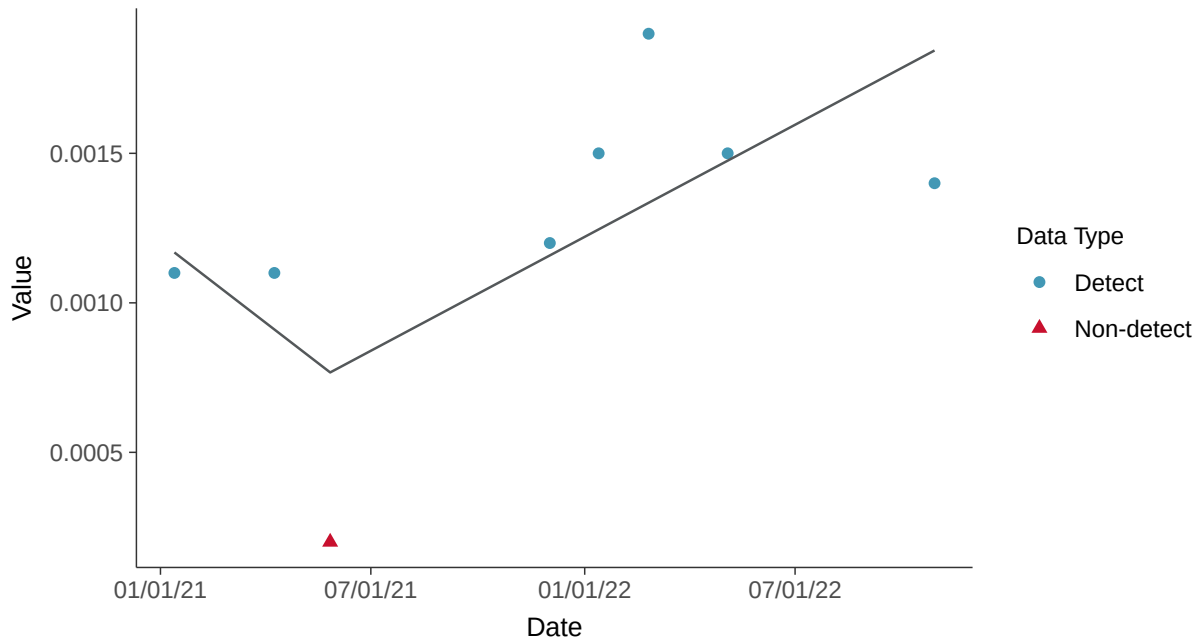
Cadmium, W-11 (mg/l)





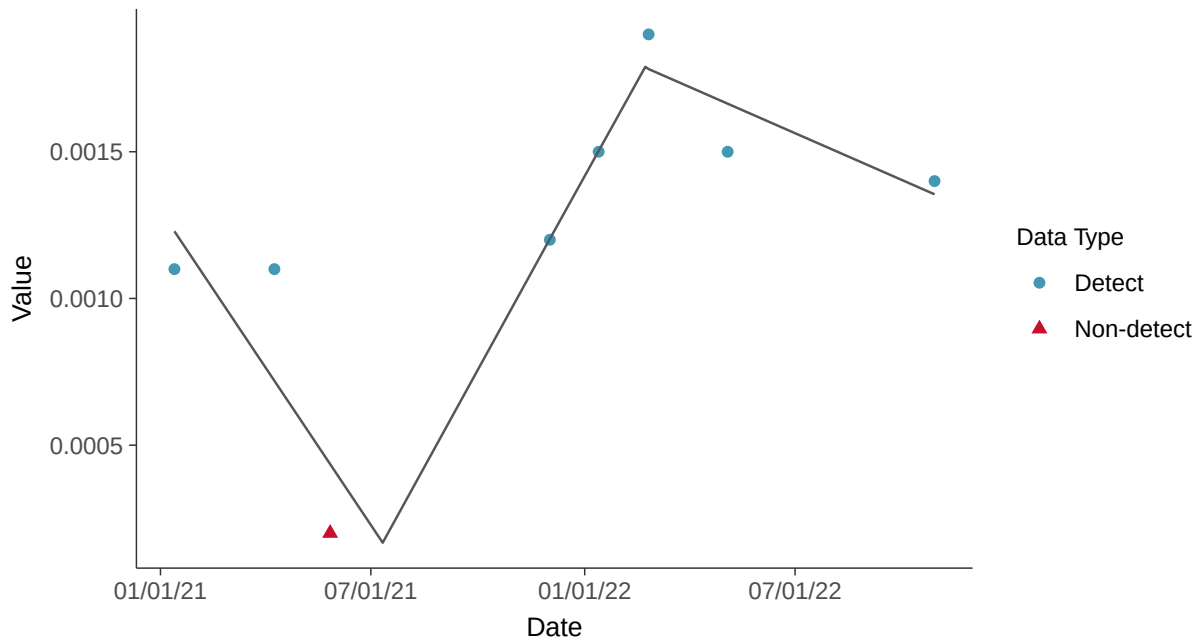
Trend Regression: Piecewise Linear-Linear

Cadmium, W-11 (mg/l)



Trend Regression: Piecewise Linear-Linear-Linear

Cadmium, W-11 (mg/l)

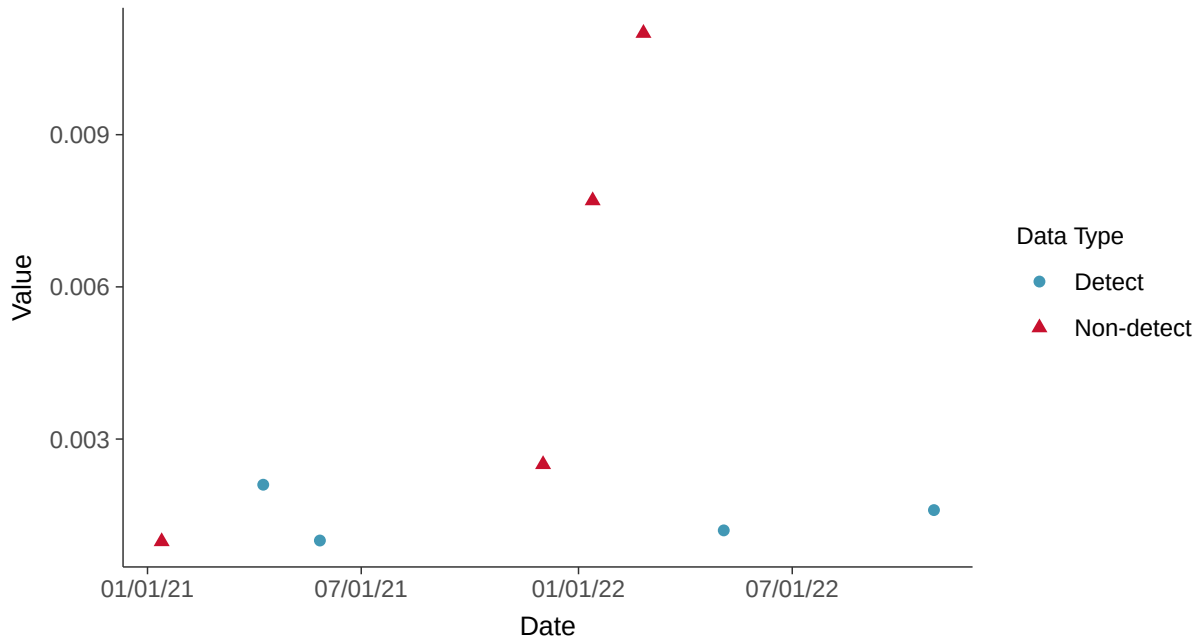


Appendix IV: Chromium, Total, W-11

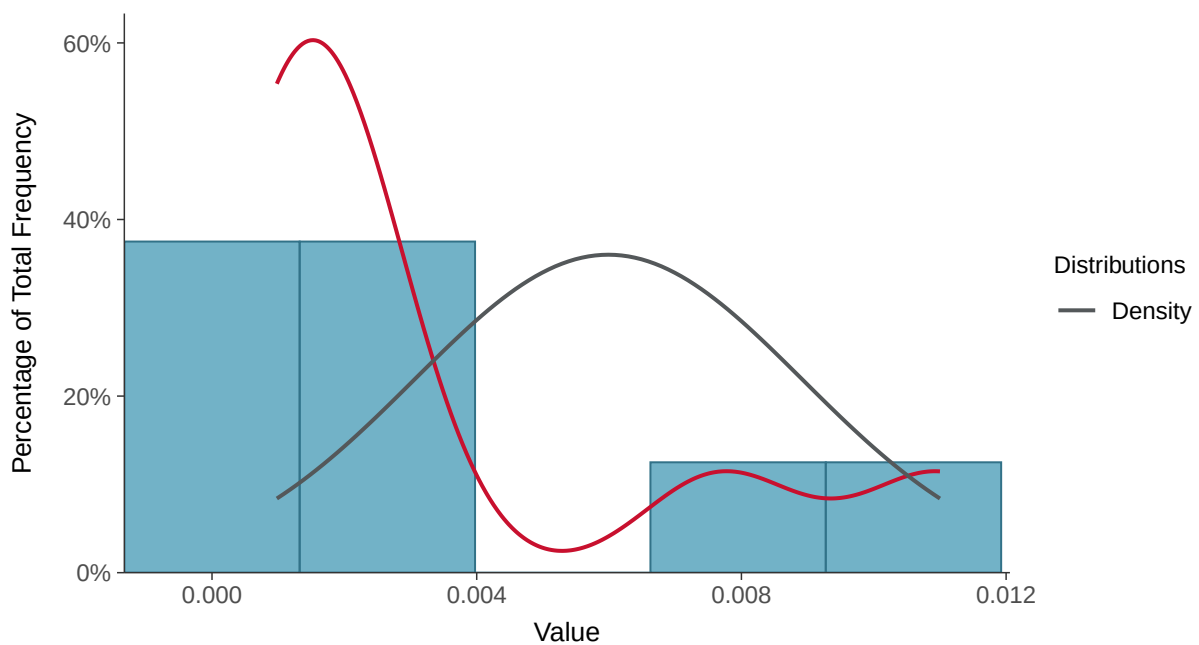
ID: 2_2_109

Scatter Plot

Chromium, Total, W-11 (mg/l)

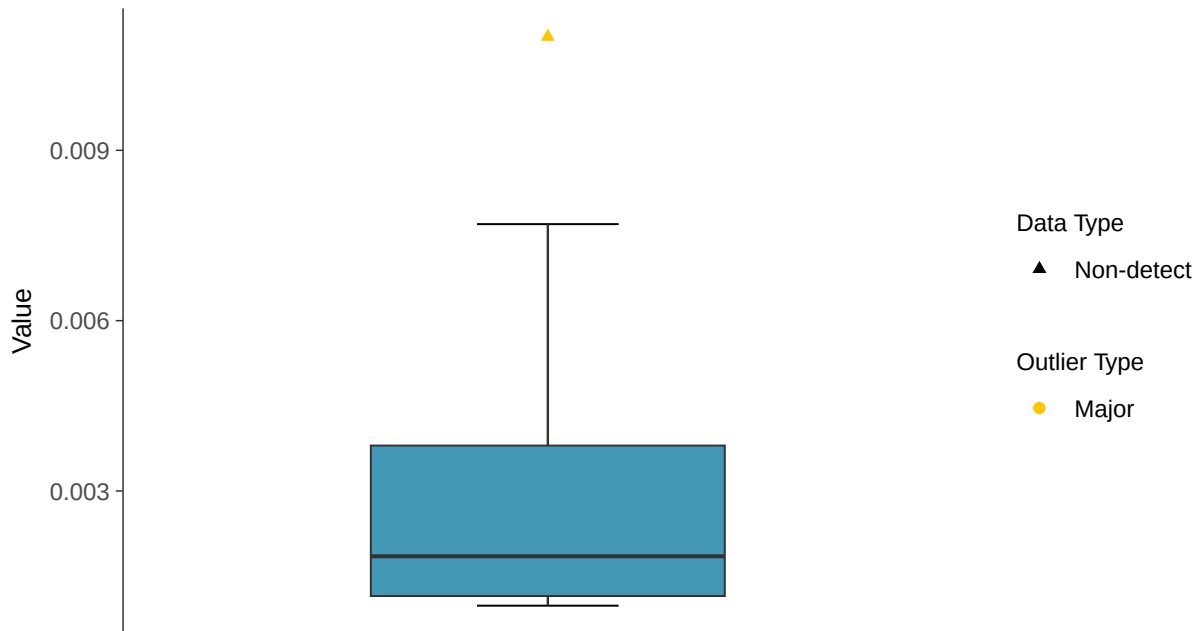
**Histogram**

Chromium, Total, W-11 (mg/l)



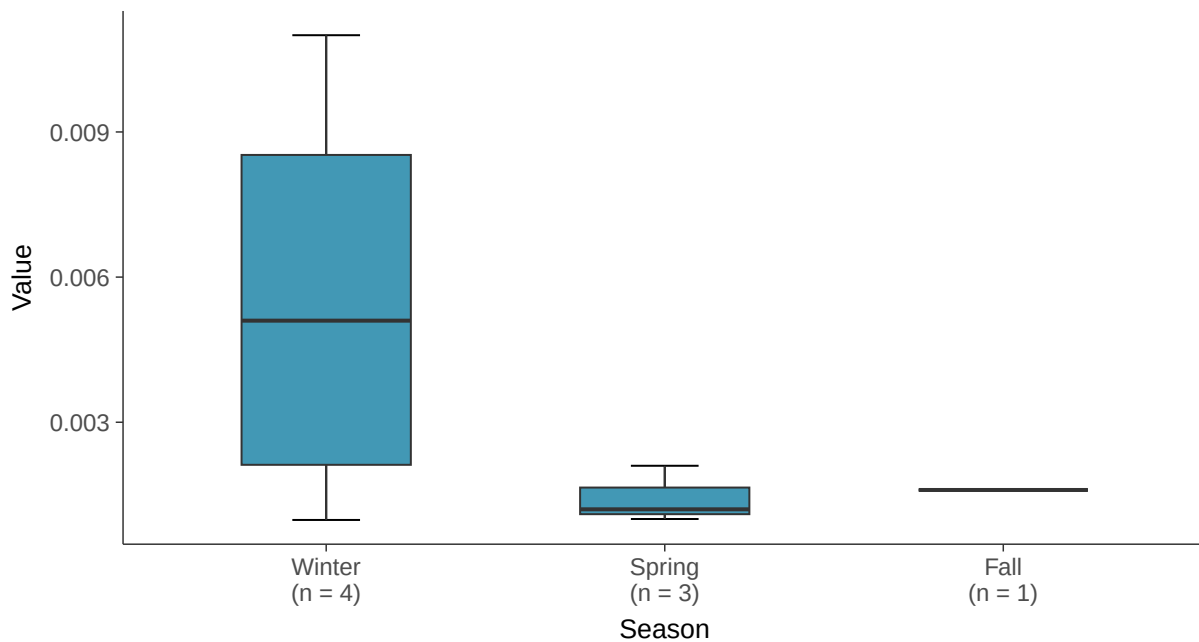
Boxplot

Chromium, Total, W-11 (mg/l)



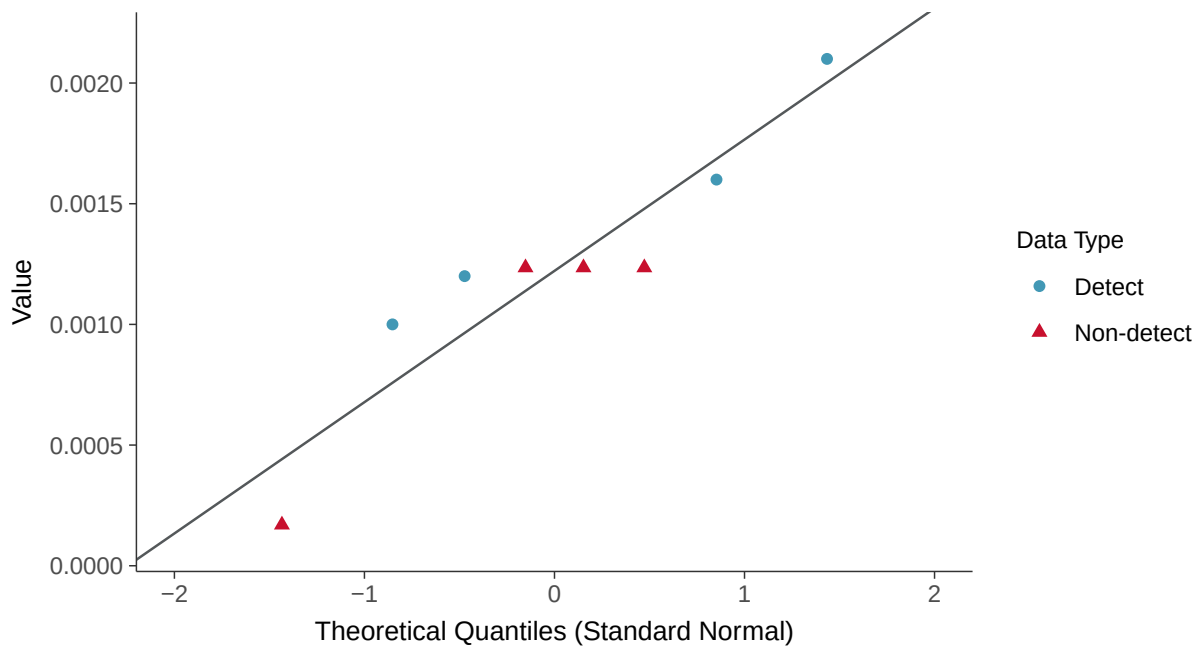
Boxplot by Season

Chromium, Total, W-11 (mg/l)



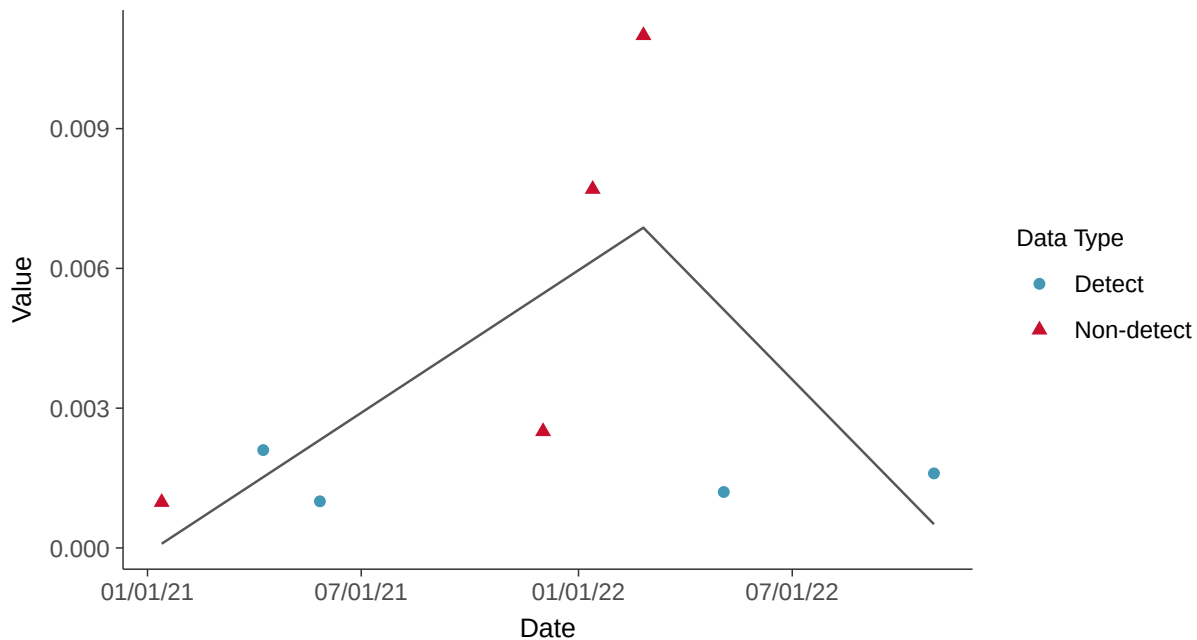
Normal Q-Q plot using ROS Imputed Estimates

Chromium, Total, W-11 (mg/l)



Trend Regression: Piecewise Linear-Linear

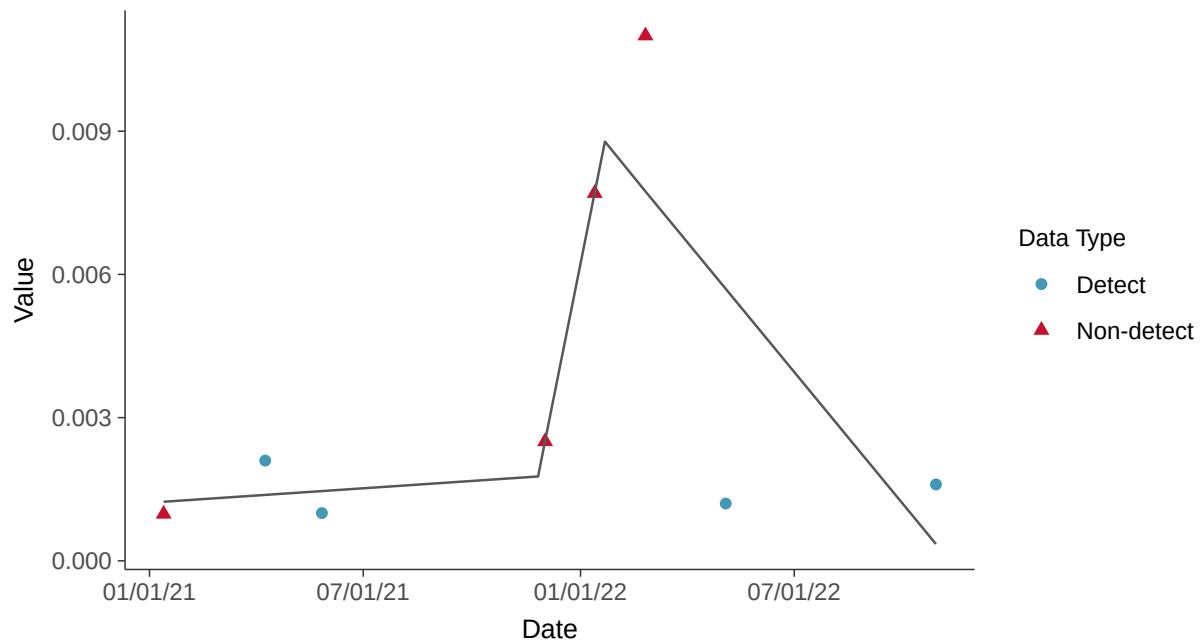
Chromium, Total, W-11 (mg/l)





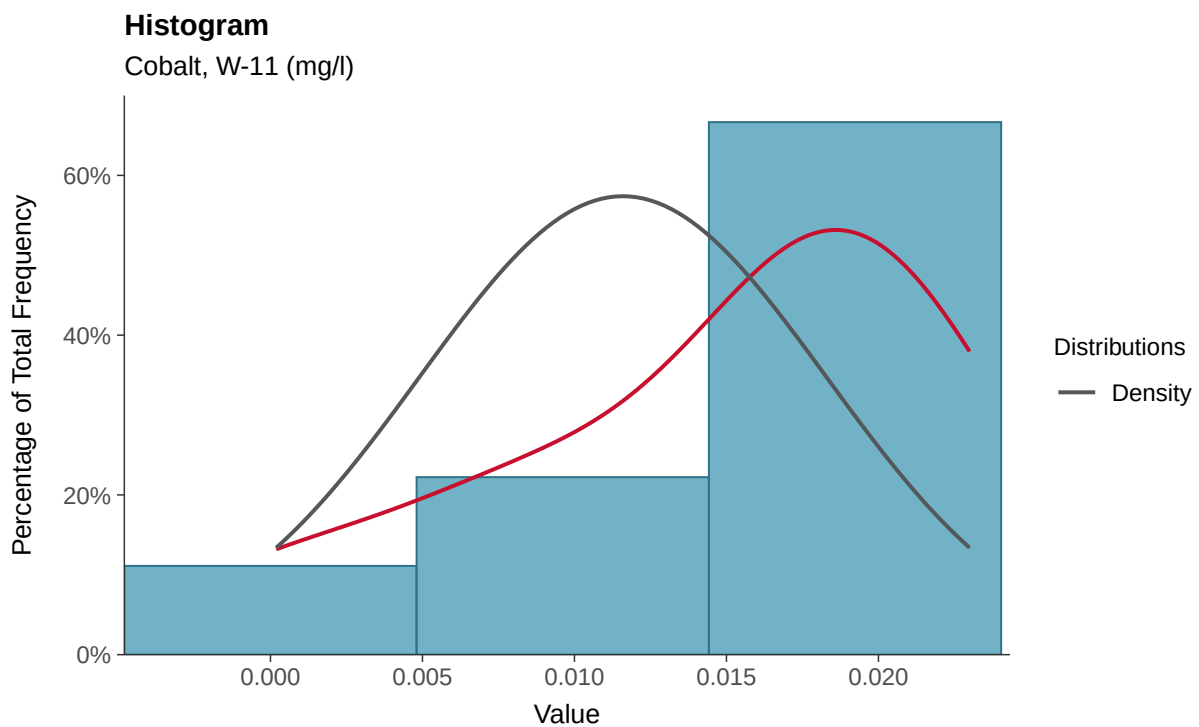
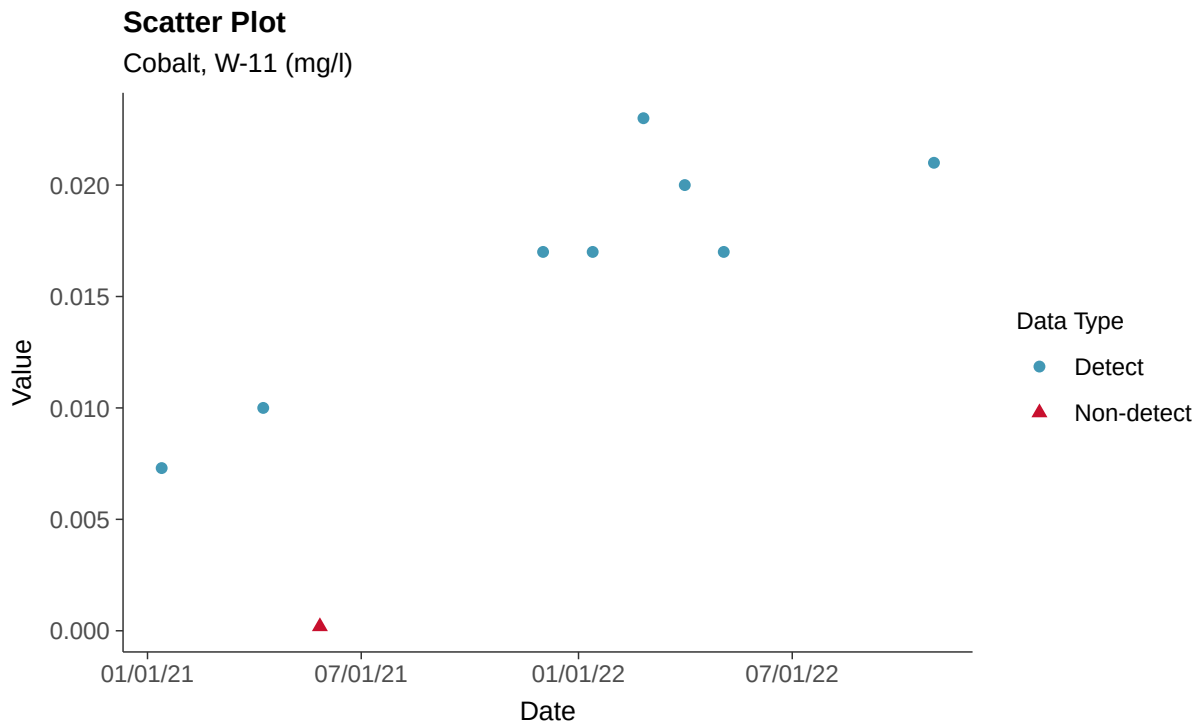
Trend Regression: Piecewise Linear-Linear-Linear

Chromium, Total, W-11 (mg/l)



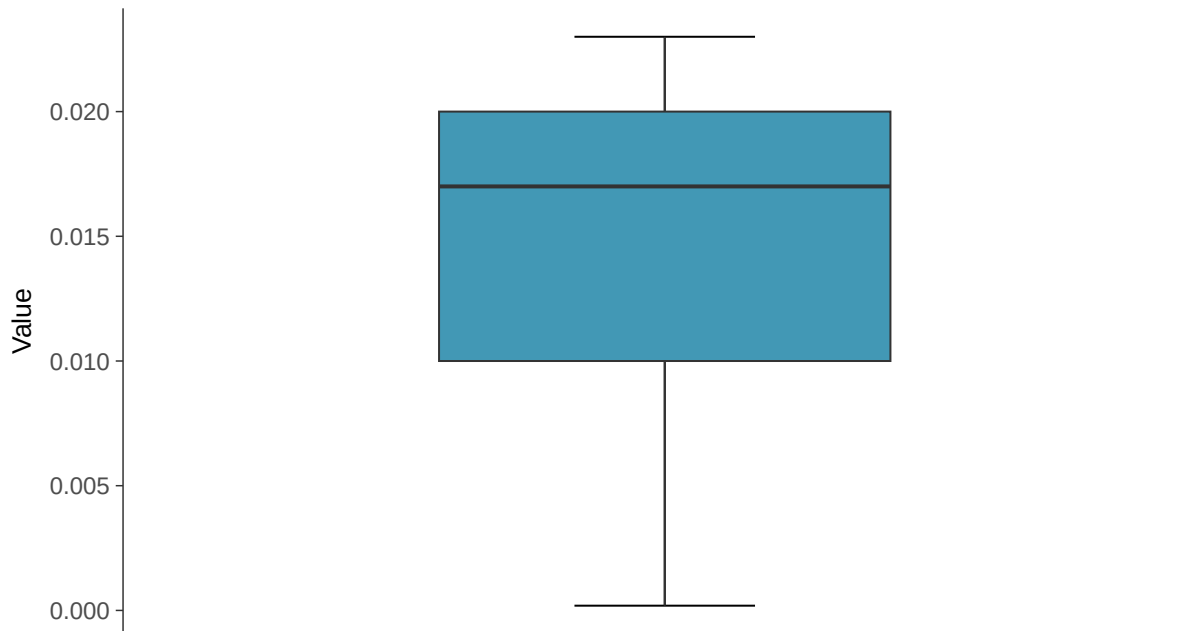
Appendix IV: Cobalt, W-11

ID: 2_2_110



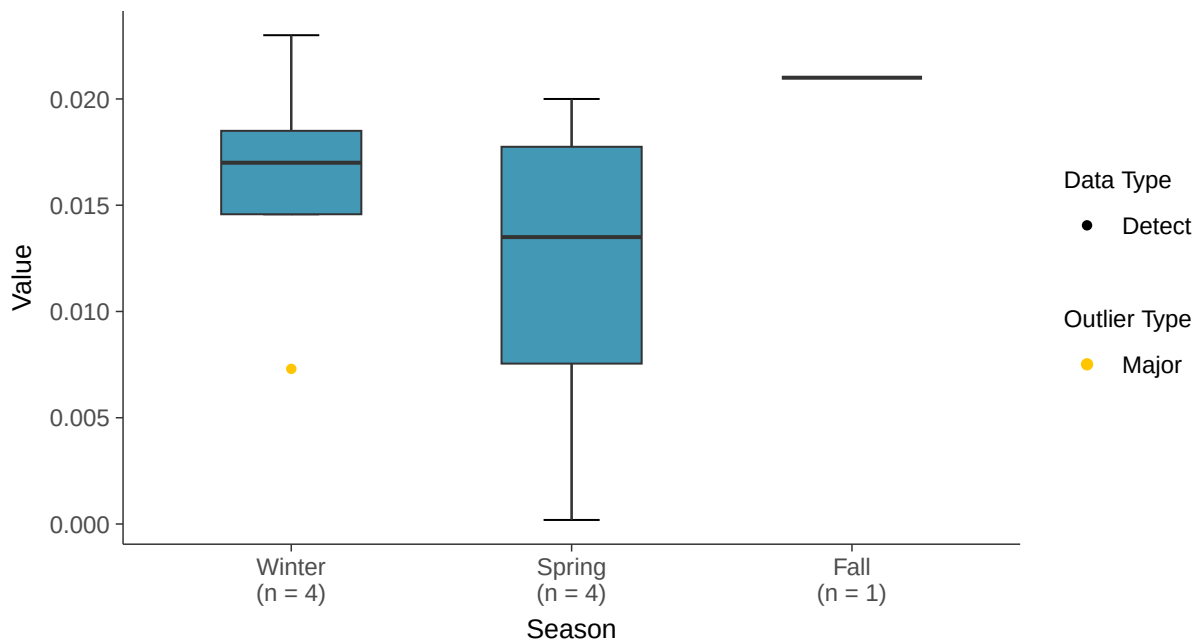
Boxplot

Cobalt, W-11 (mg/l)



Boxplot by Season

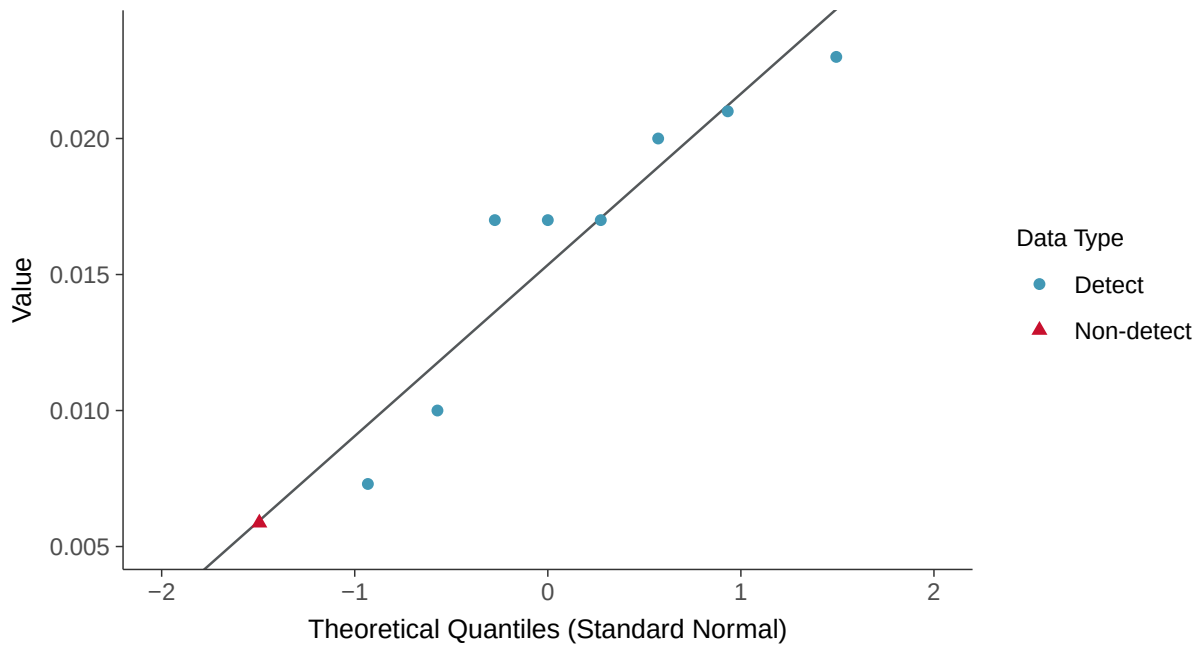
Cobalt, W-11 (mg/l)



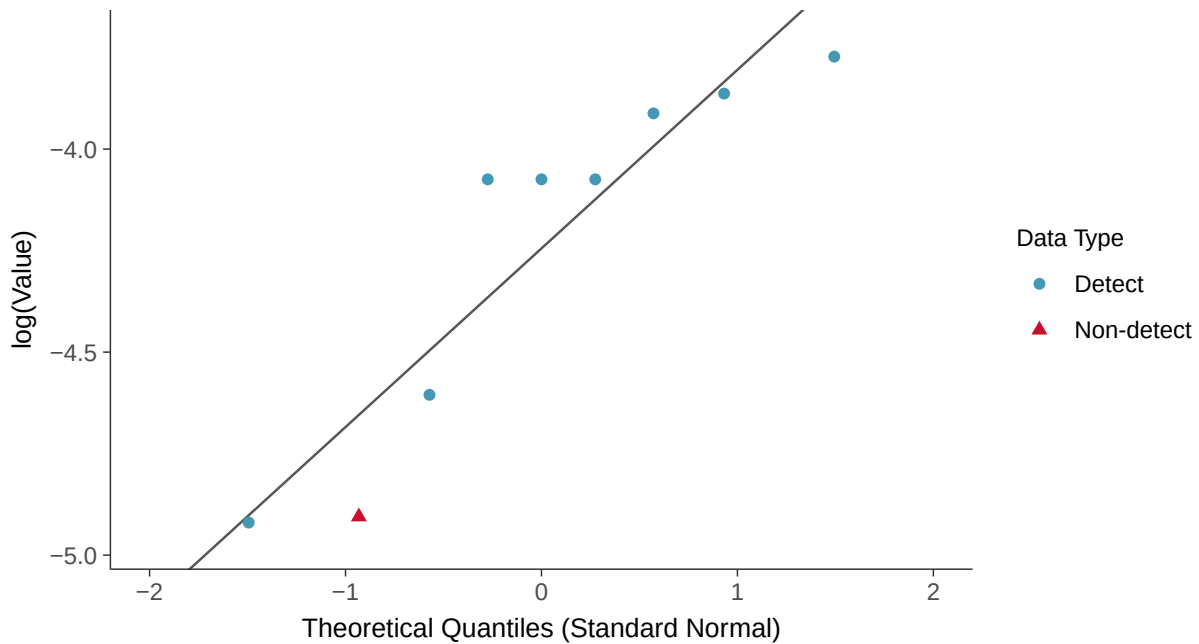
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Normal Q-Q plot using ROS Imputed Estimates

Cobalt, W-11 (mg/l)

**Lognormal Q-Q plot using ROS Imputed Estimates**

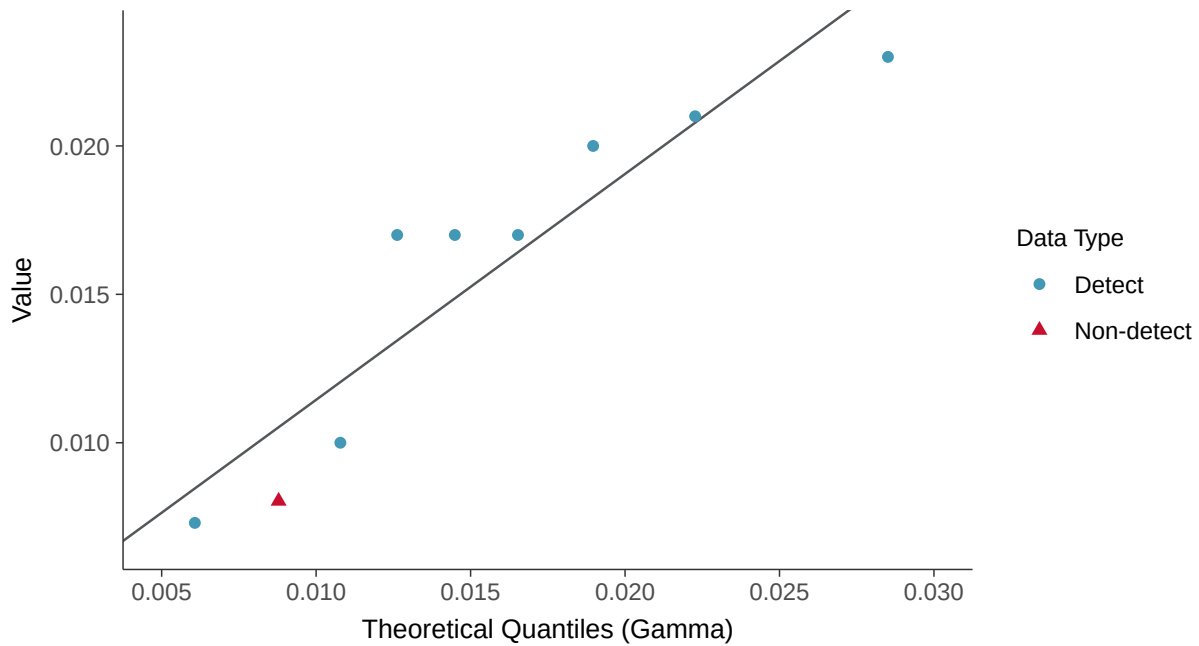
Cobalt, W-11 (mg/l)



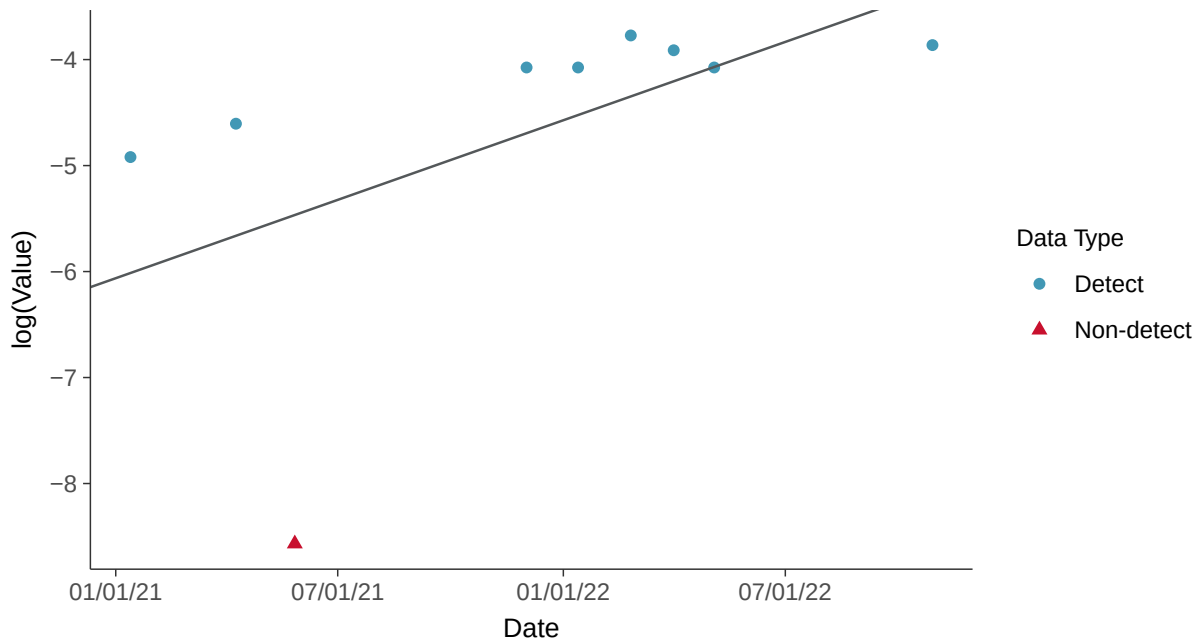
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Gamma Q-Q plot using ROS Imputed Estimates

Cobalt, W-11 (mg/l)

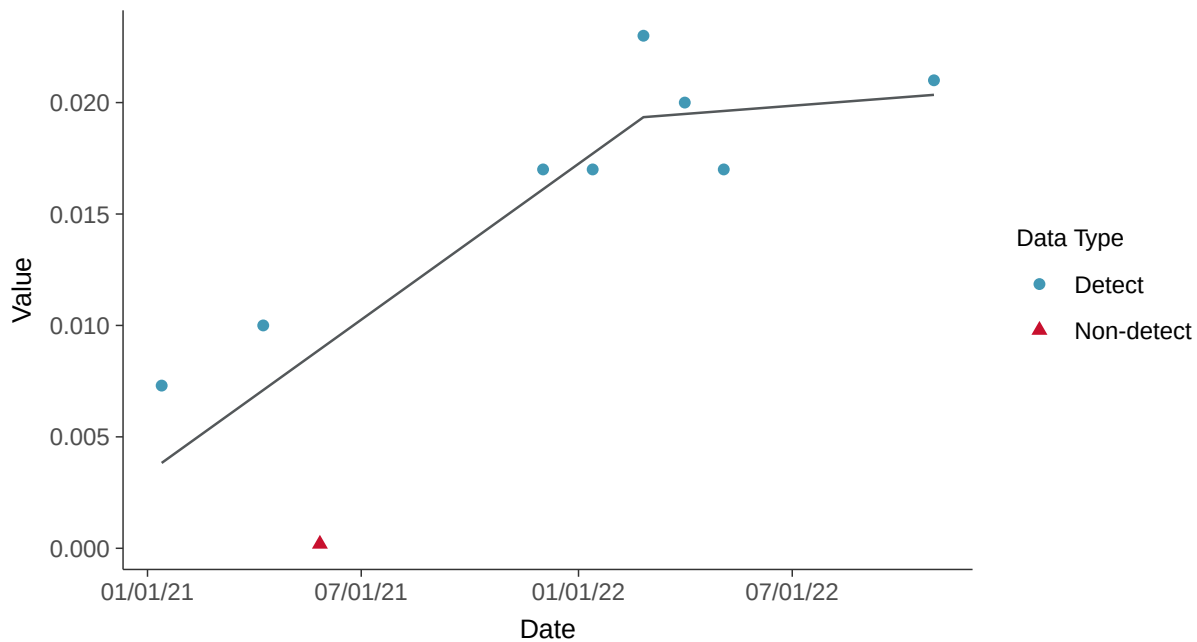
**Trend Regression: Lognormal MLE**

Cobalt, W-11 (mg/l)



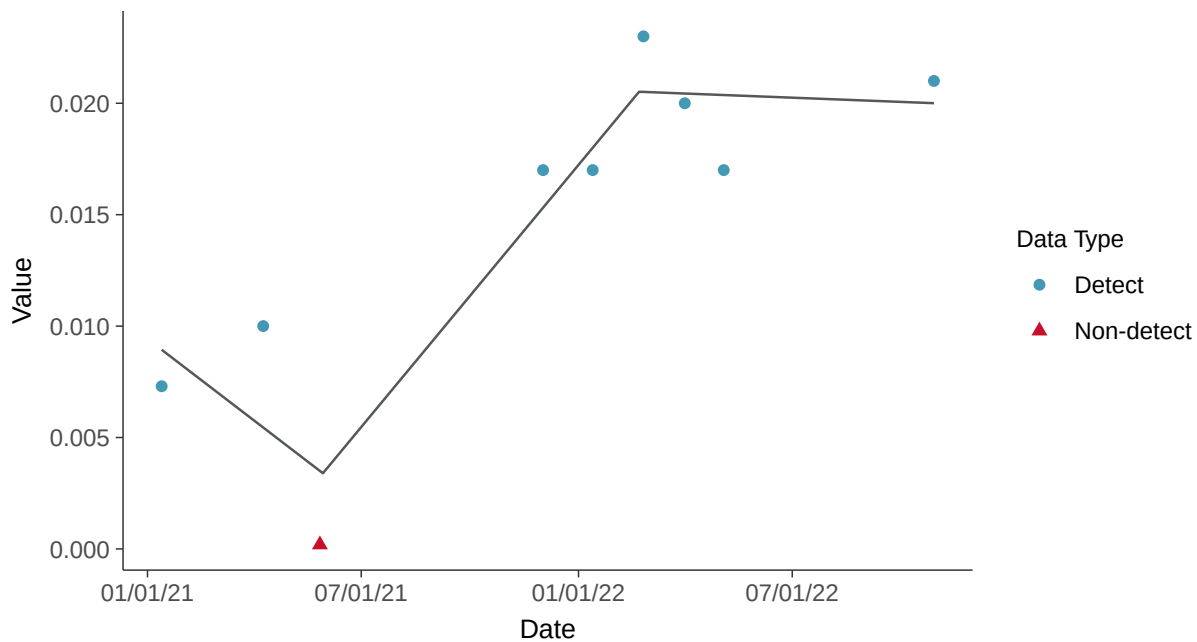
Trend Regression: Piecewise Linear-Linear

Cobalt, W-11 (mg/l)



Trend Regression: Piecewise Linear-Linear-Linear

Cobalt, W-11 (mg/l)

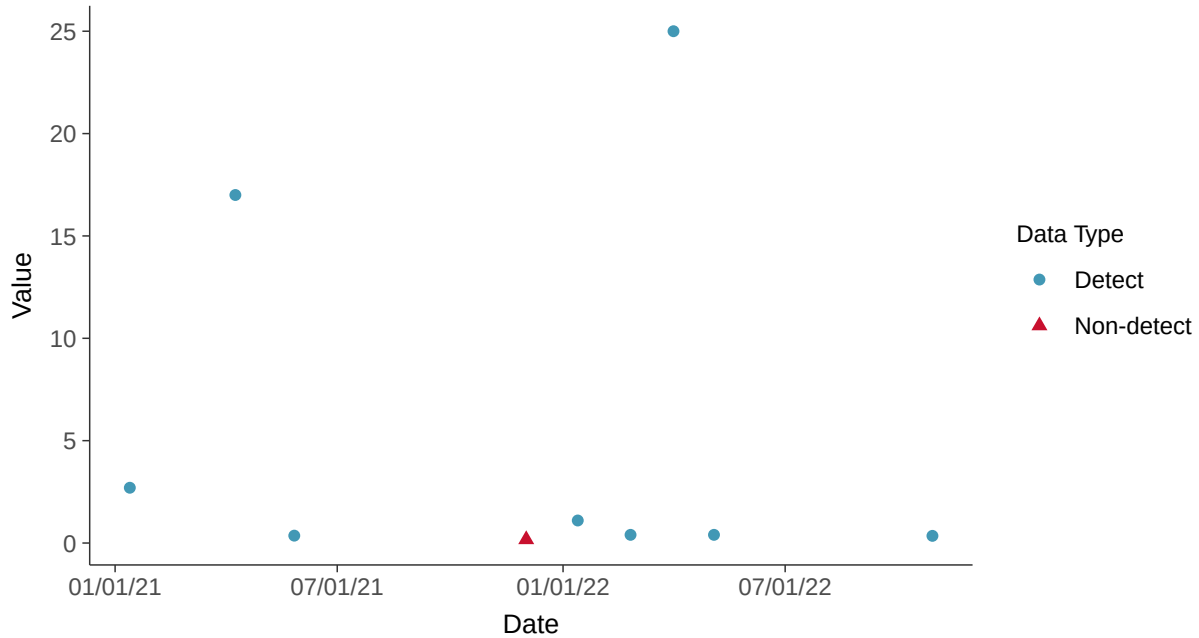


Appendix IV: Fluoride (App IV), W-11

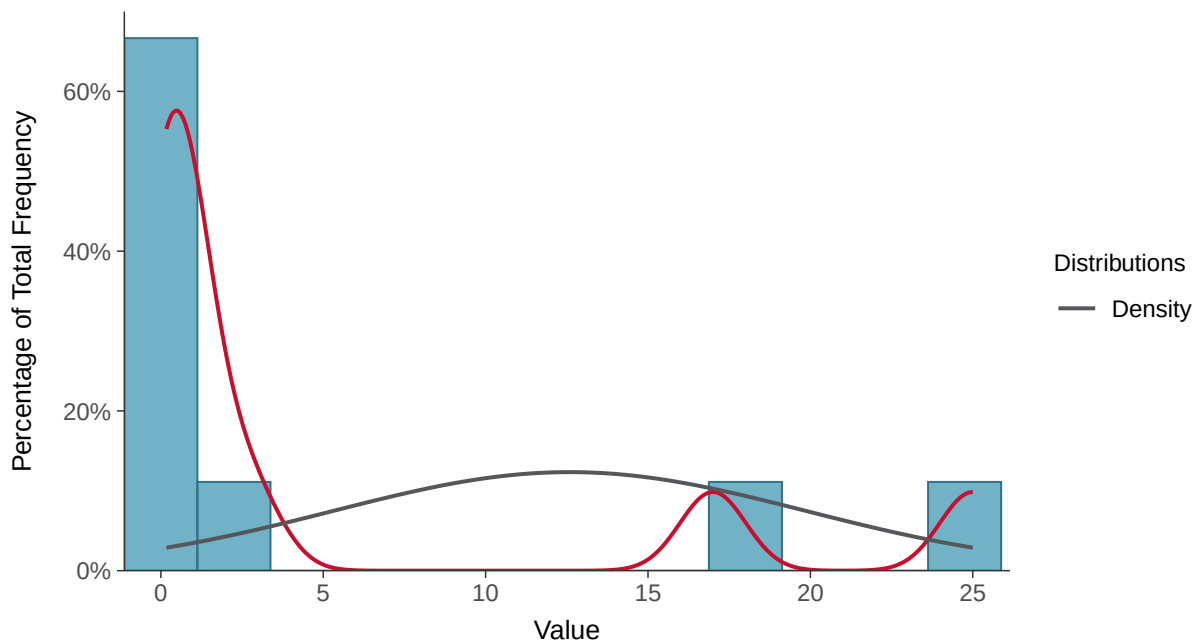
ID: 2_2_112

Scatter Plot

Fluoride (App IV), W-11 (mg/l)

**Histogram**

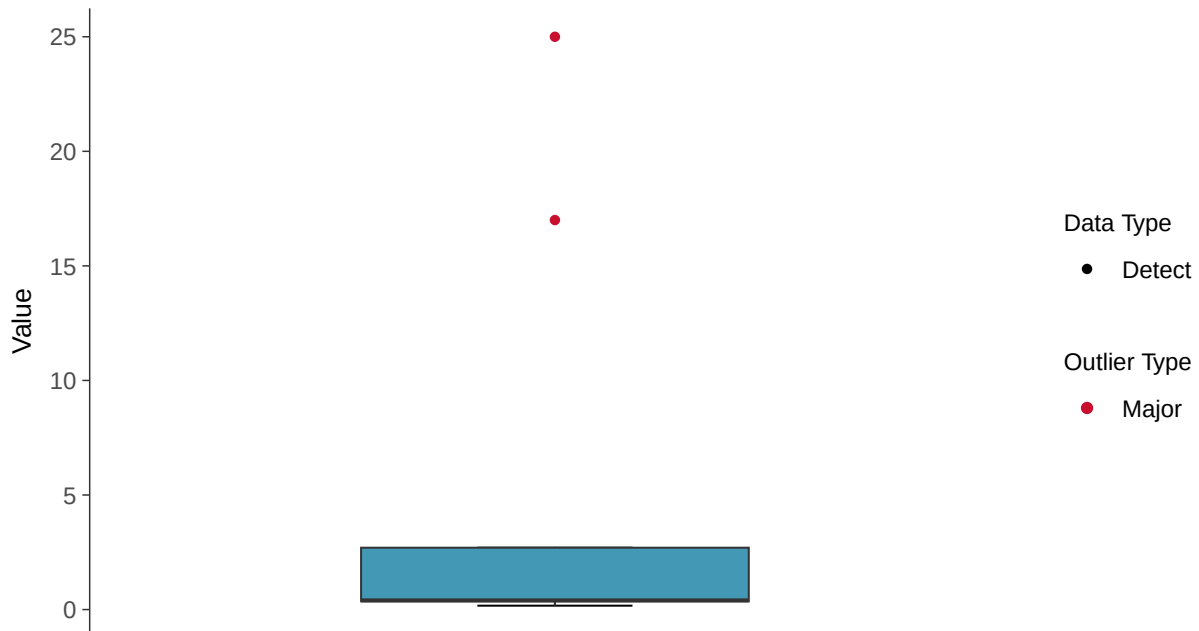
Fluoride (App IV), W-11 (mg/l)



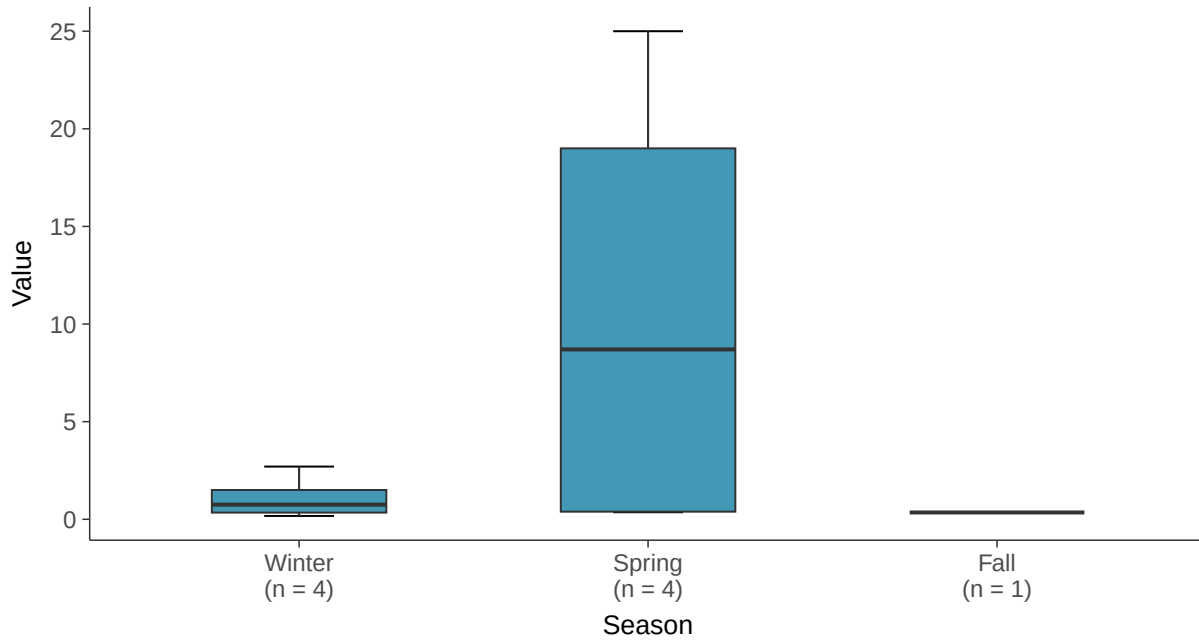
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Fluoride (App IV), W-11 (mg/l)

**Boxplot by Season**

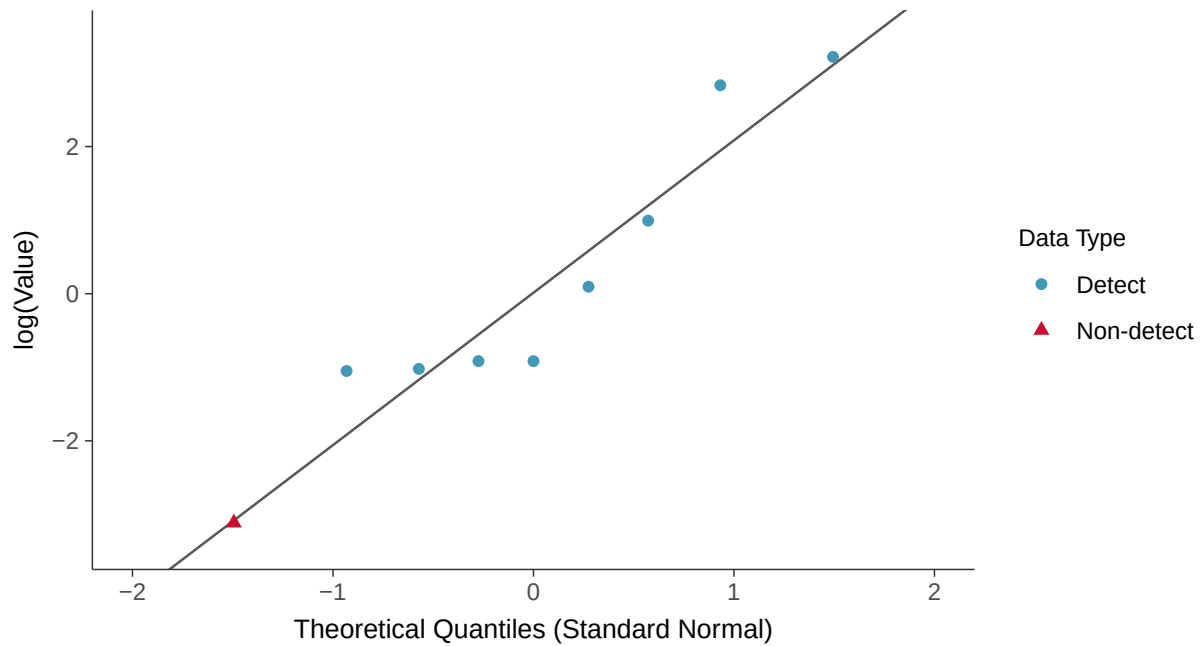
Fluoride (App IV), W-11 (mg/l)



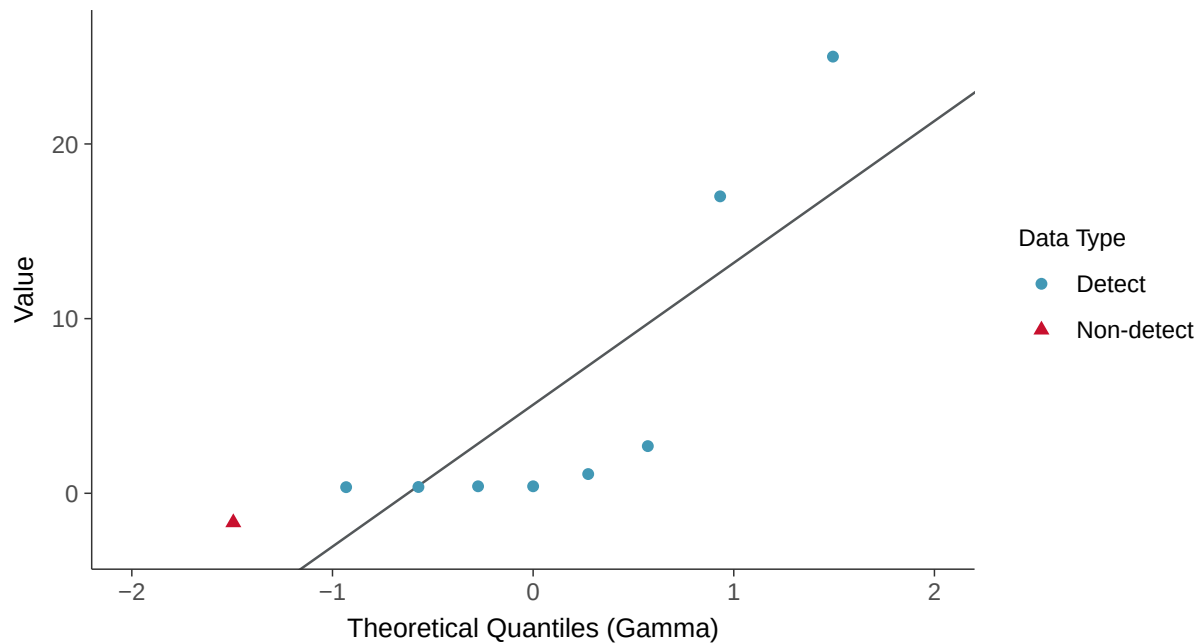
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Lognormal Q-Q plot using ROS Imputed Estimates

Fluoride (App IV), W-11 (mg/l)

**Gamma Q-Q plot using ROS Imputed Estimates**

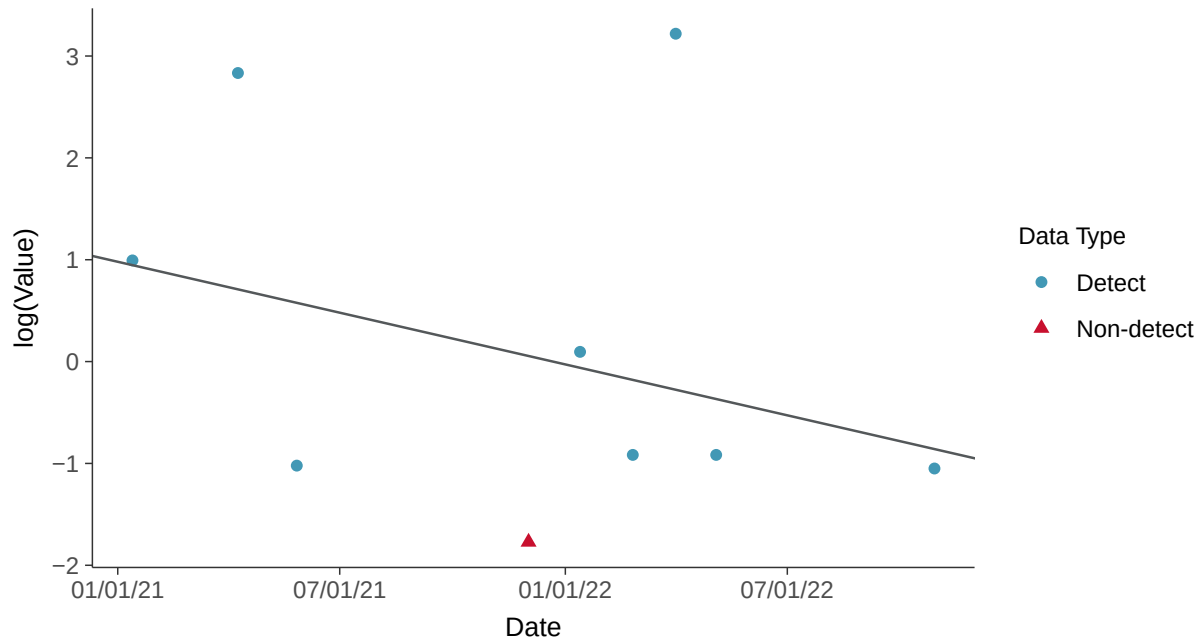
Fluoride (App IV), W-11 (mg/l)



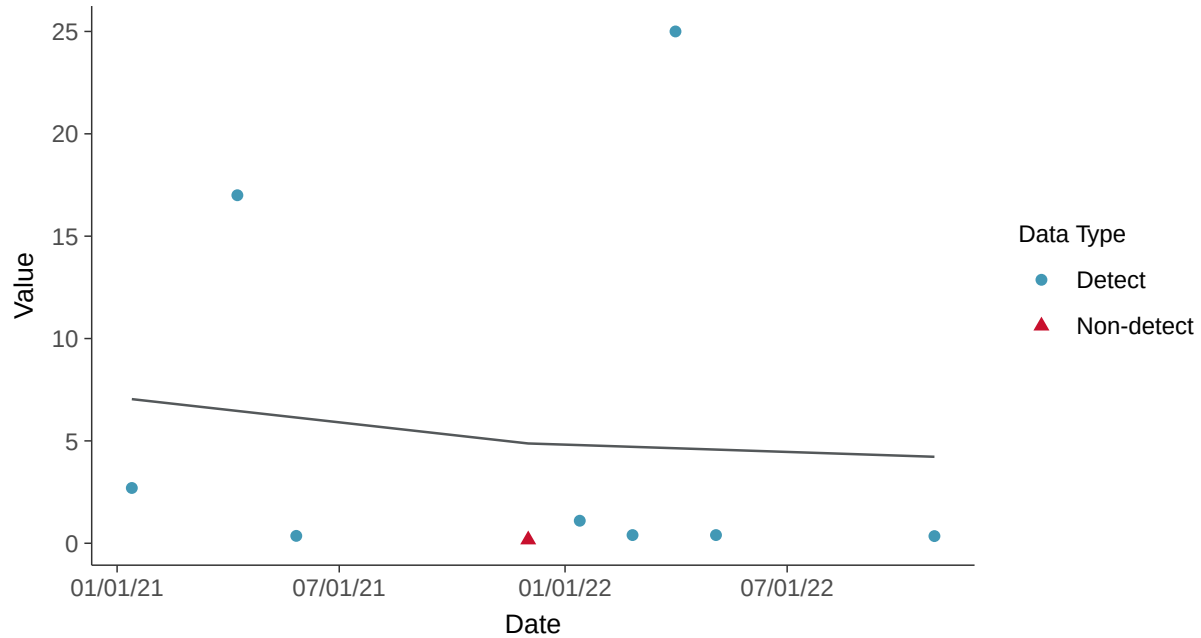
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Trend Regression: Lognormal MLE

Fluoride (App IV), W-11 (mg/l)

**Trend Regression: Piecewise Linear-Linear**

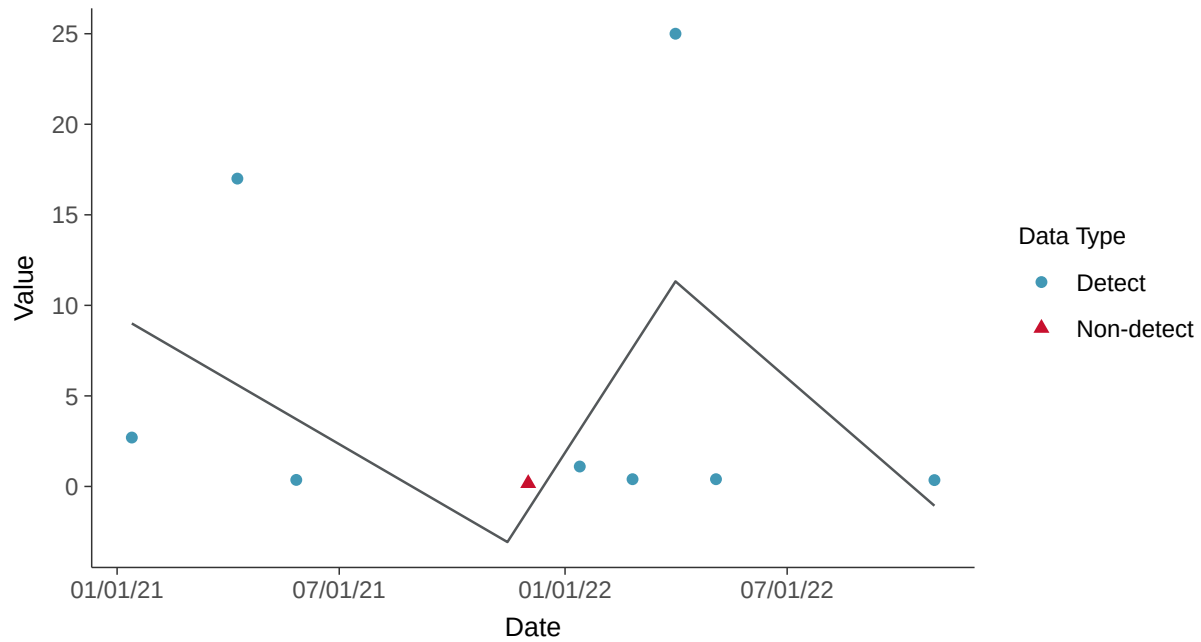
Fluoride (App IV), W-11 (mg/l)



Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

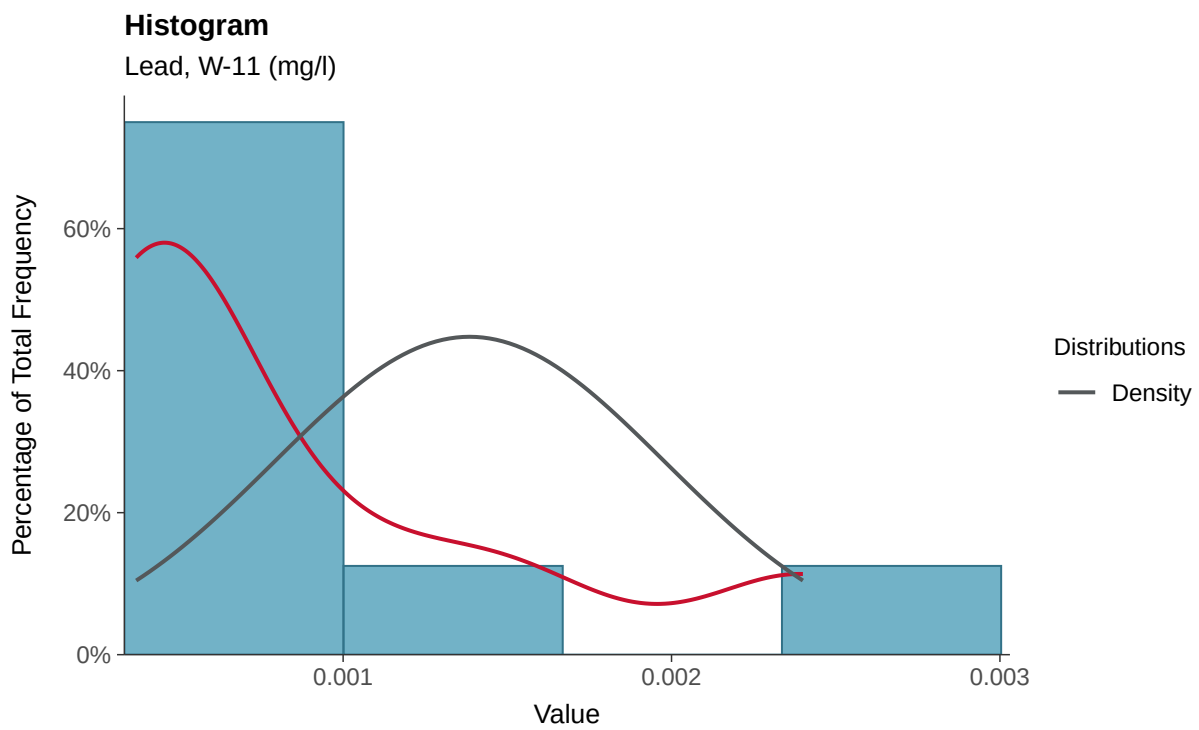
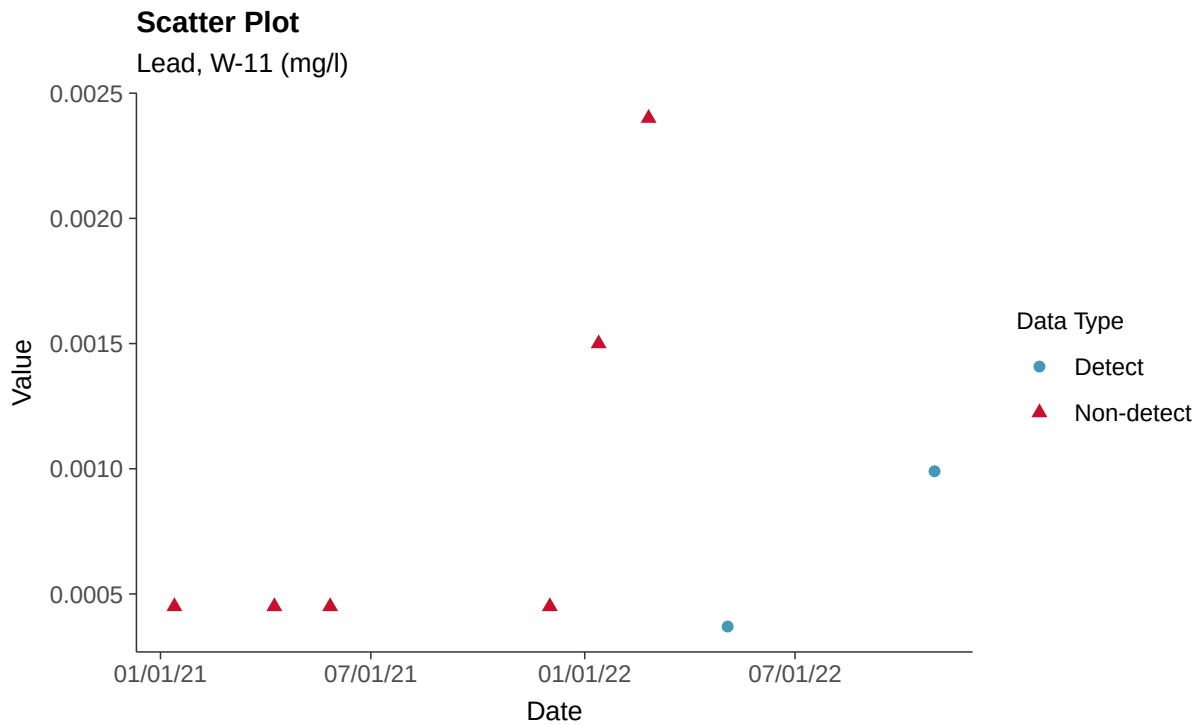
Trend Regression: Piecewise Linear-Linear-Linear

Fluoride (App IV), W-11 (mg/l)



Appendix IV: Lead, W-11

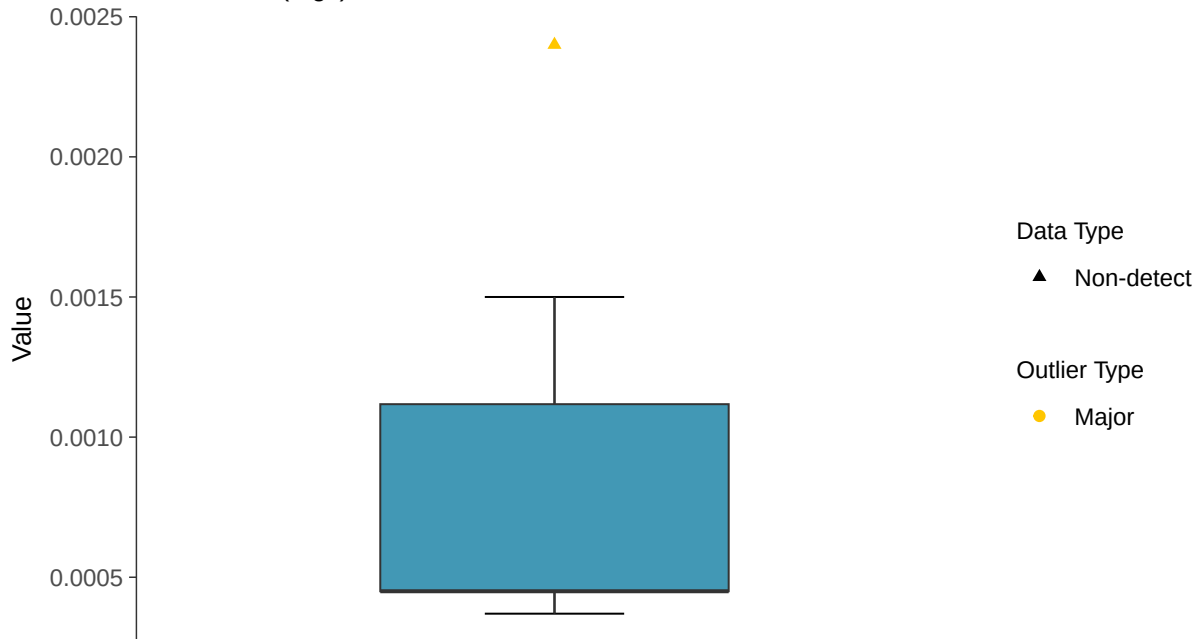
ID: 2_2_113



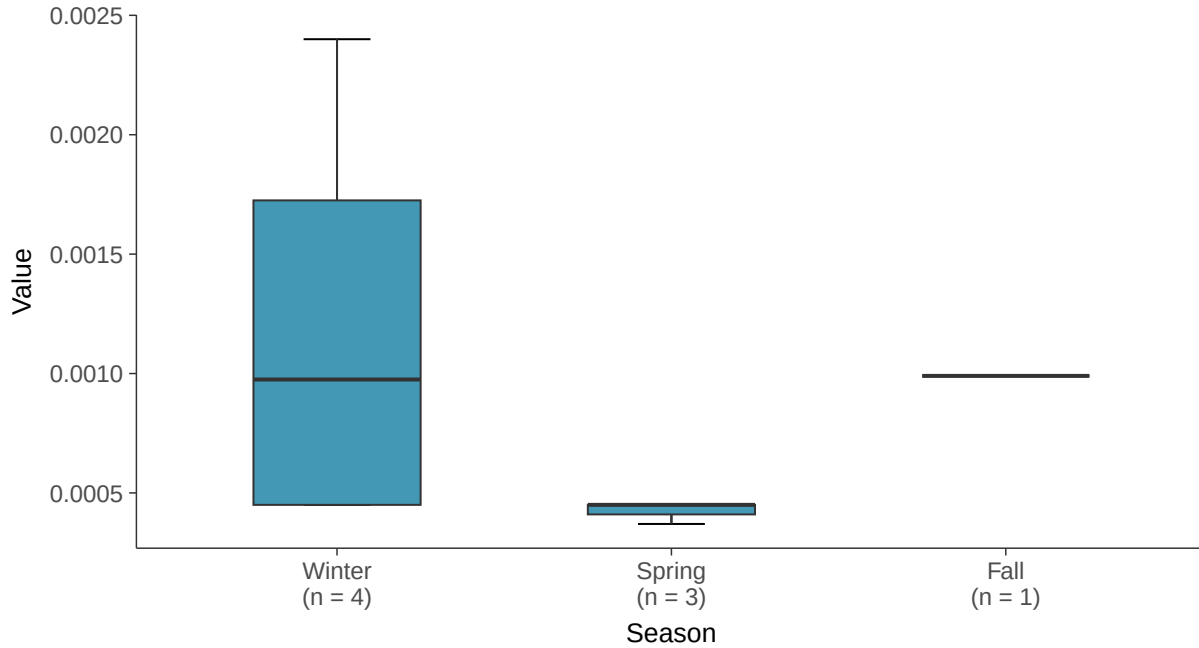
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Lead, W-11 (mg/l)

**Boxplot by Season**

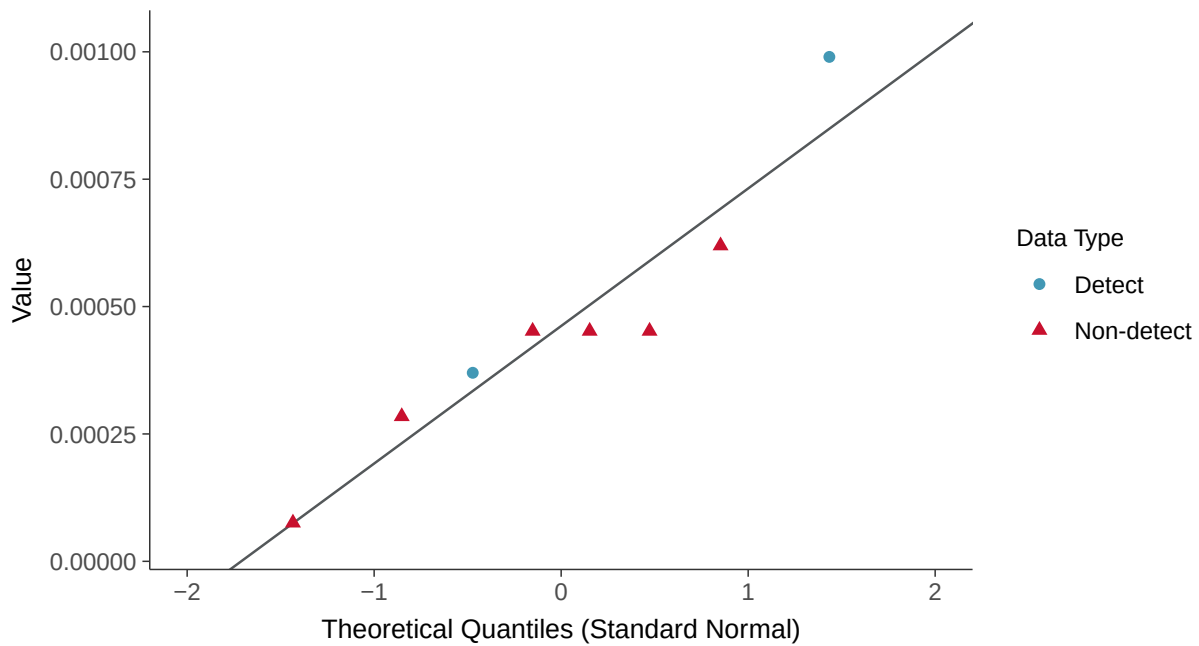
Lead, W-11 (mg/l)





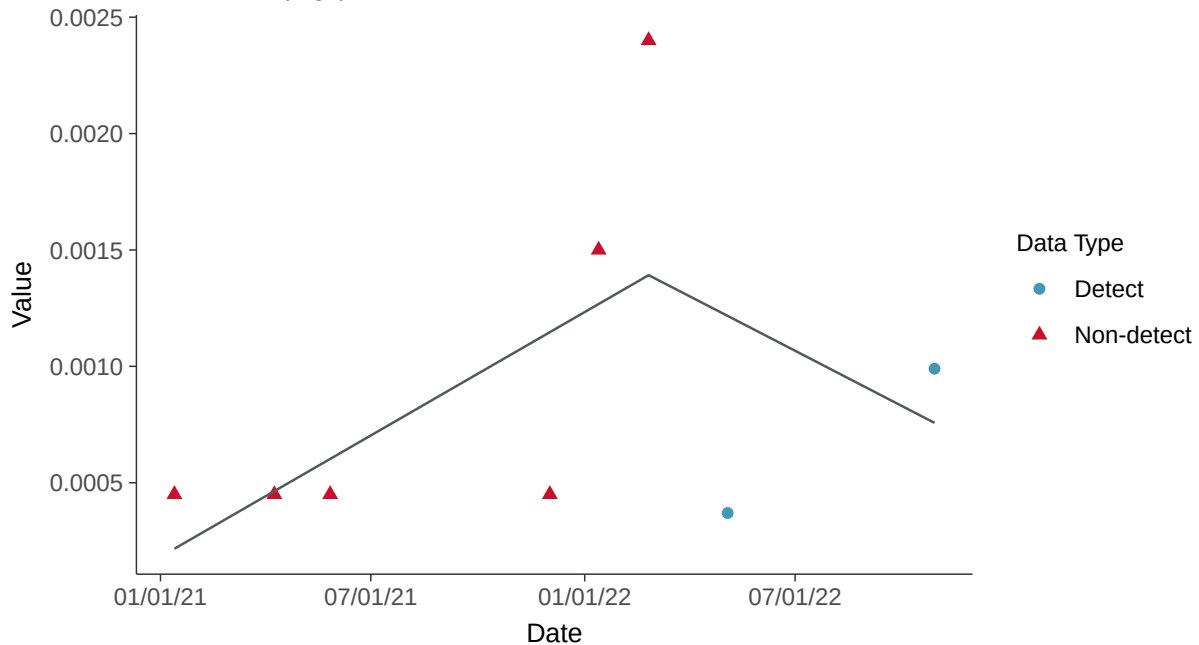
Normal Q-Q plot using ROS Imputed Estimates

Lead, W-11 (mg/l)



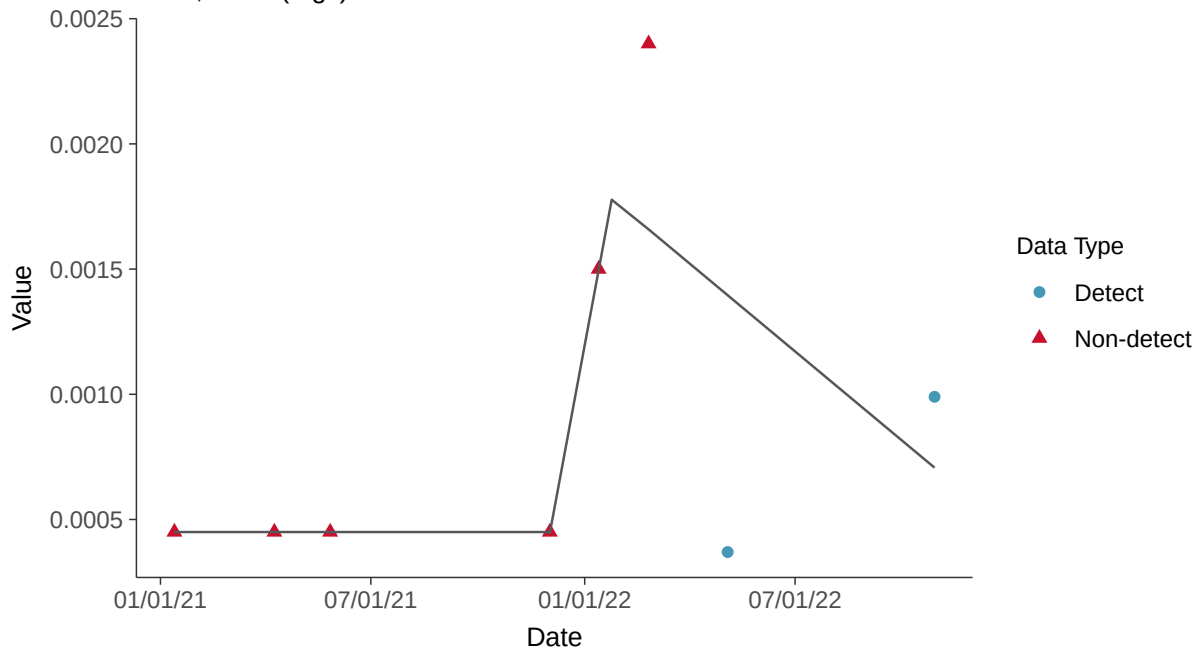
Trend Regression: Piecewise Linear-Linear

Lead, W-11 (mg/l)



**Trend Regression: Piecewise Linear-Linear-Linear**

Lead, W-11 (mg/l)

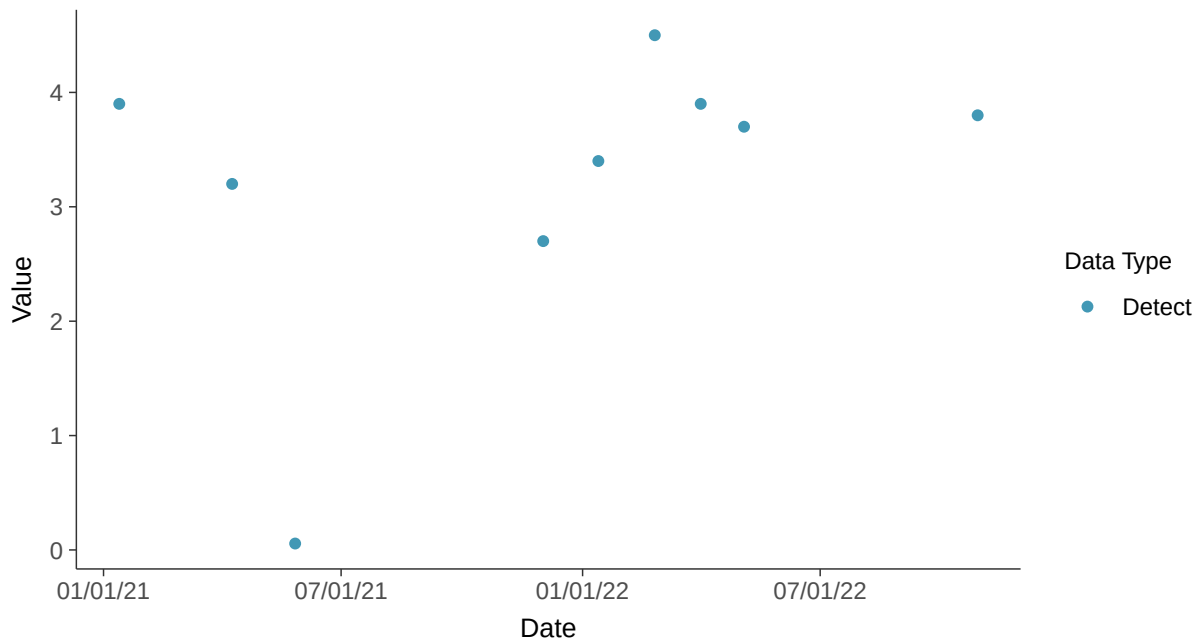


Appendix IV: Lithium, W-11

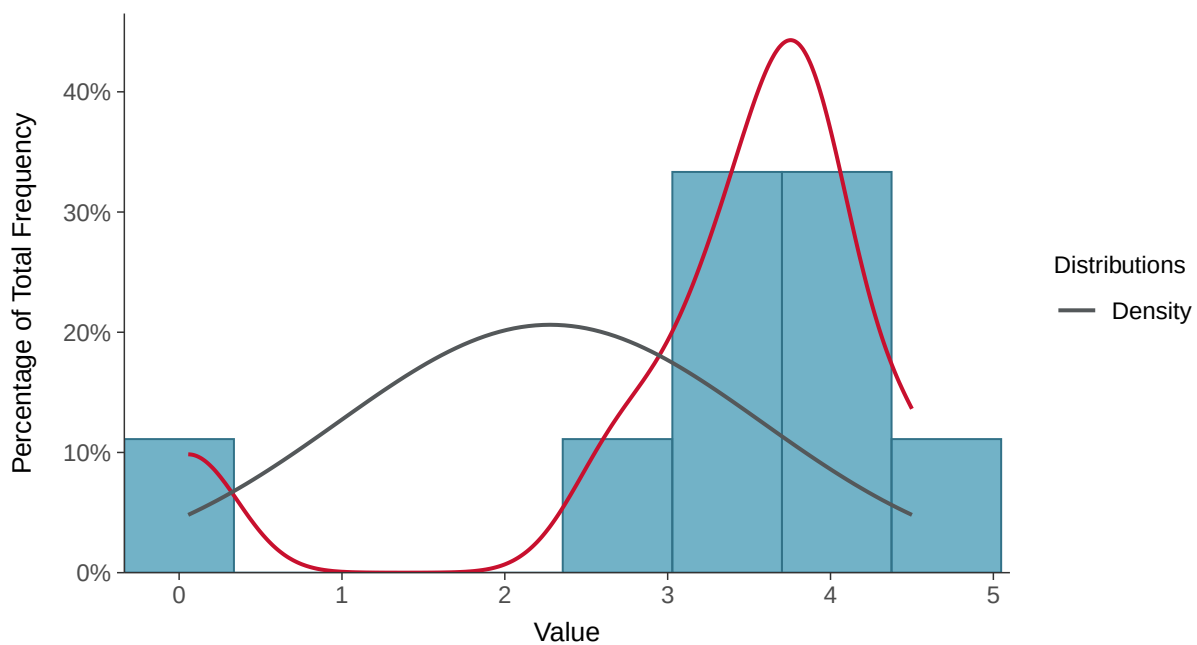
ID: 2_2_114

Scatter Plot

Lithium, W-11 (mg/l)

**Histogram**

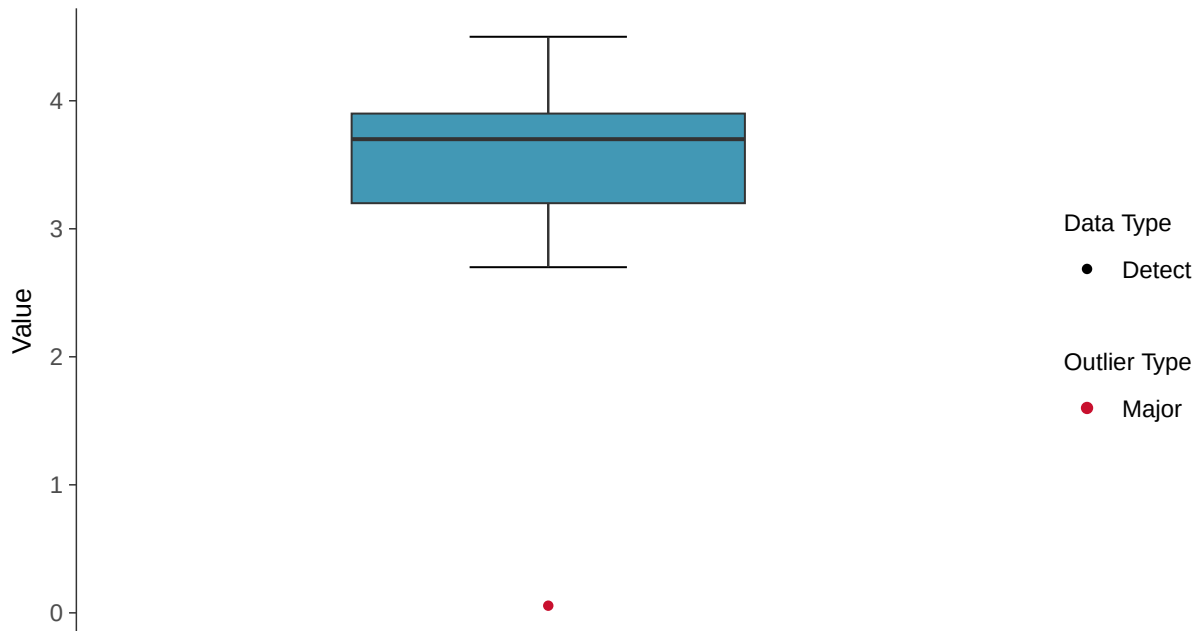
Lithium, W-11 (mg/l)



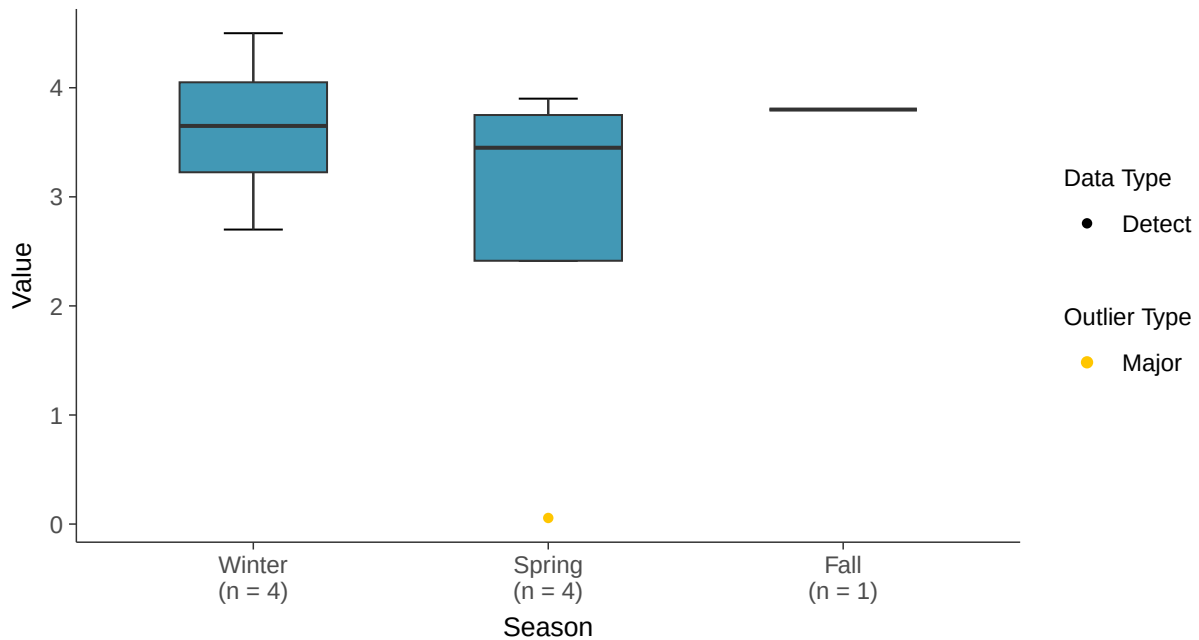
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Lithium, W-11 (mg/l)

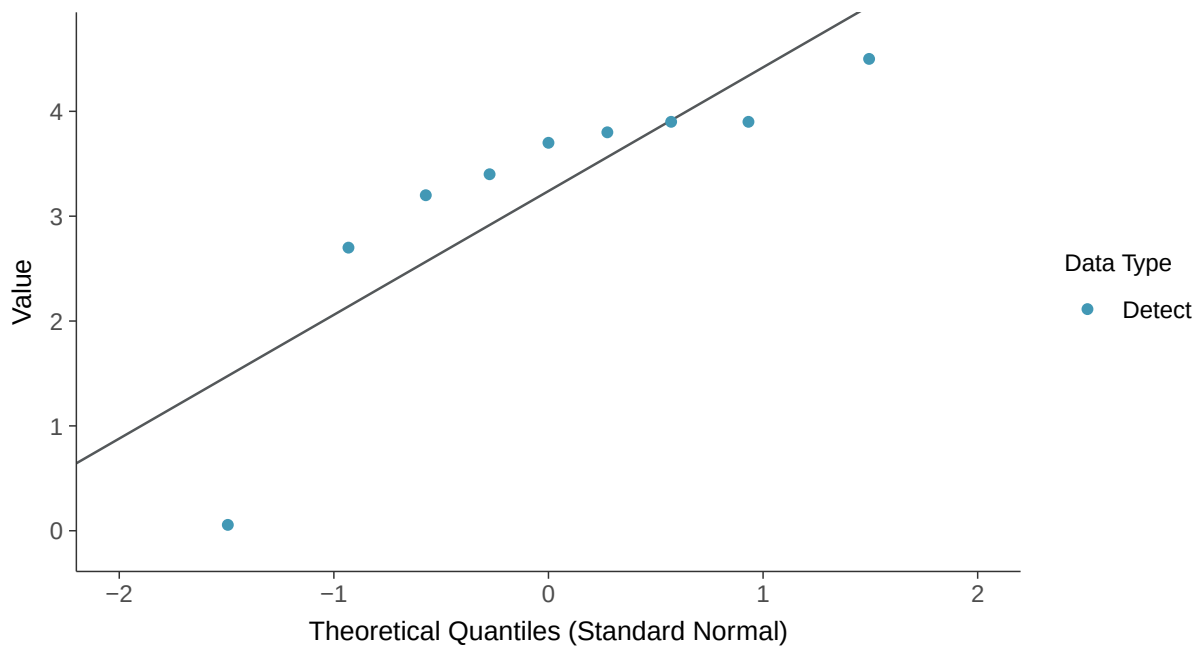
**Boxplot by Season**

Lithium, W-11 (mg/l)



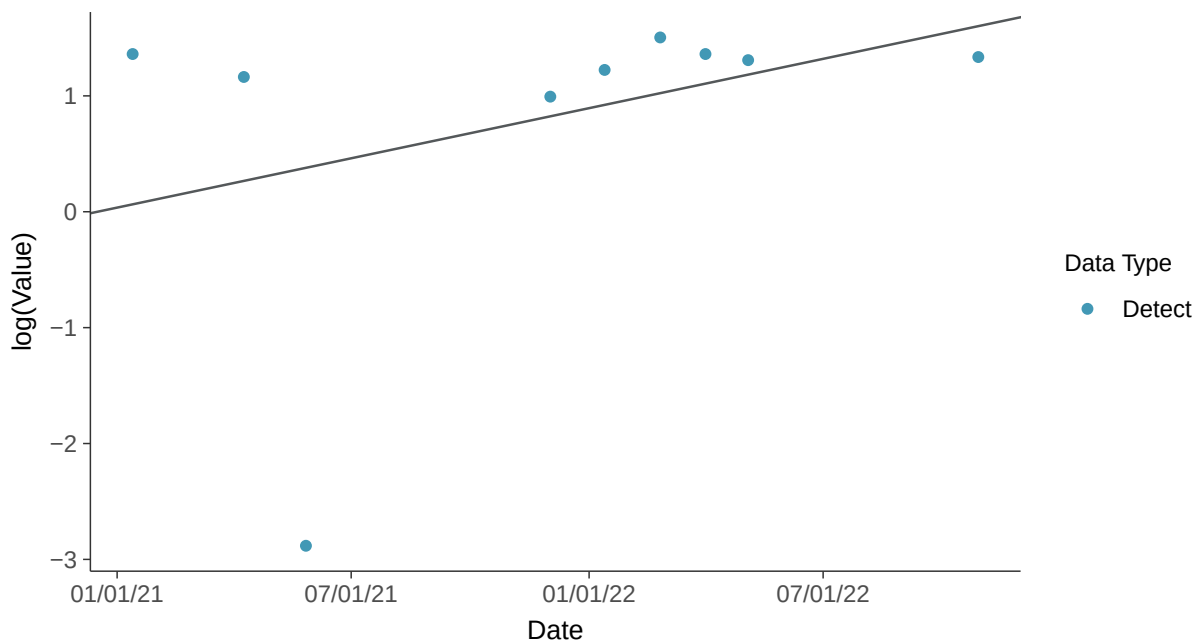
Normal Q-Q plot

Lithium, W-11 (mg/l)



Trend Regression: Lognormal MLE

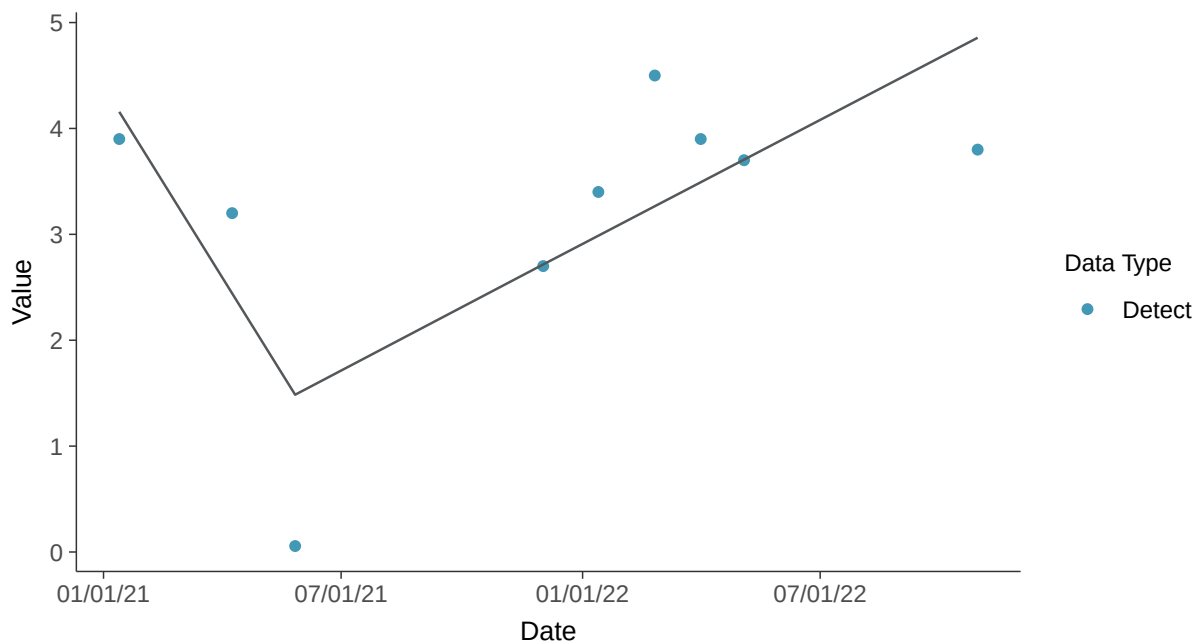
Lithium, W-11 (mg/l)





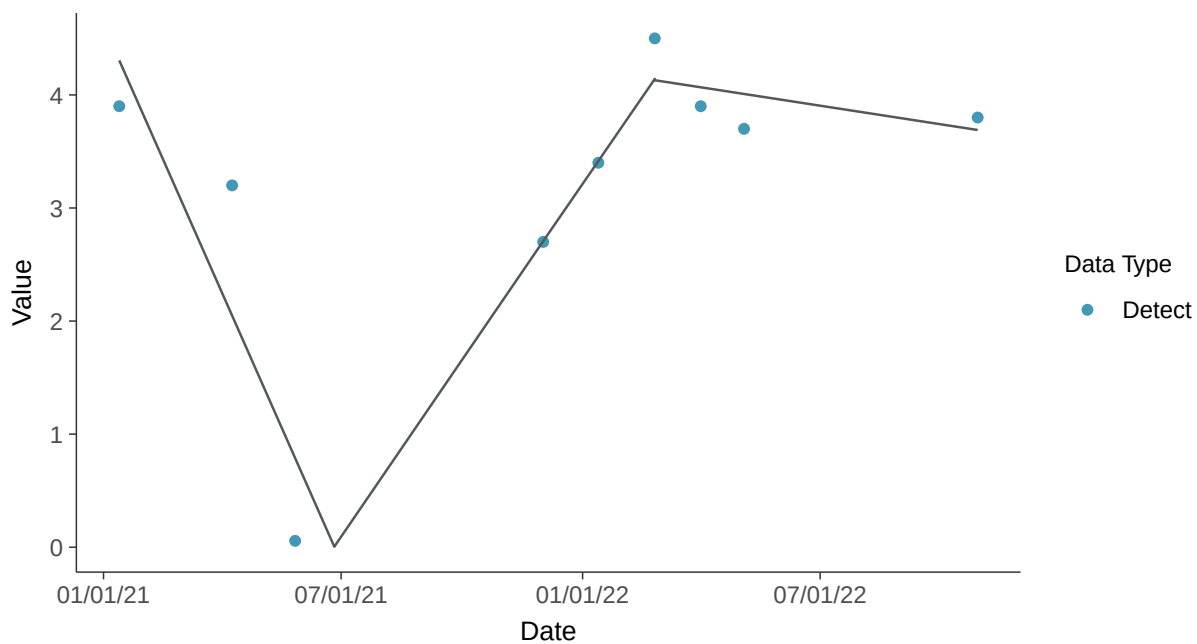
Trend Regression: Piecewise Linear-Linear

Lithium, W-11 (mg/l)



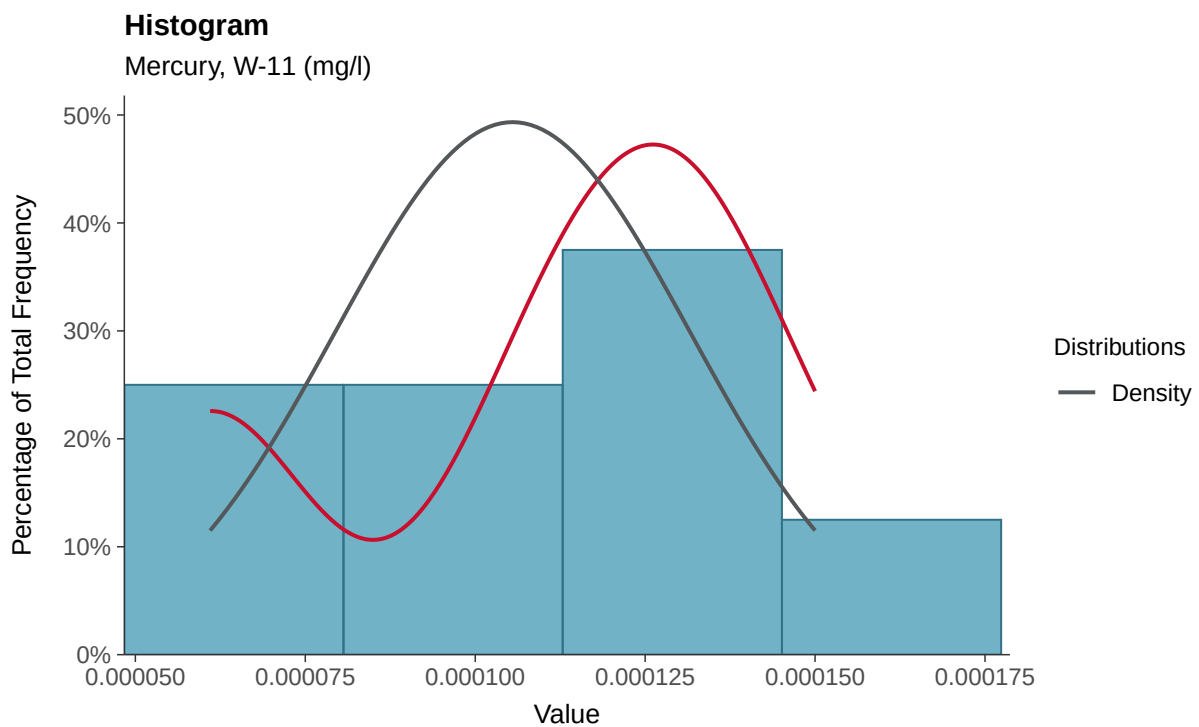
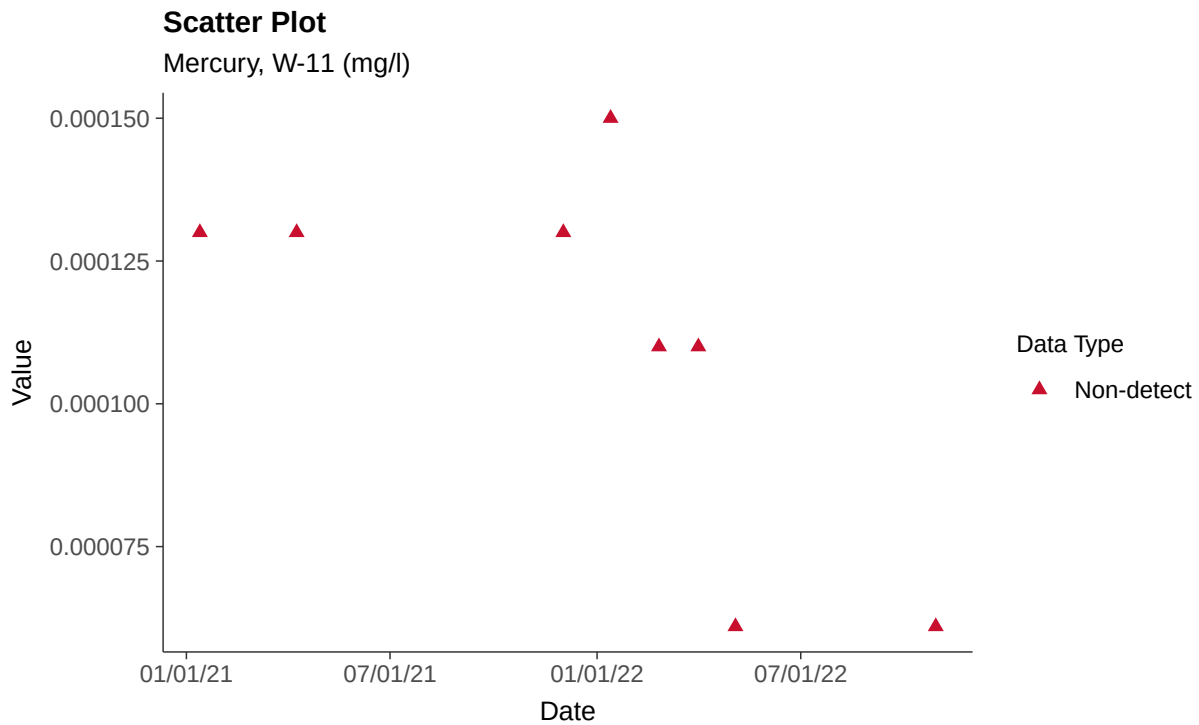
Trend Regression: Piecewise Linear-Linear-Linear

Lithium, W-11 (mg/l)



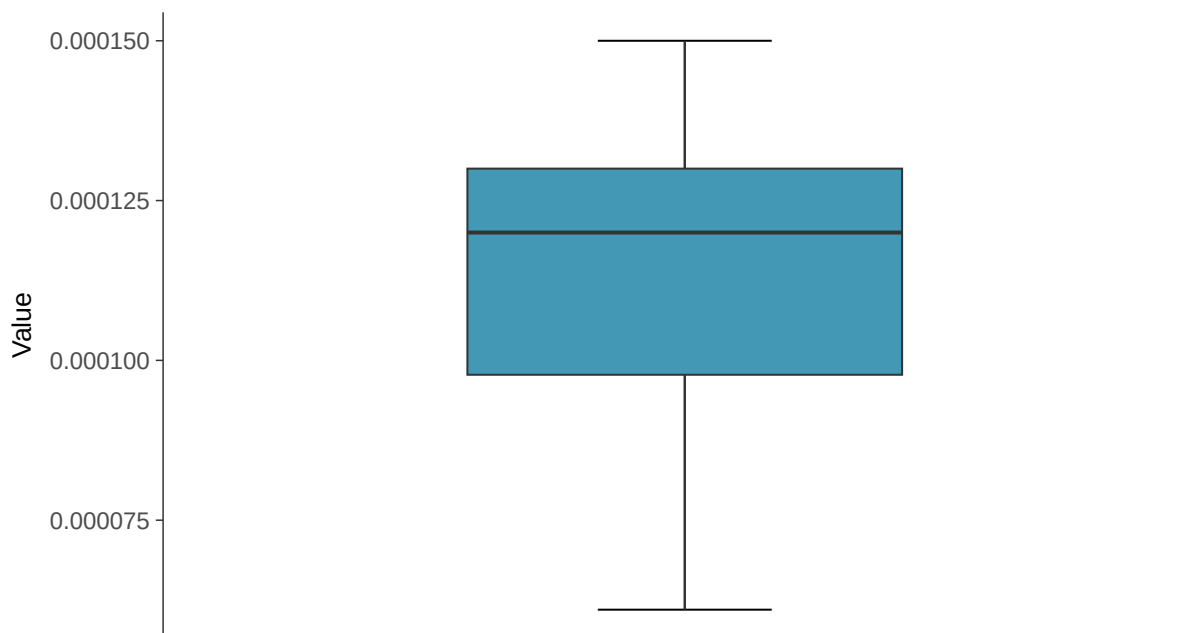
Appendix IV: Mercury, W-11

ID: 2_2_115



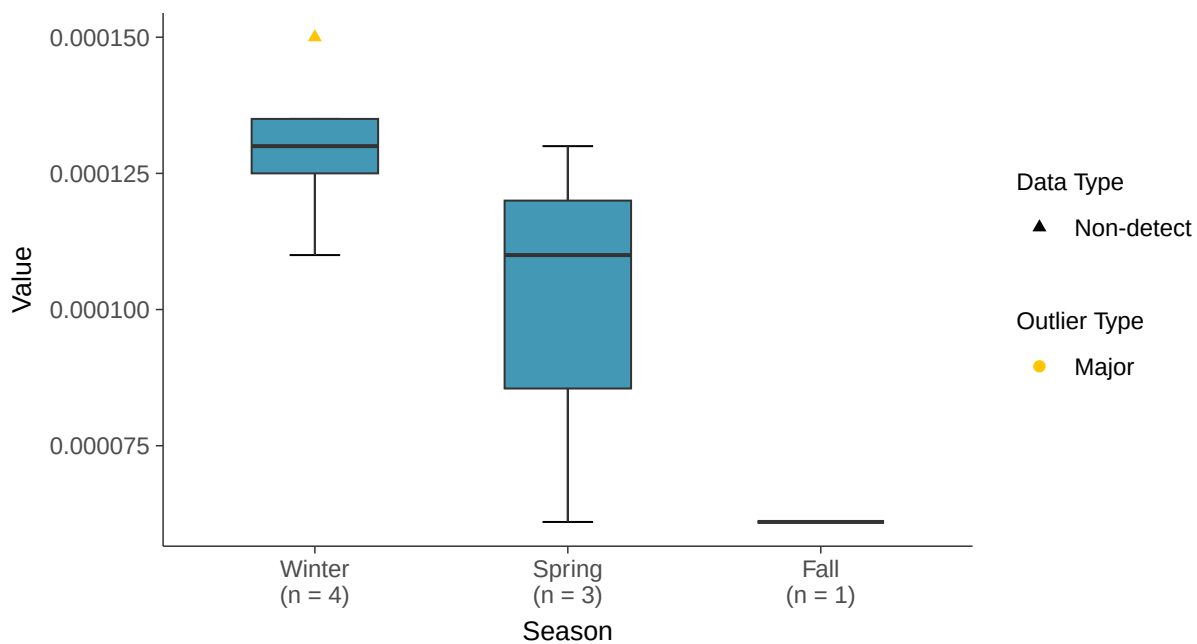
Boxplot

Mercury, W-11 (mg/l)



Boxplot by Season

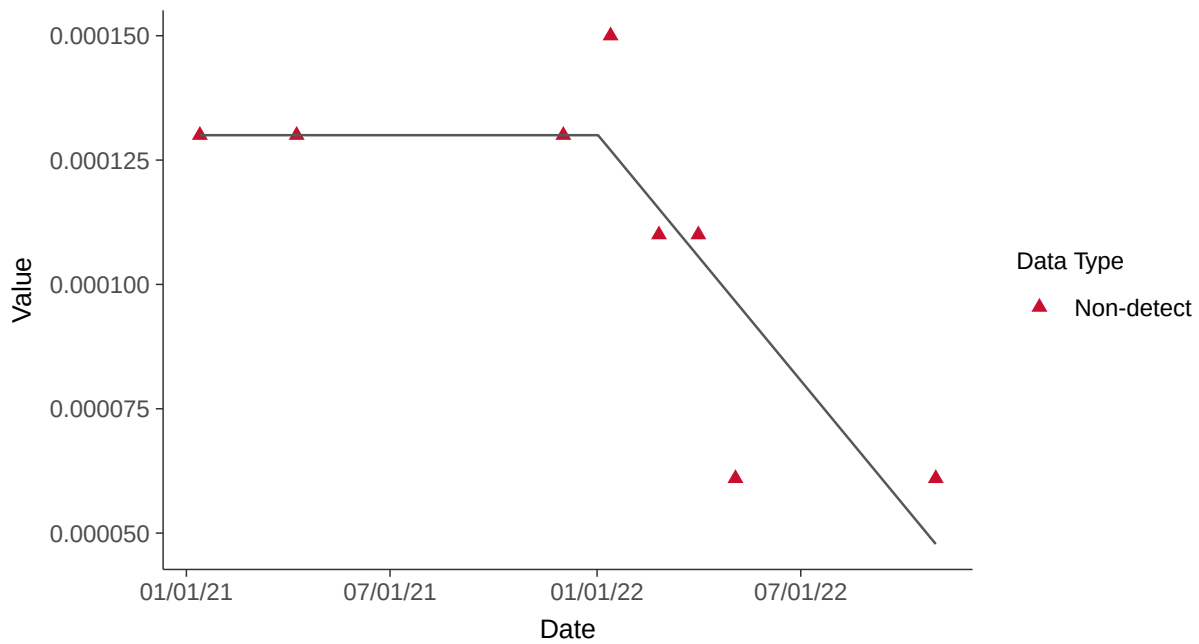
Mercury, W-11 (mg/l)





Trend Regression: Piecewise Linear-Linear

Mercury, W-11 (mg/l)

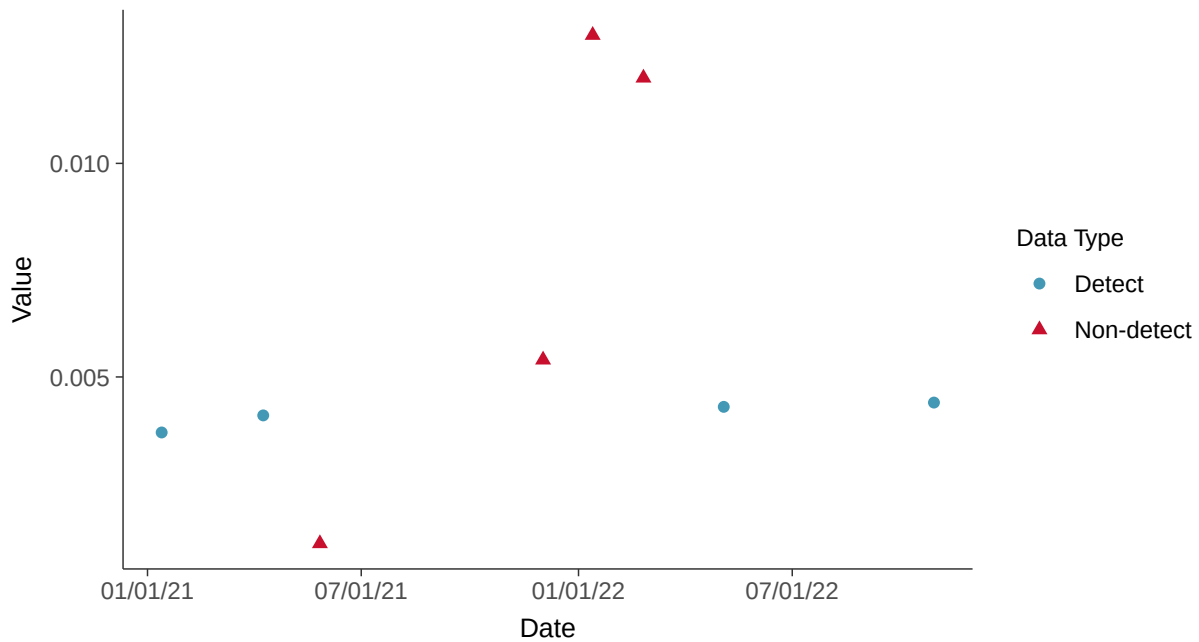


Appendix IV: Molybdenum, W-11

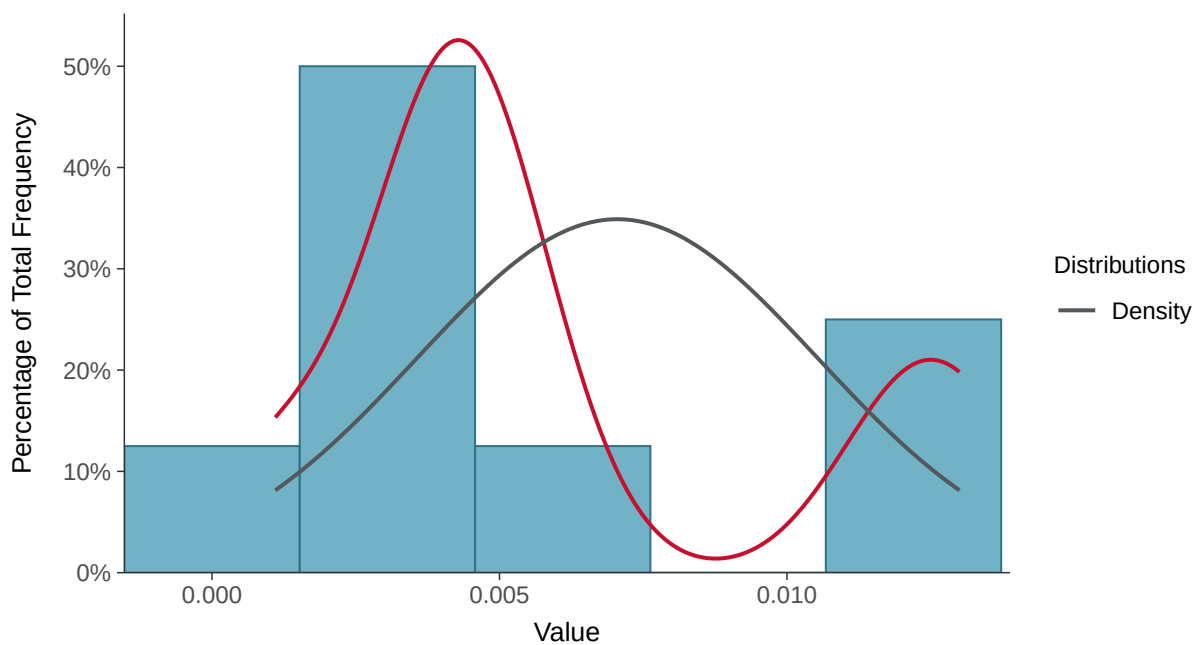
ID: 2_2_116

Scatter Plot

Molybdenum, W-11 (mg/l)

**Histogram**

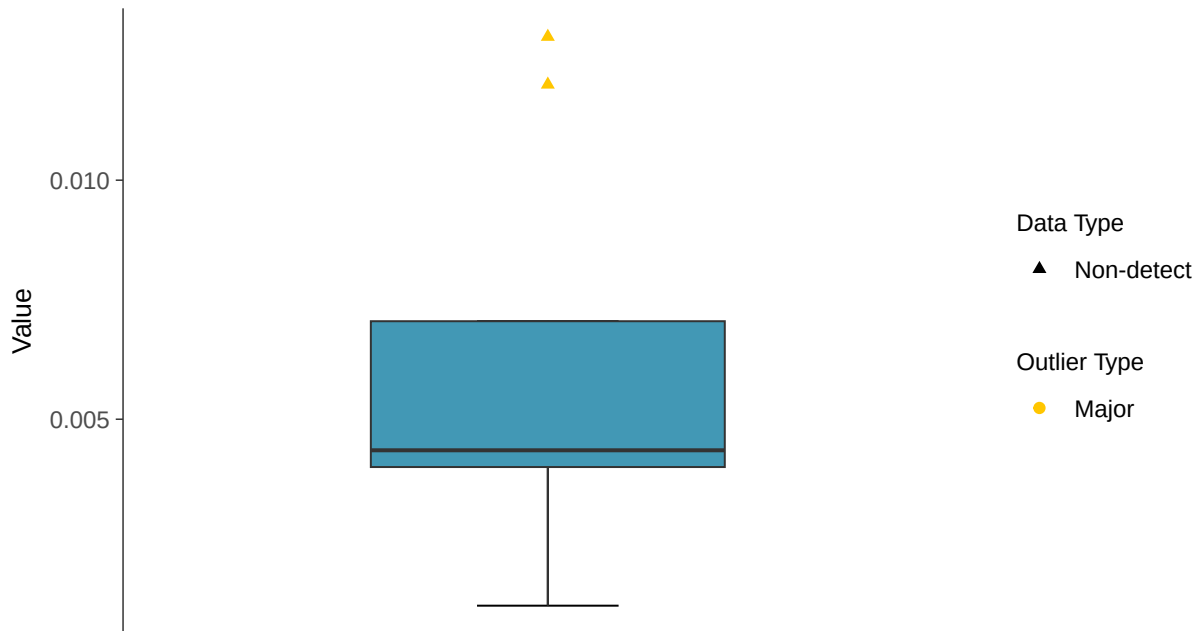
Molybdenum, W-11 (mg/l)





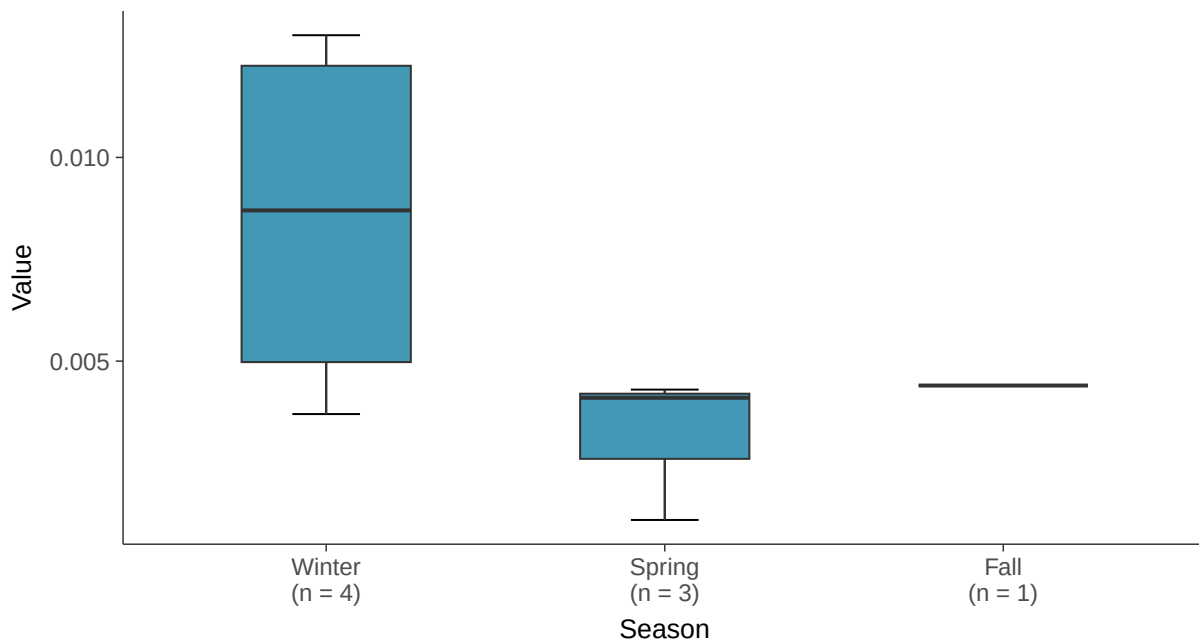
Boxplot

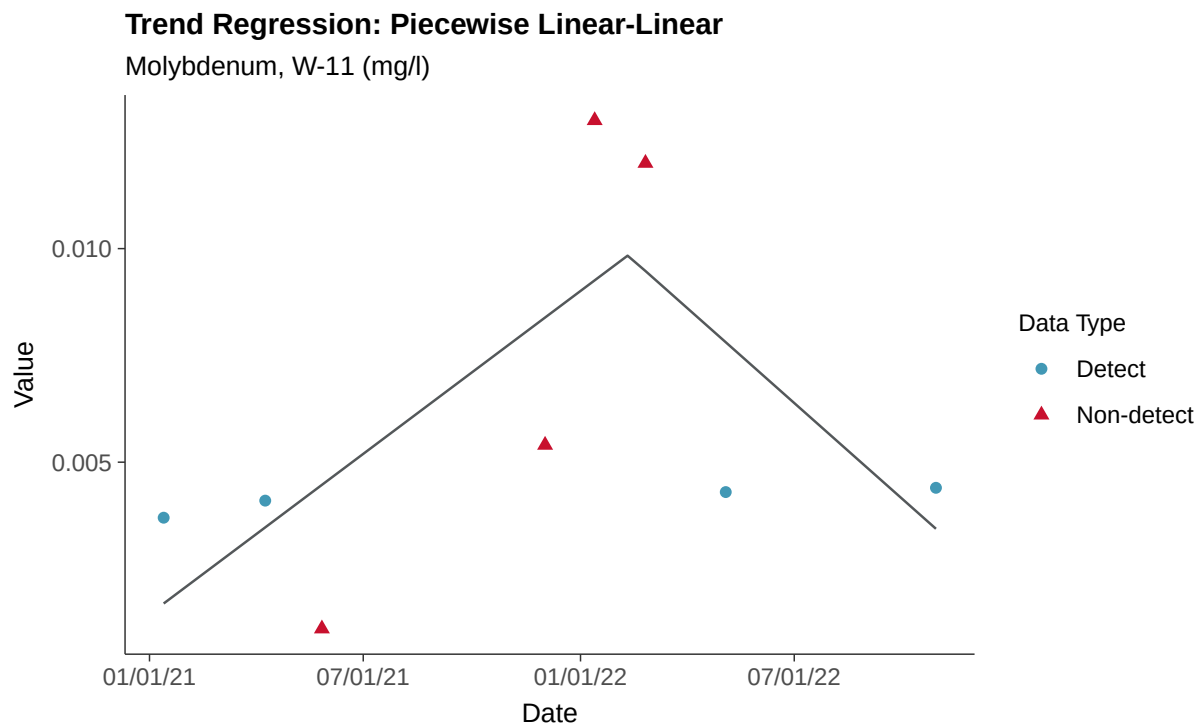
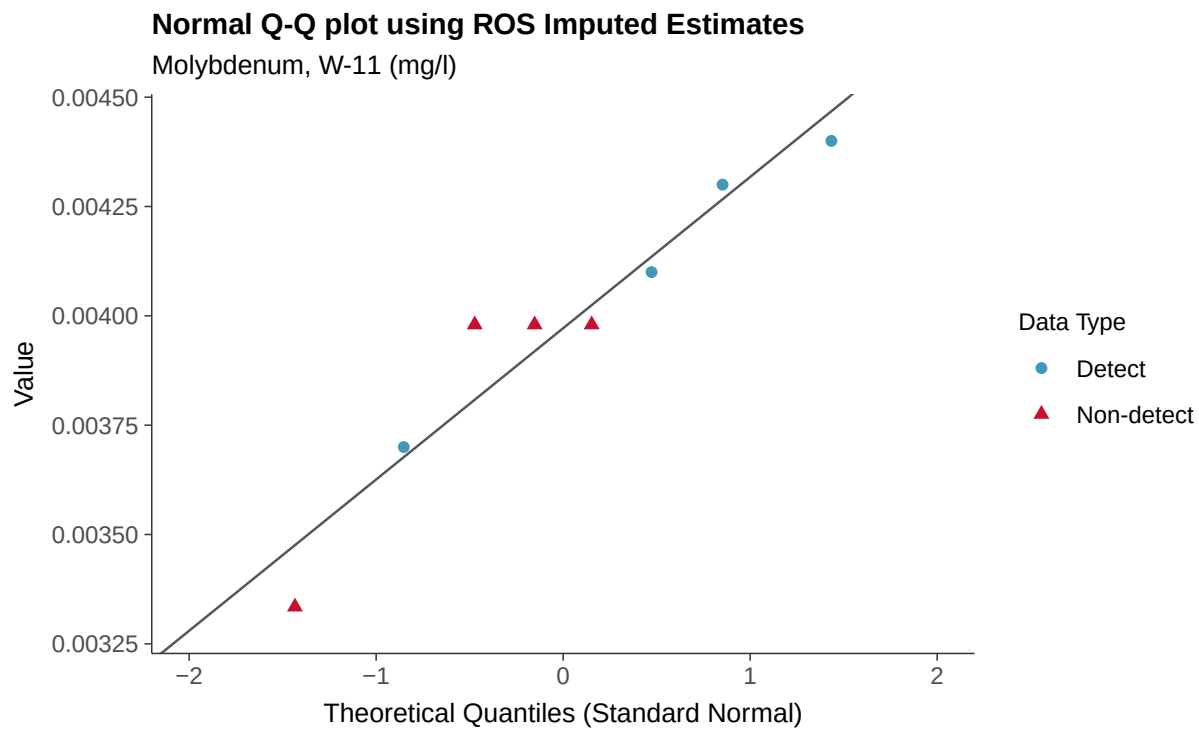
Molybdenum, W-11 (mg/l)



Boxplot by Season

Molybdenum, W-11 (mg/l)



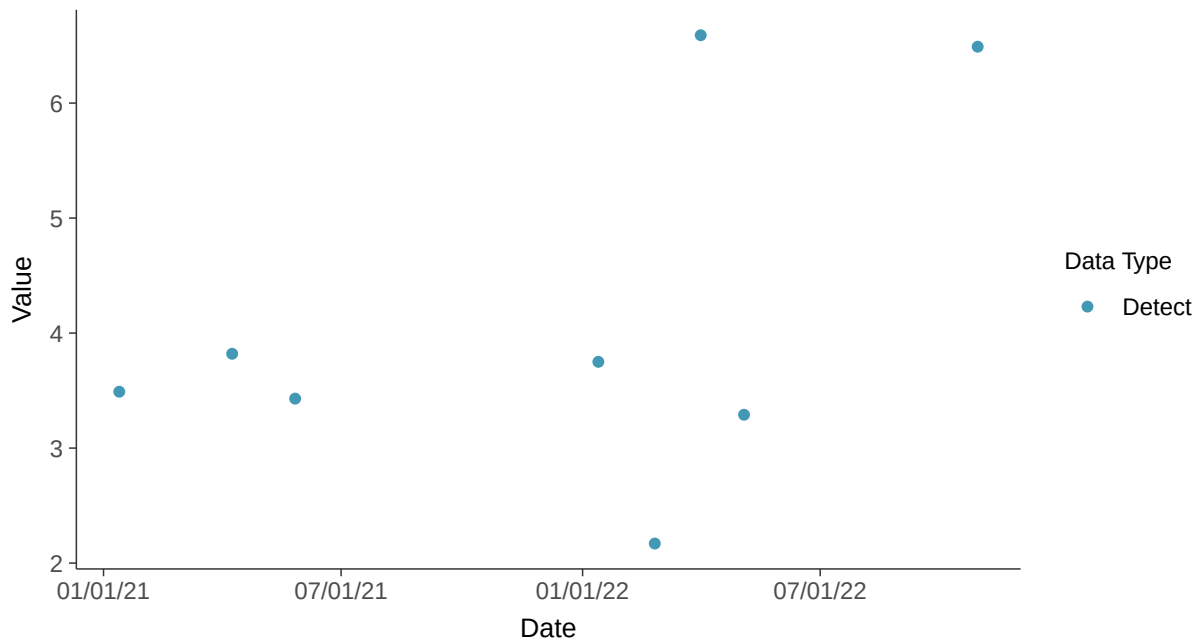


Appendix IV: Radium-226+228, W-11

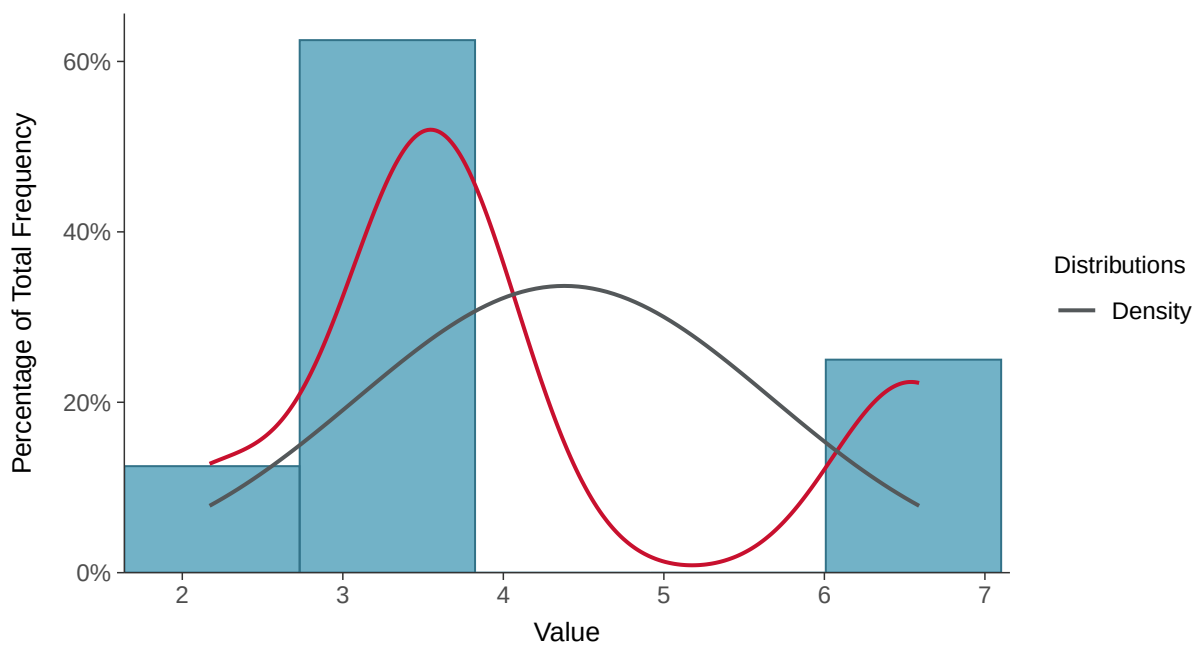
ID: 2_2_120

Scatter Plot

Radium-226+228, W-11 (pci/l)

**Histogram**

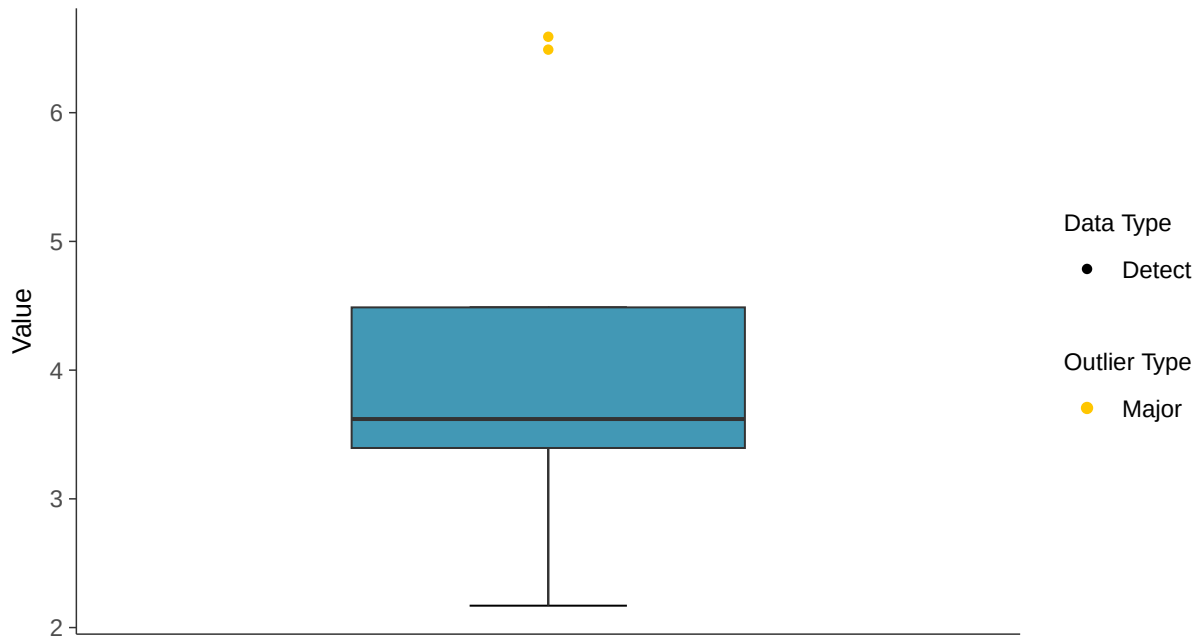
Radium-226+228, W-11 (pci/l)



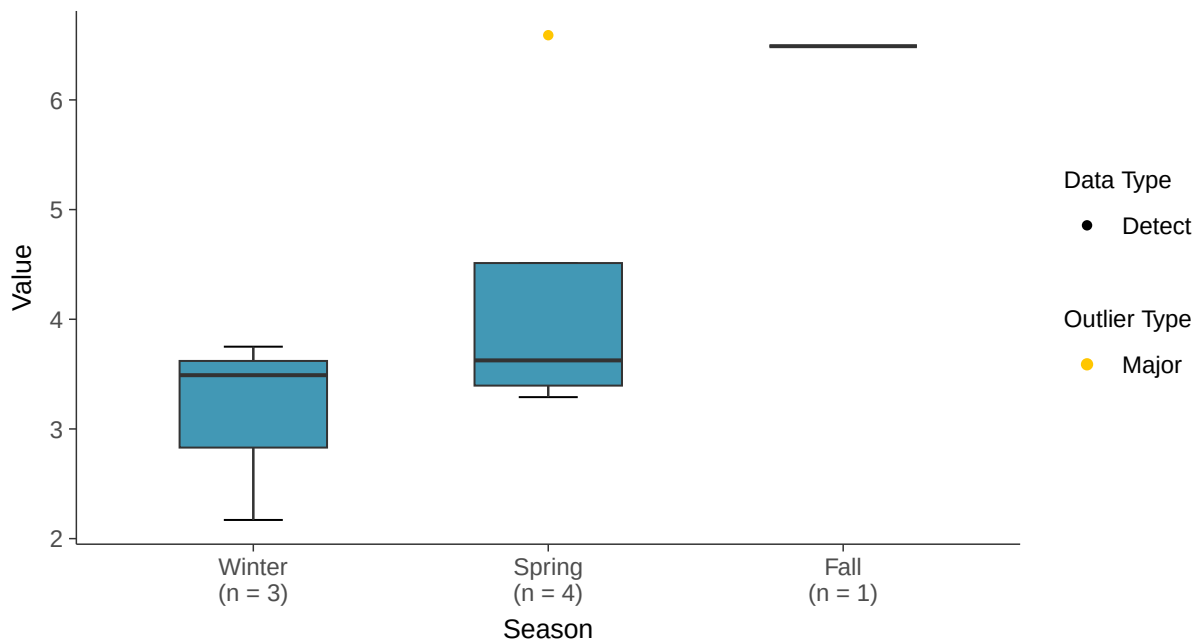
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Radium-226+228, W-11 (pci/l)

**Boxplot by Season**

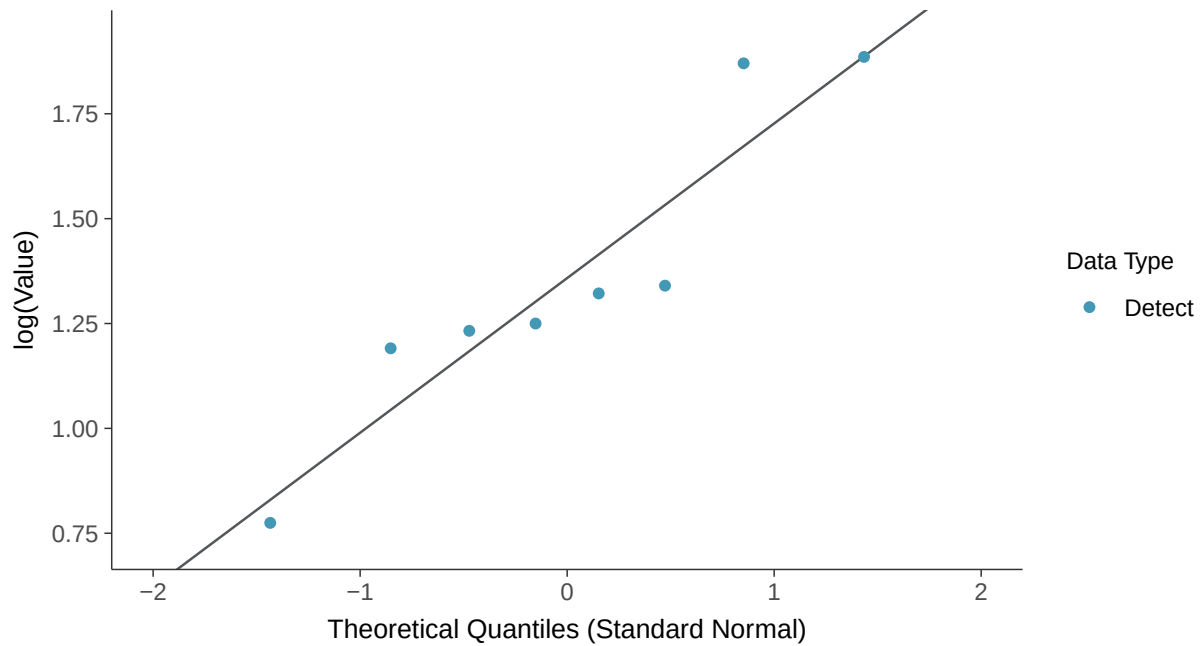
Radium-226+228, W-11 (pci/l)



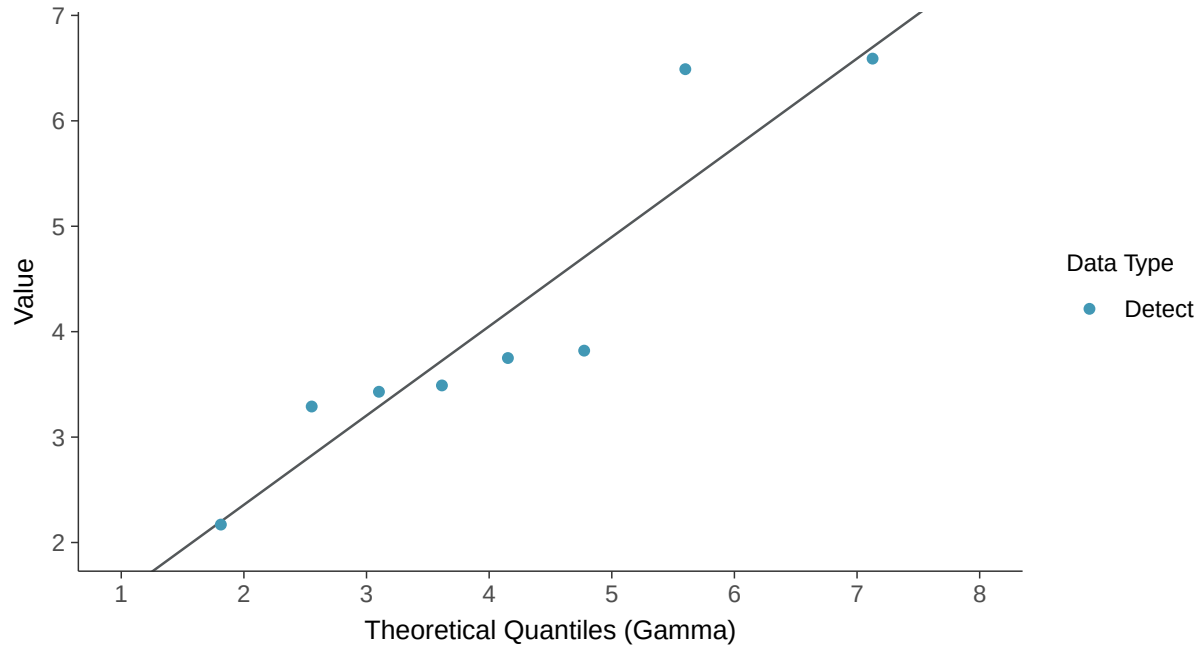
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Lognormal Q-Q plot

Radium-226+228, W-11 (pci/l)

**Gamma Q-Q plot**

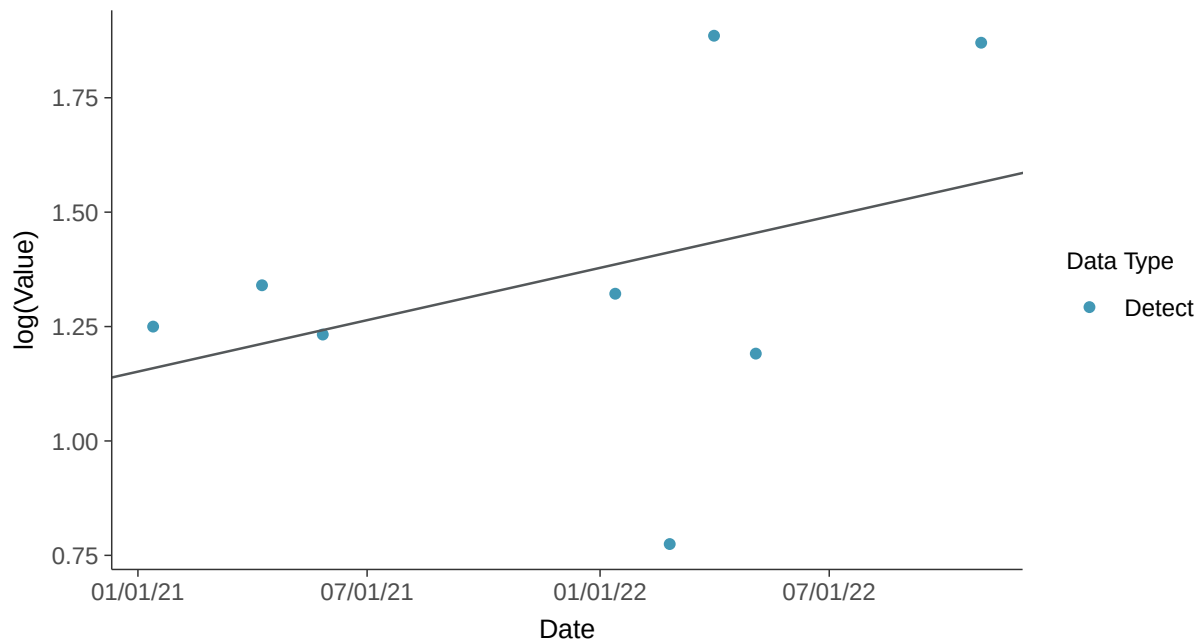
Radium-226+228, W-11 (pci/l)





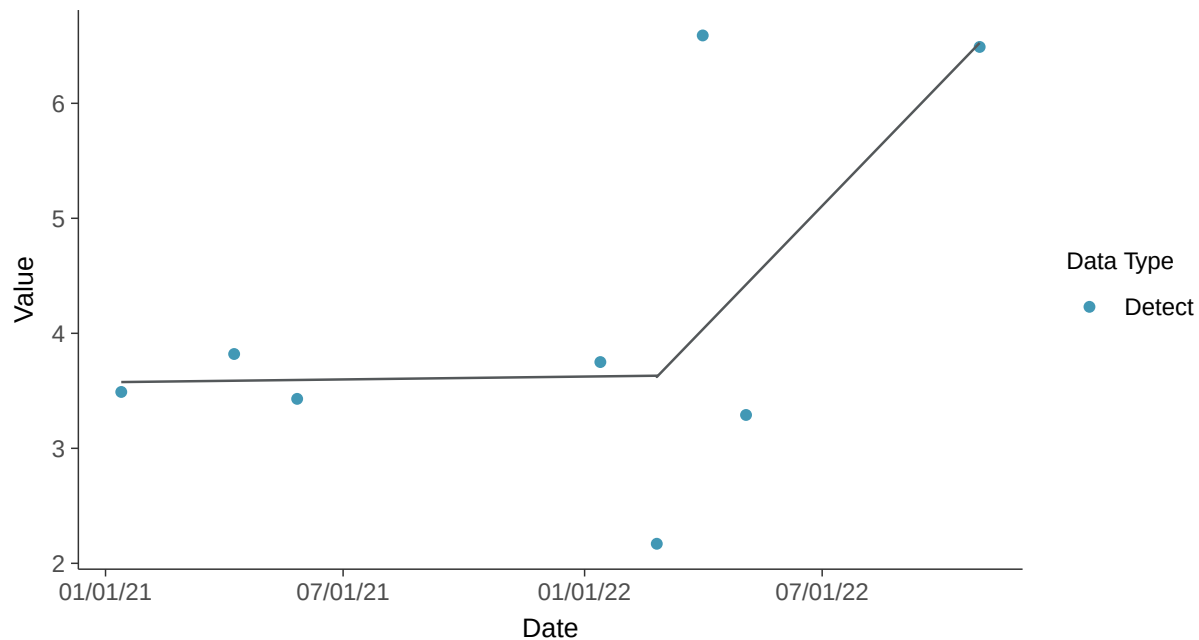
Trend Regression: Lognormal MLE

Radium-226+228, W-11 (pci/l)



Trend Regression: Piecewise Linear-Linear

Radium-226+228, W-11 (pci/l)

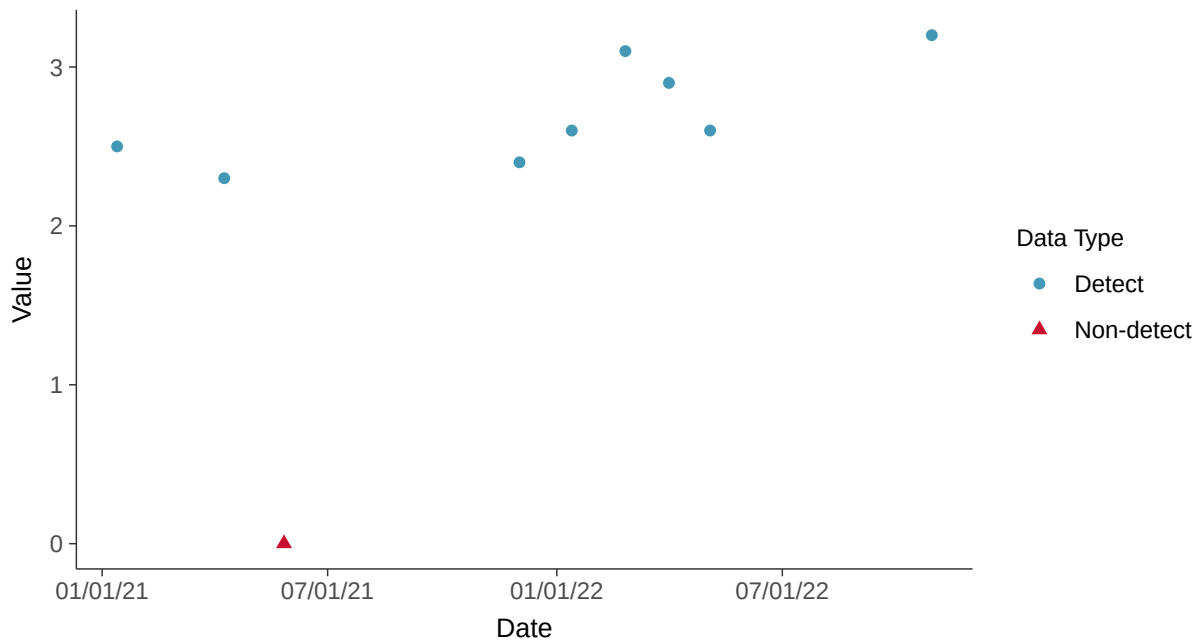


Appendix IV: Selenium, W-11

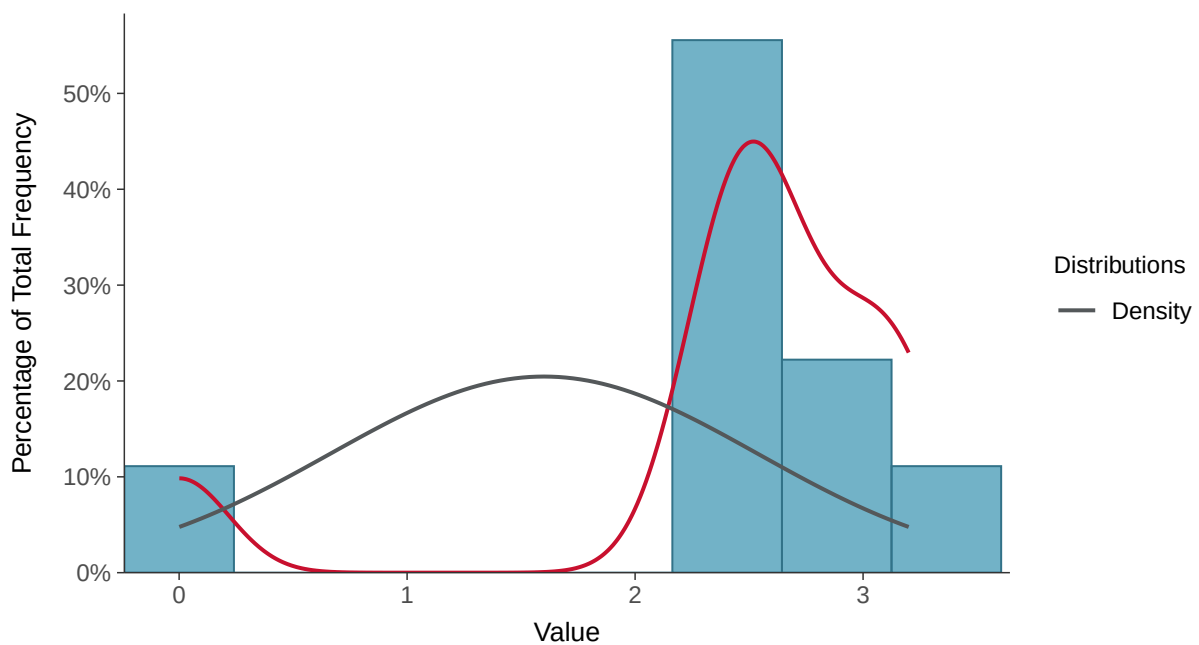
ID: 2_2_122

Scatter Plot

Selenium, W-11 (mg/l)

**Histogram**

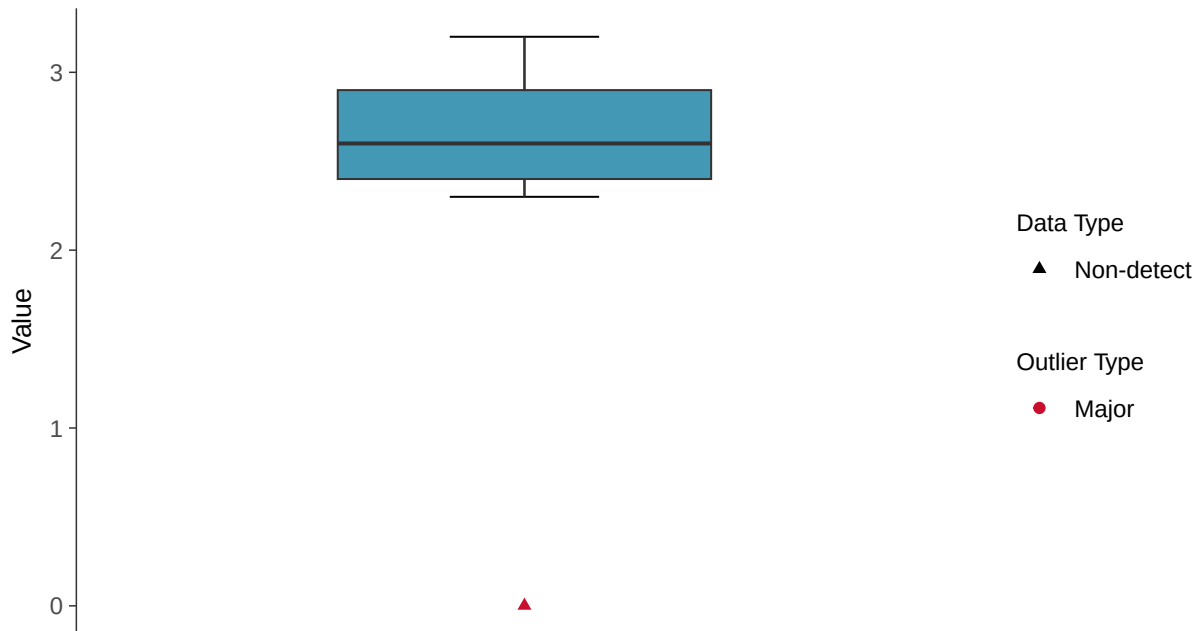
Selenium, W-11 (mg/l)



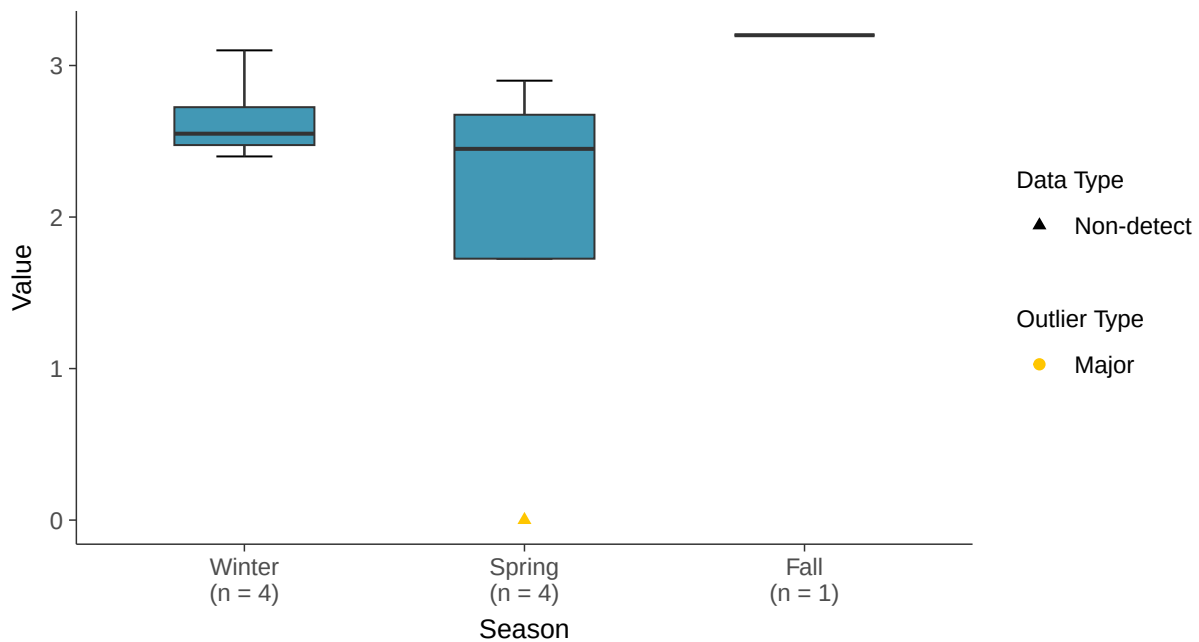
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Selenium, W-11 (mg/l)

**Boxplot by Season**

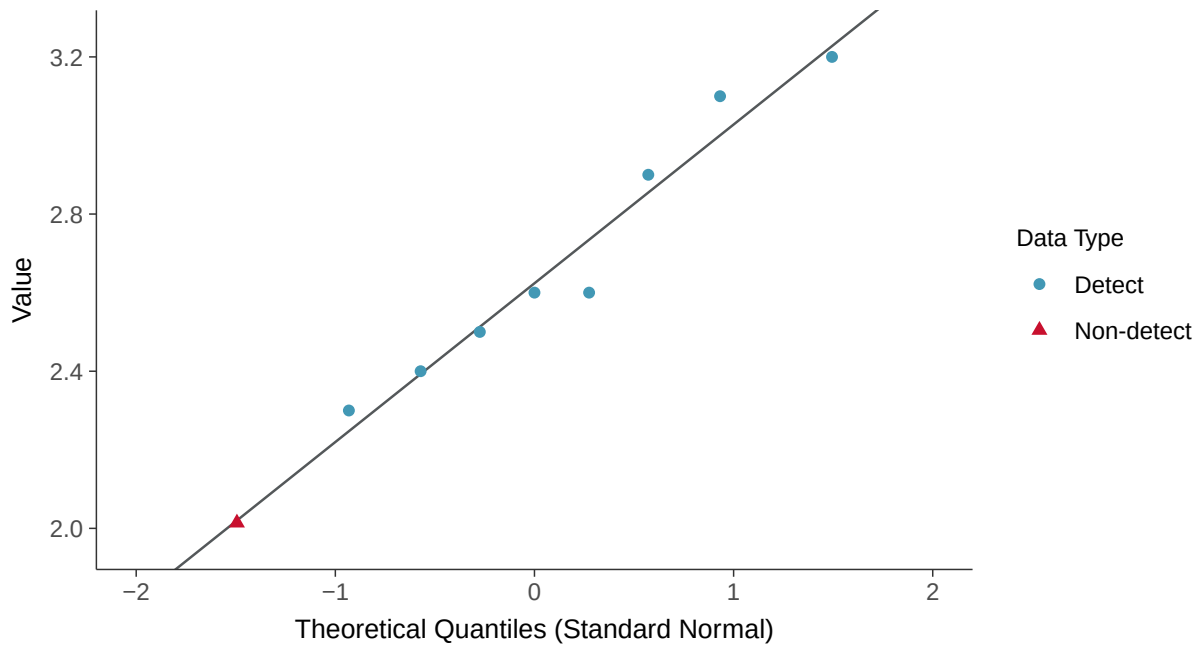
Selenium, W-11 (mg/l)



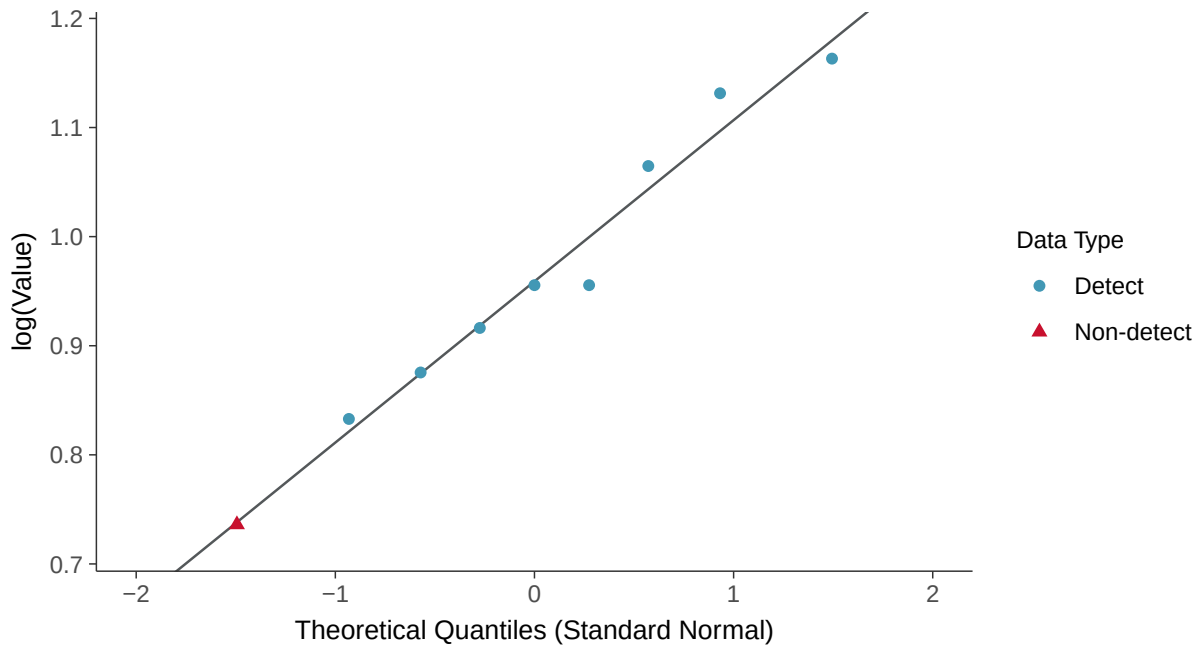
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Normal Q-Q plot using ROS Imputed Estimates

Selenium, W-11 (mg/l)

**Lognormal Q-Q plot using ROS Imputed Estimates**

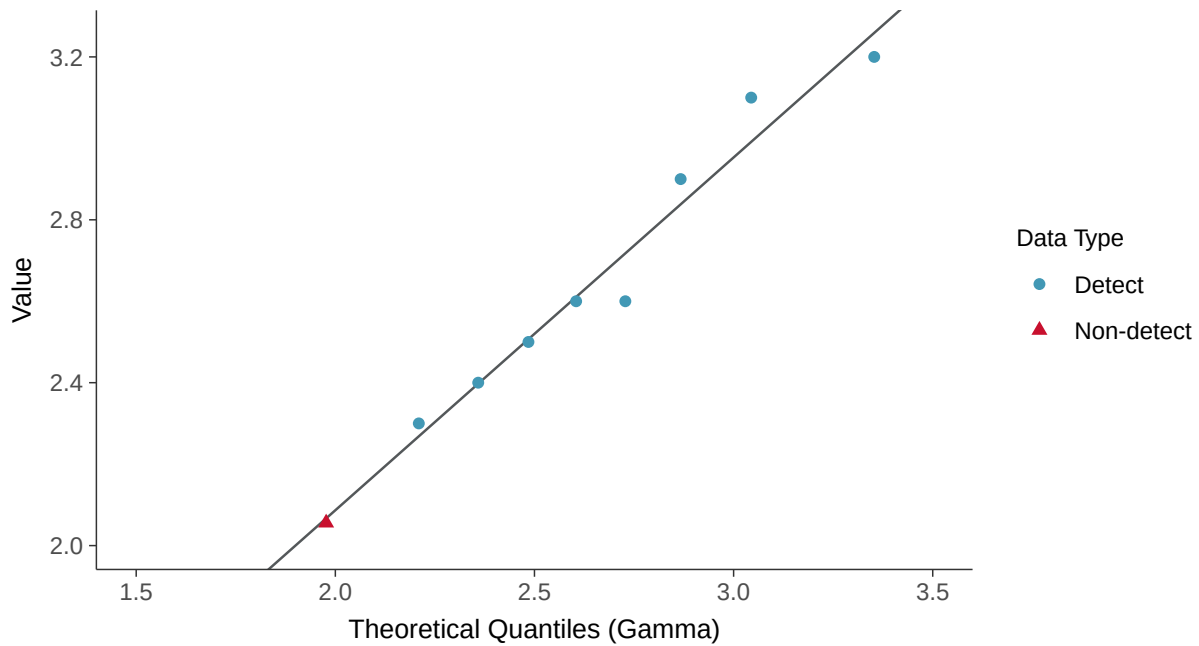
Selenium, W-11 (mg/l)





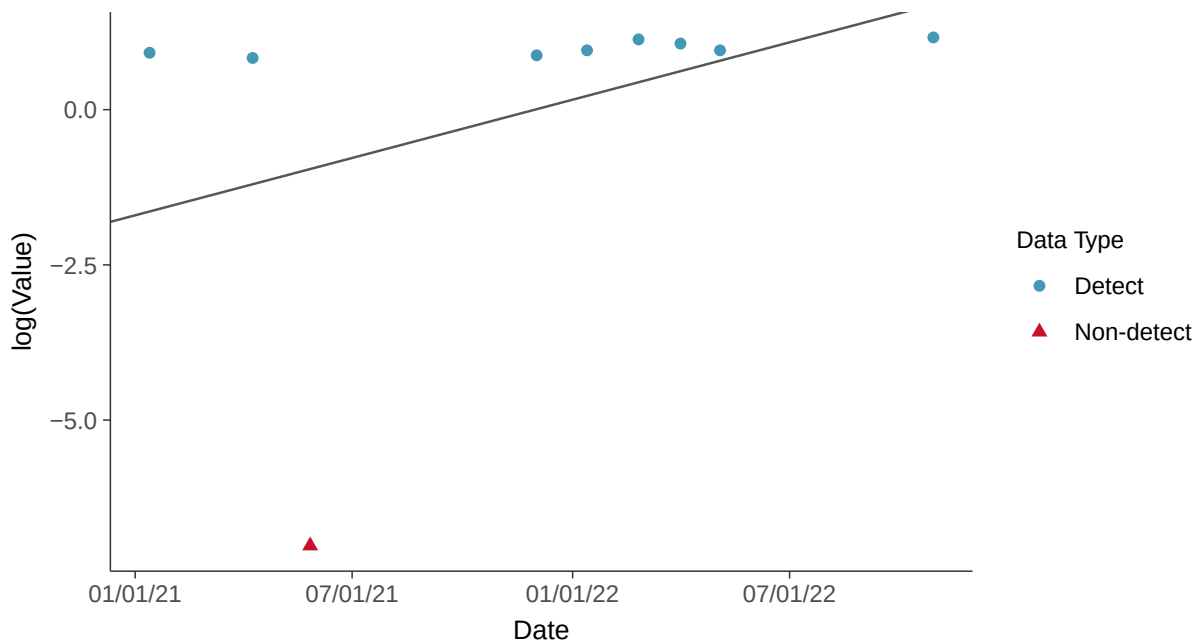
Gamma Q-Q plot using ROS Imputed Estimates

Selenium, W-11 (mg/l)



Trend Regression: Lognormal MLE

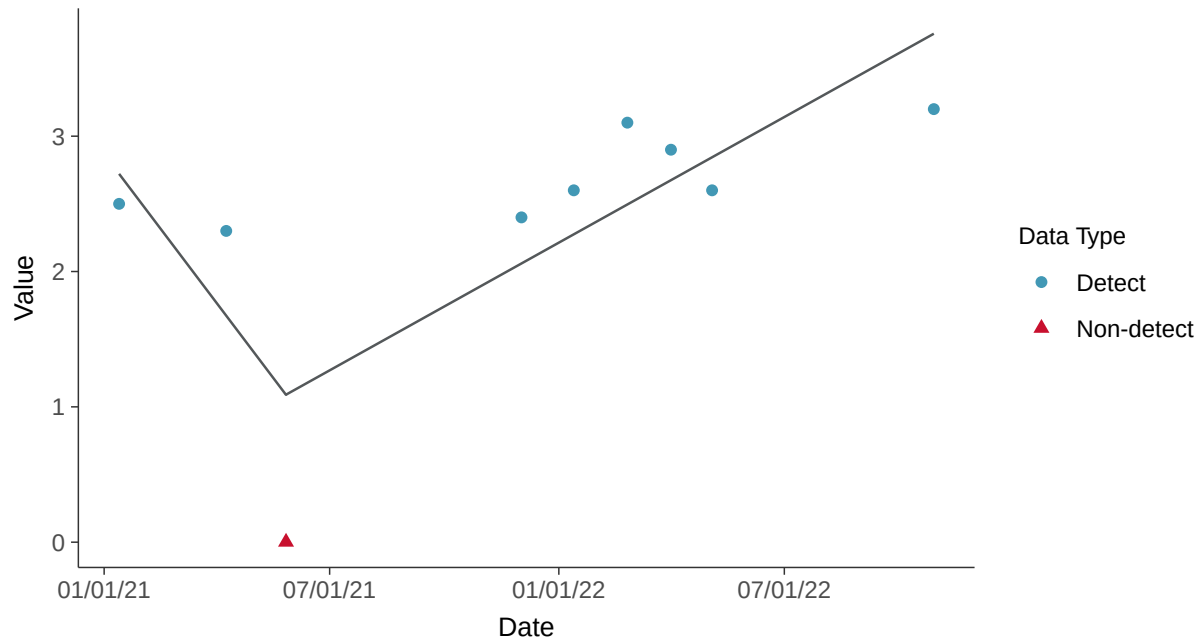
Selenium, W-11 (mg/l)



Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Trend Regression: Piecewise Linear-Linear

Selenium, W-11 (mg/l)

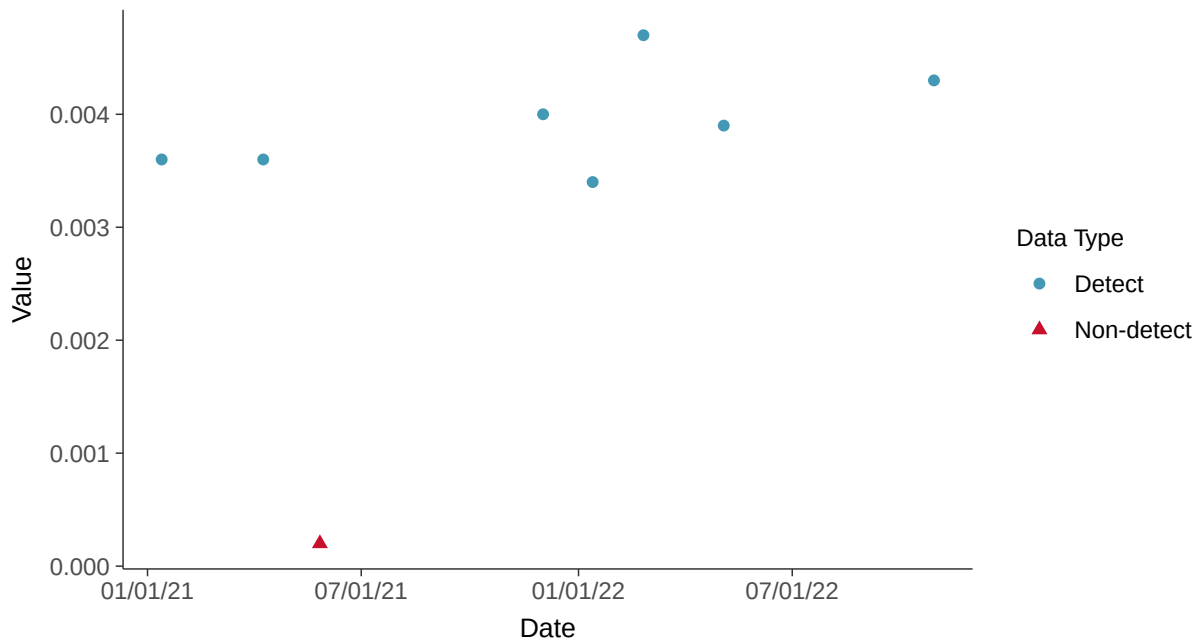


Appendix IV: Thallium, W-11

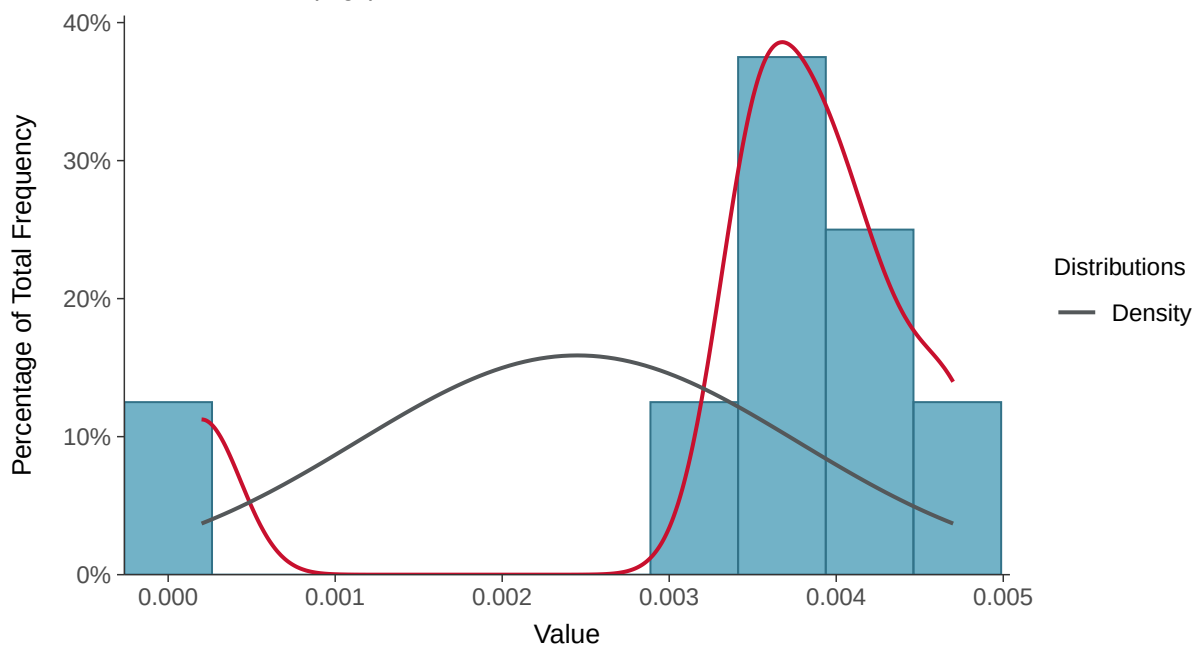
ID: 2_2_126

Scatter Plot

Thallium, W-11 (mg/l)

**Histogram**

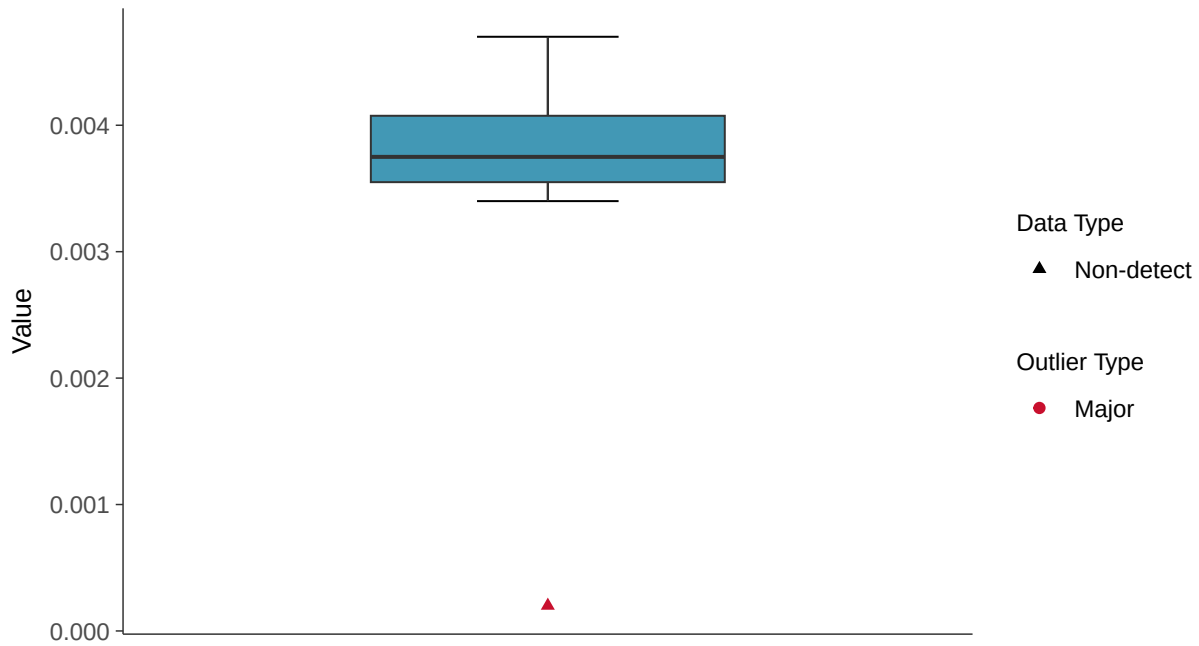
Thallium, W-11 (mg/l)



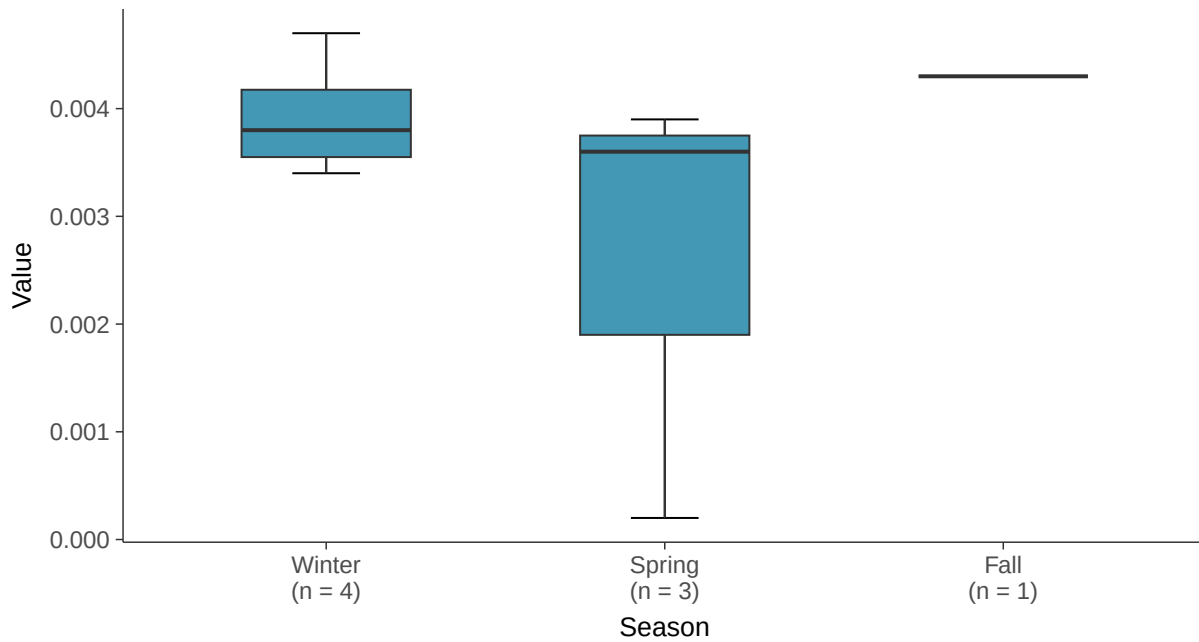
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Thallium, W-11 (mg/l)

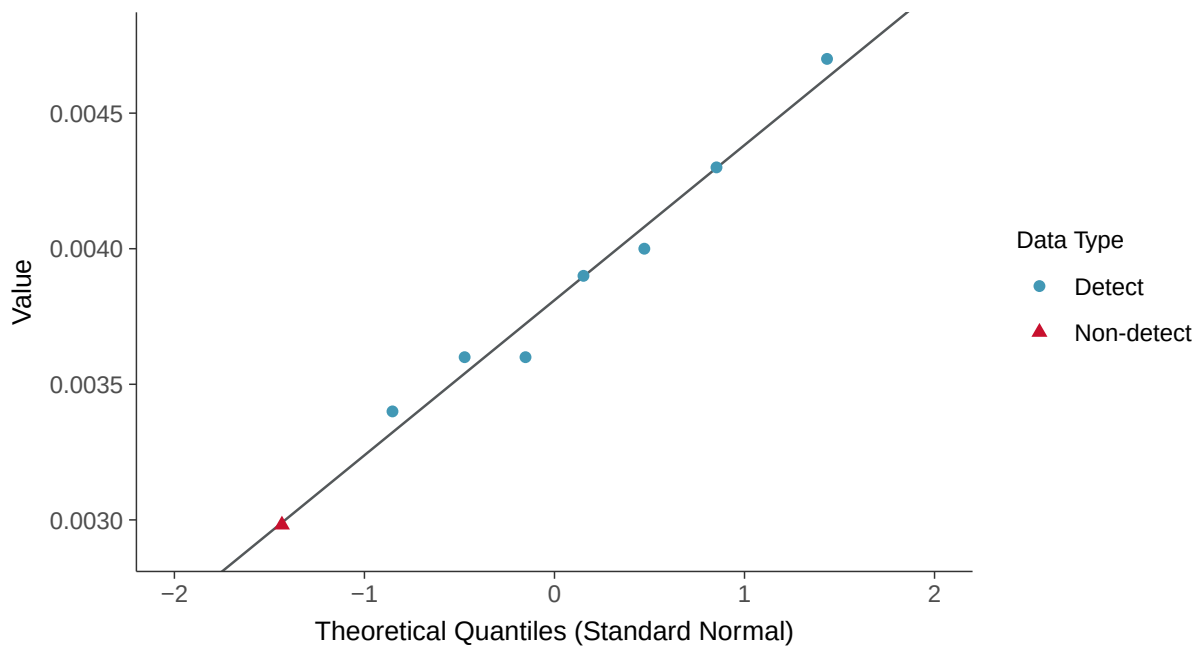
**Boxplot by Season**

Thallium, W-11 (mg/l)



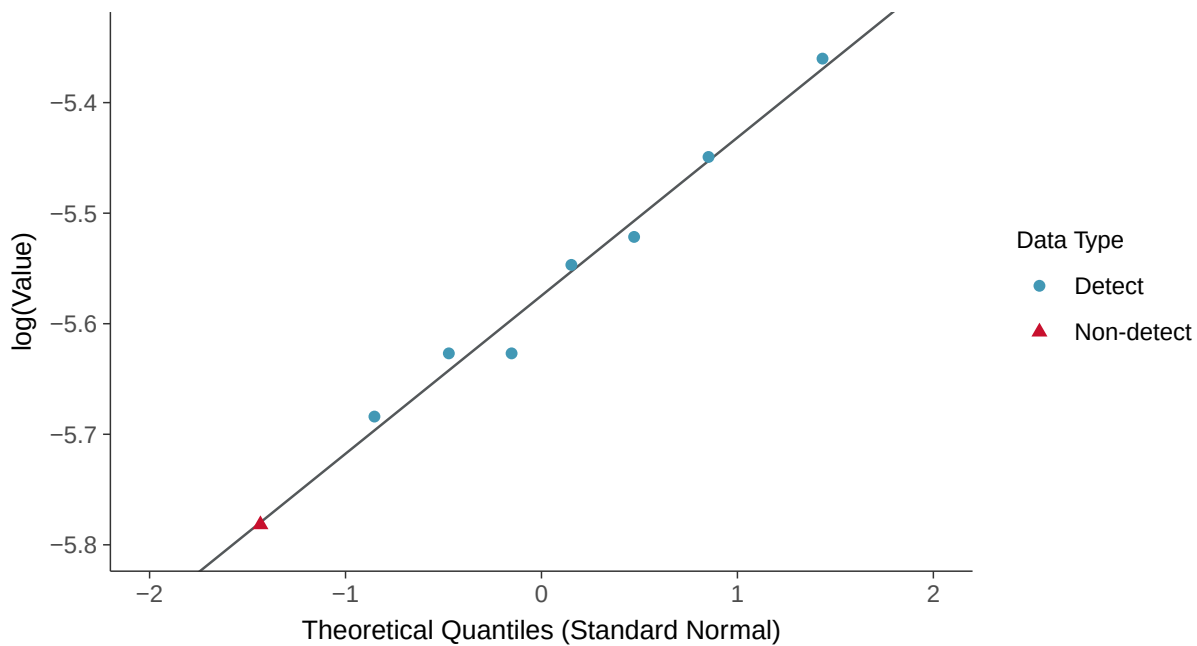
Normal Q-Q plot using ROS Imputed Estimates

Thallium, W-11 (mg/l)



Lognormal Q-Q plot using ROS Imputed Estimates

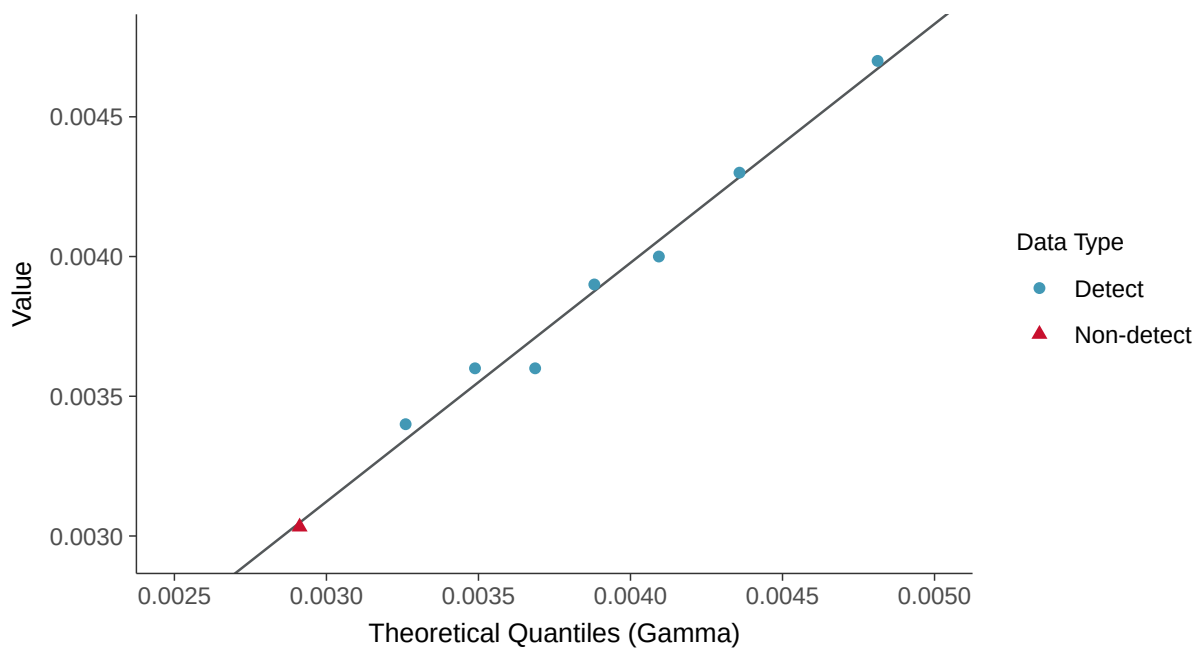
Thallium, W-11 (mg/l)





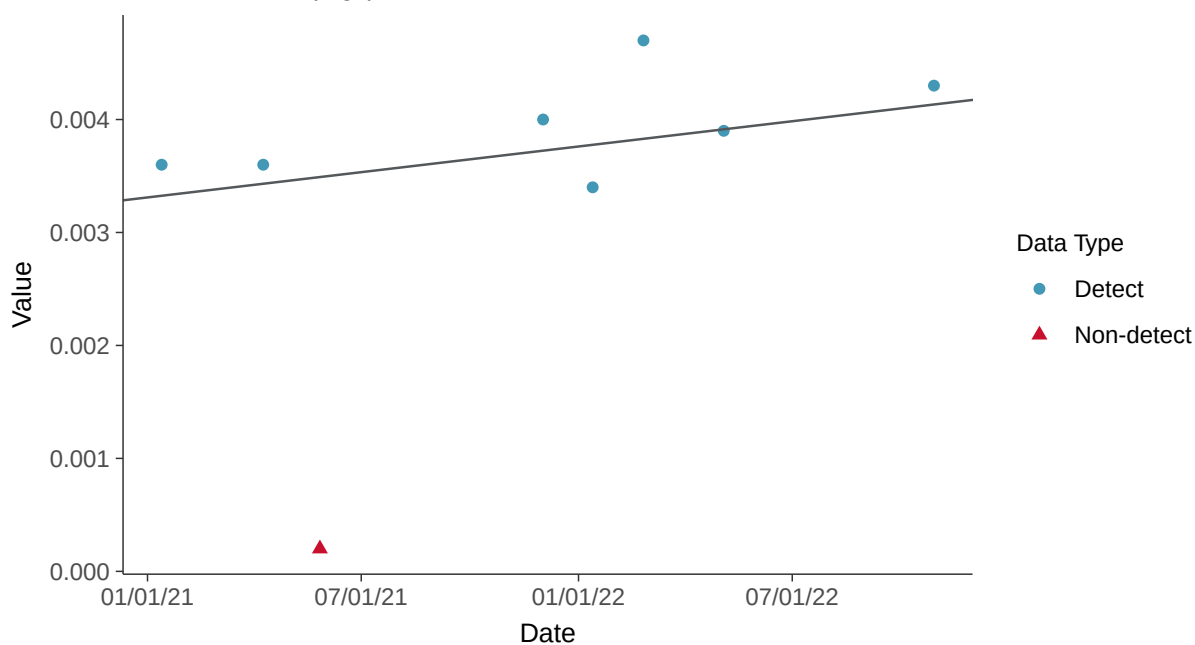
Gamma Q-Q plot using ROS Imputed Estimates

Thallium, W-11 (mg/l)



Trend Regression: Mann-Kendall/Theil-Sen Estimate

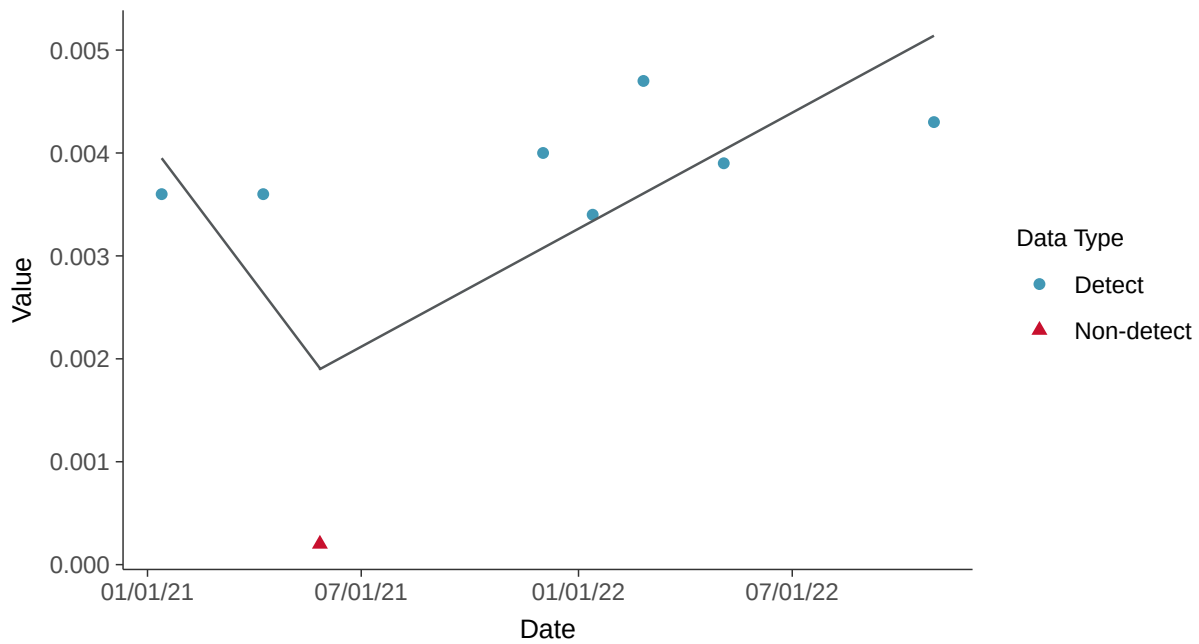
Thallium, W-11 (mg/l)





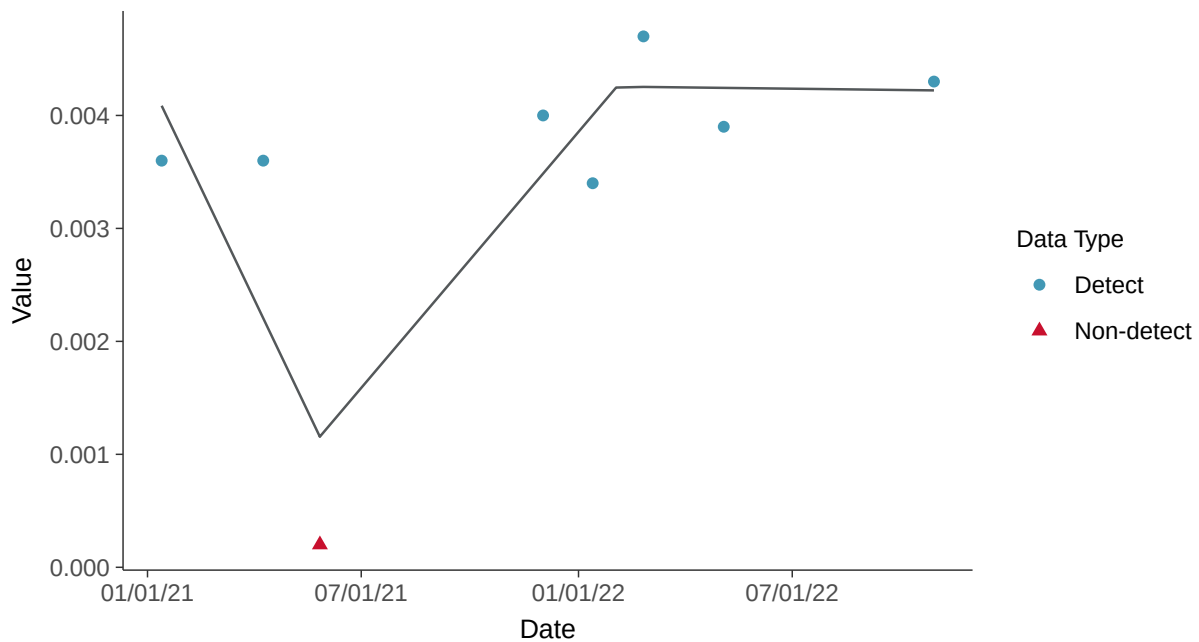
Trend Regression: Piecewise Linear-Linear

Thallium, W-11 (mg/l)



Trend Regression: Piecewise Linear-Linear-Linear

Thallium, W-11 (mg/l)

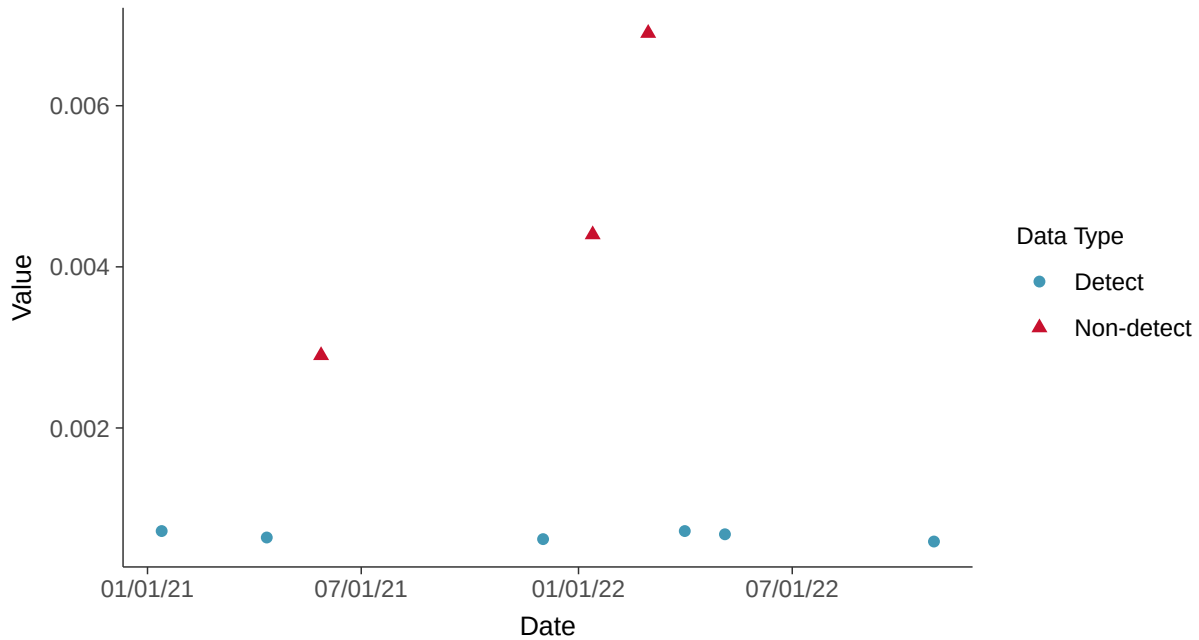


Appendix IV: Antimony, W-12

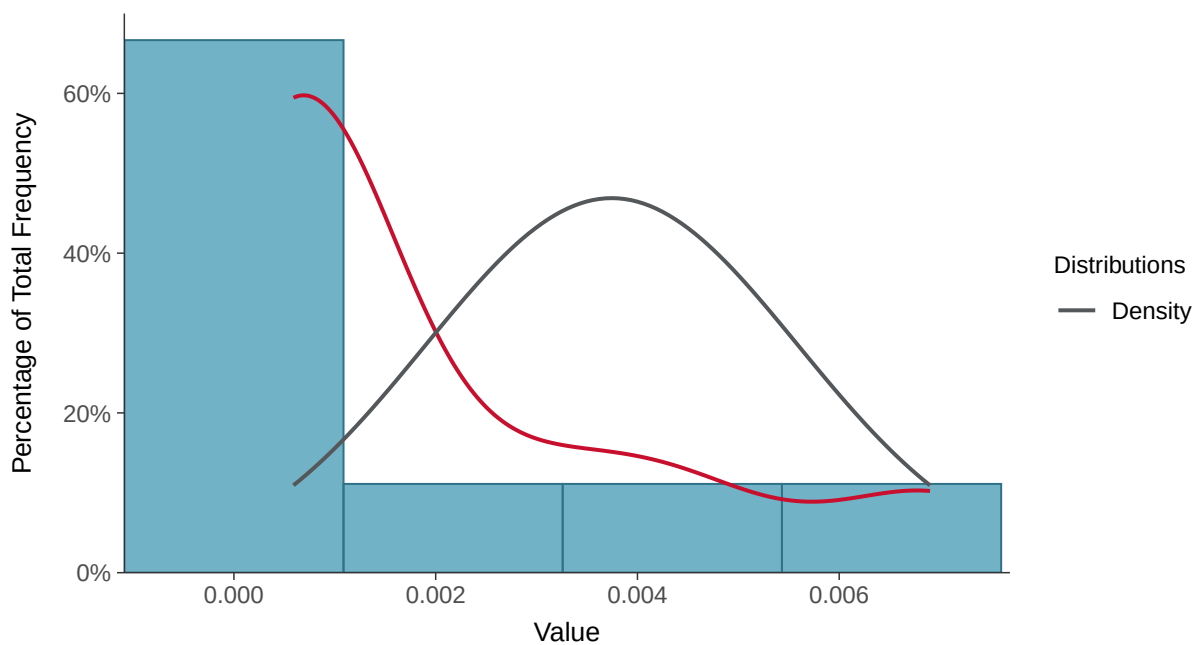
ID: 3_2_101

Scatter Plot

Antimony, W-12 (mg/l)

**Histogram**

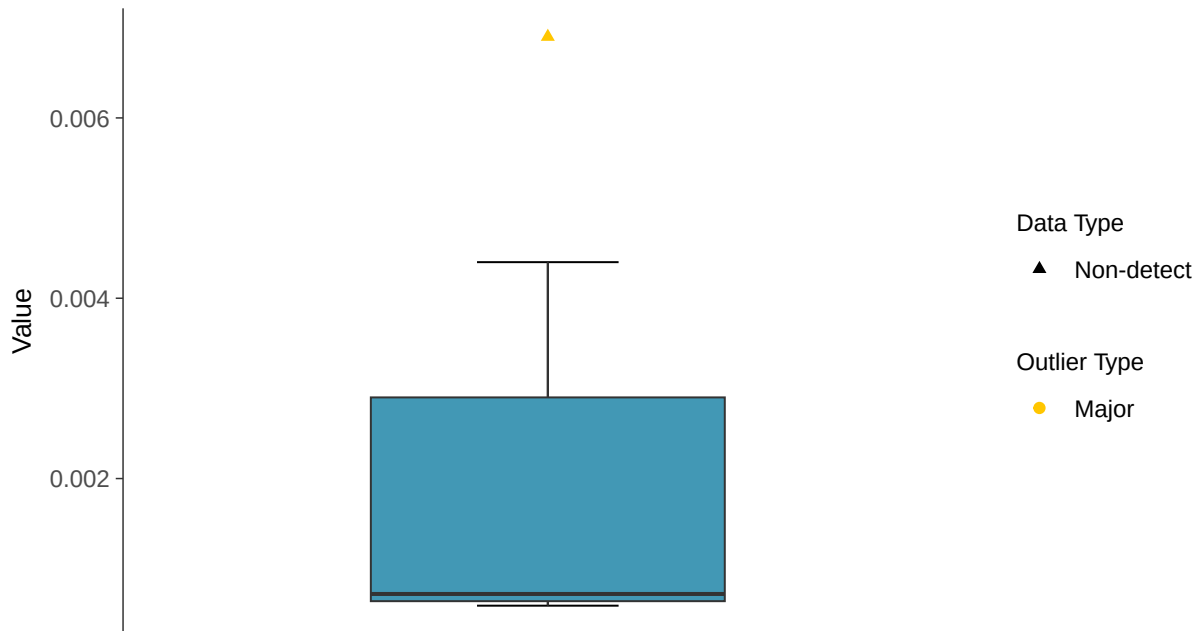
Antimony, W-12 (mg/l)





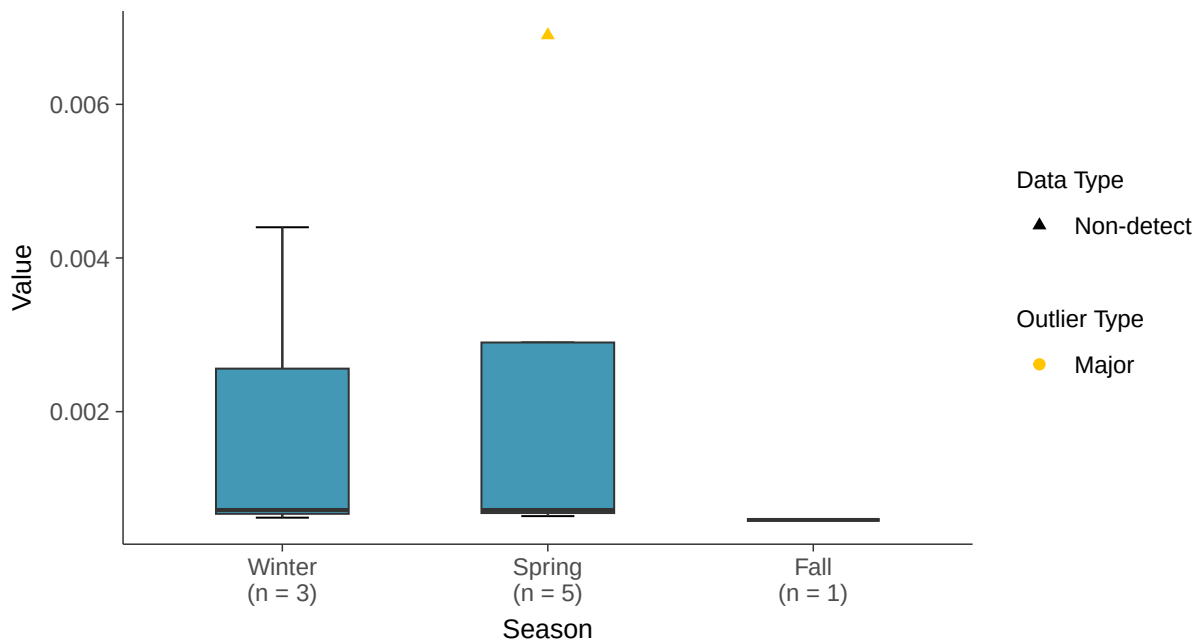
Boxplot

Antimony, W-12 (mg/l)



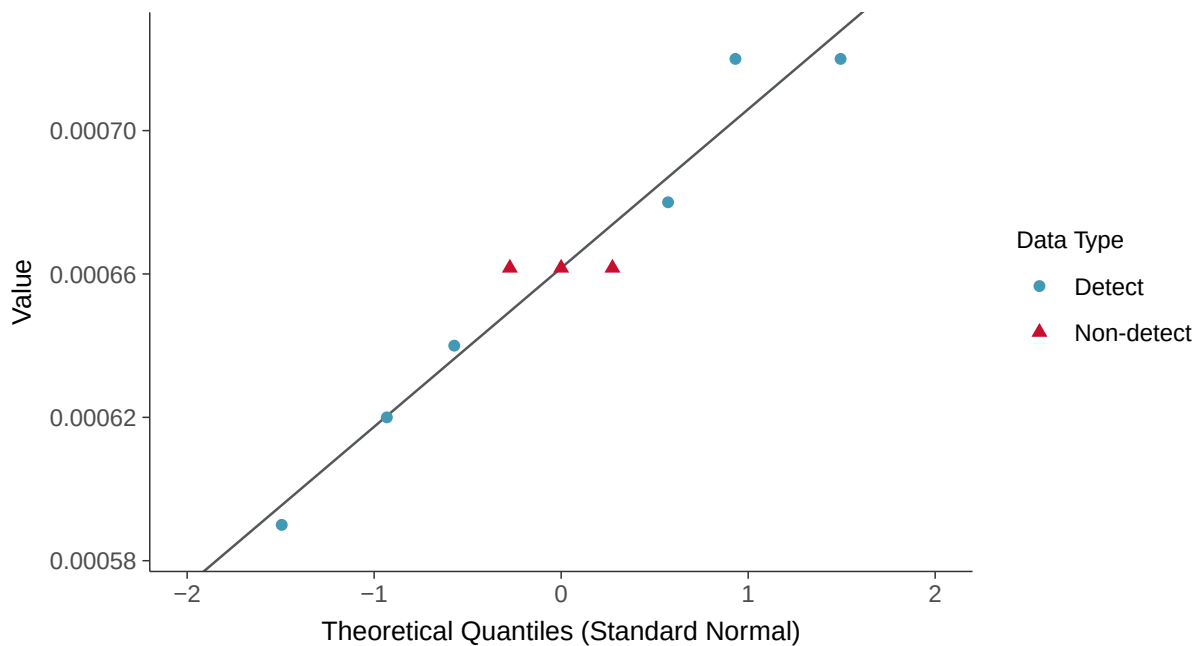
Boxplot by Season

Antimony, W-12 (mg/l)



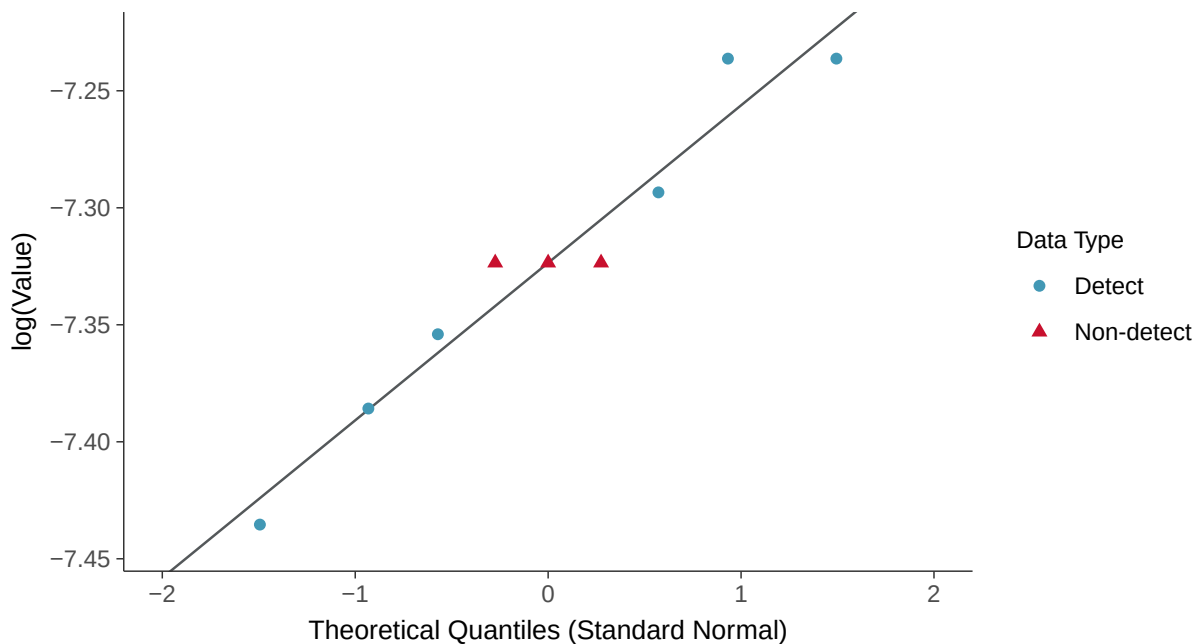
Normal Q-Q plot using ROS Imputed Estimates

Antimony, W-12 (mg/l)



Lognormal Q-Q plot using ROS Imputed Estimates

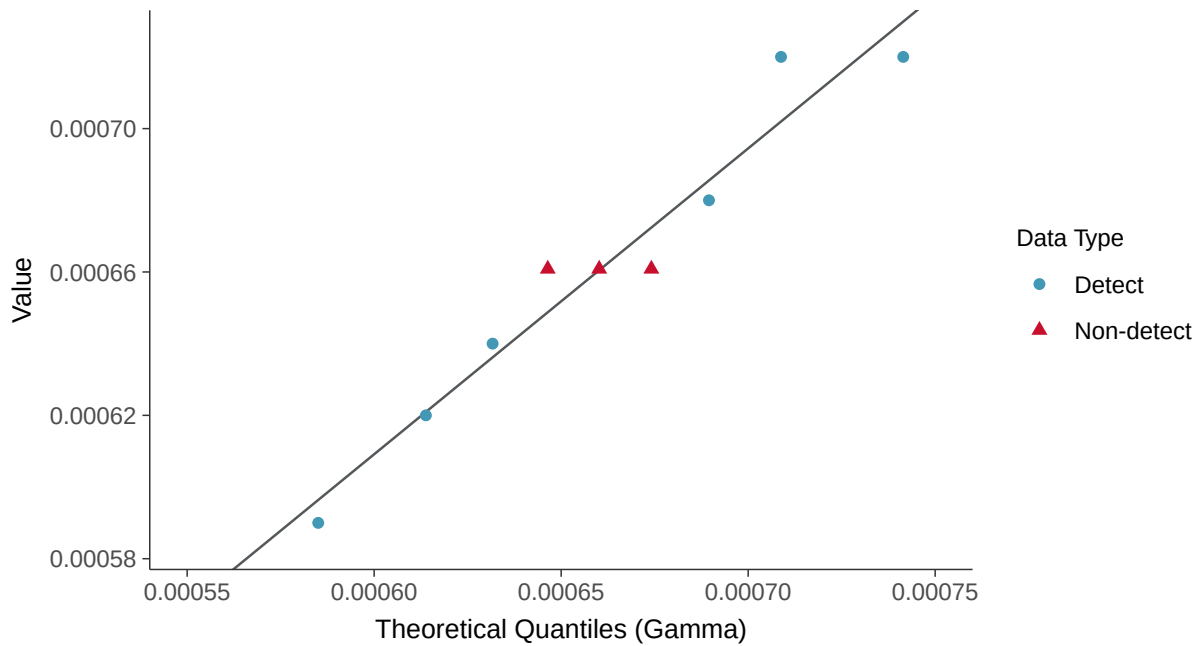
Antimony, W-12 (mg/l)





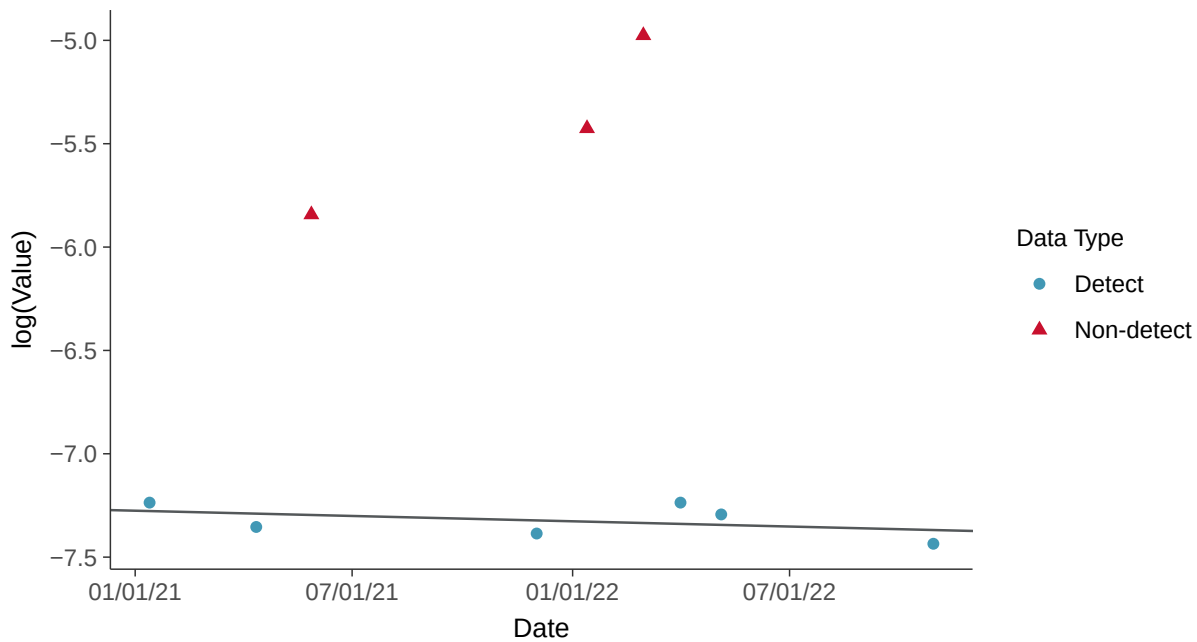
Gamma Q-Q plot using ROS Imputed Estimates

Antimony, W-12 (mg/l)



Trend Regression: Lognormal MLE

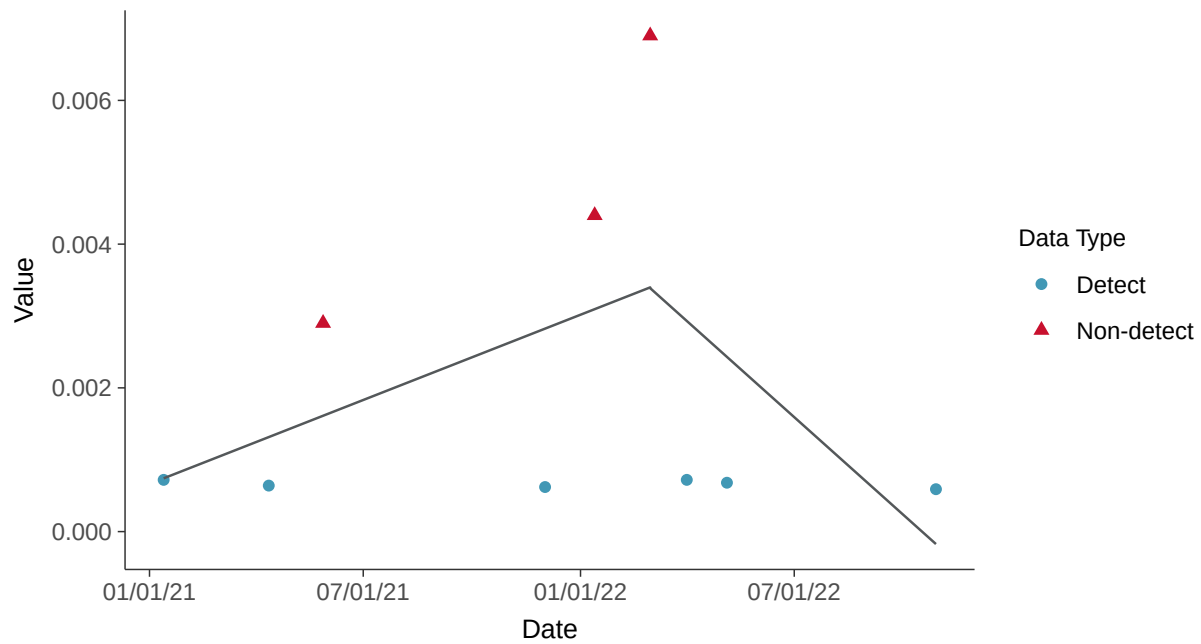
Antimony, W-12 (mg/l)



Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

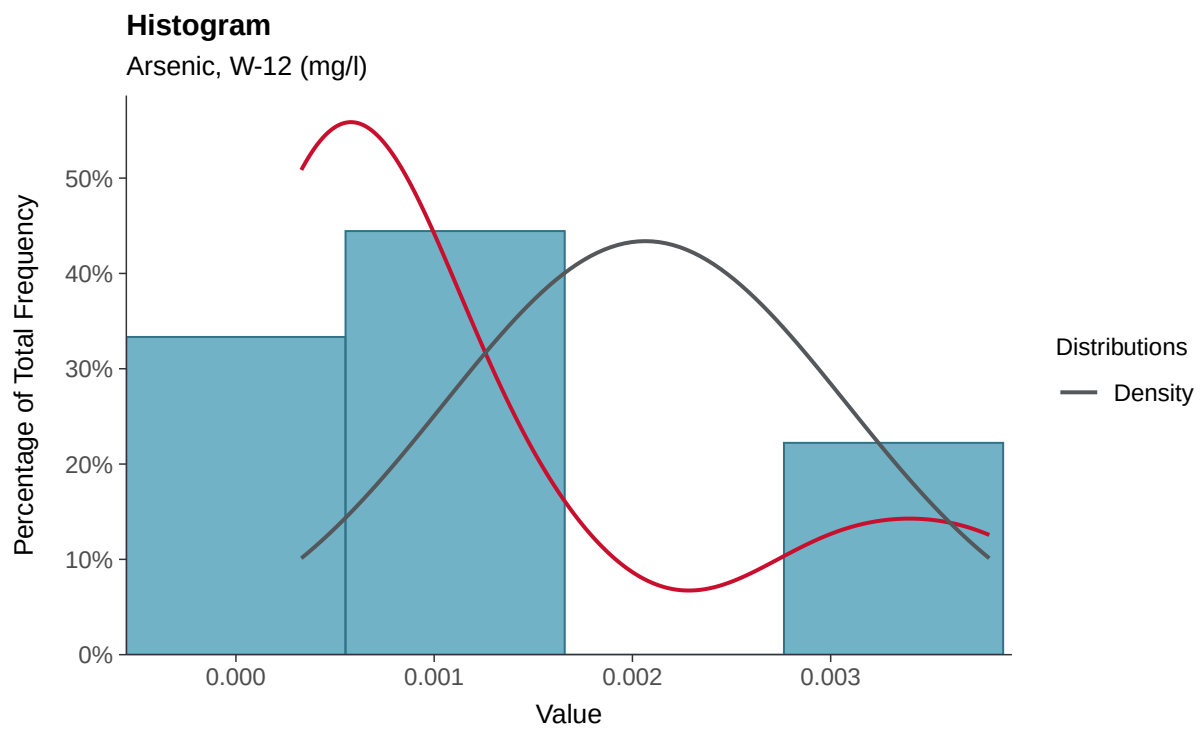
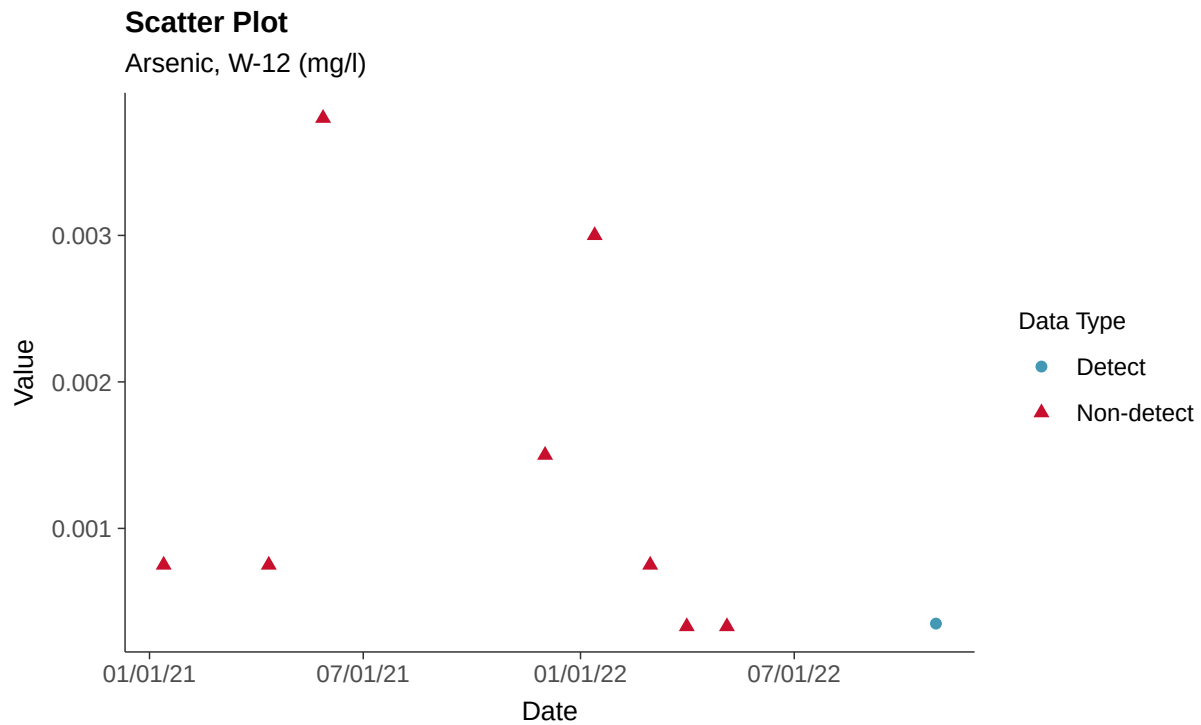
Trend Regression: Piecewise Linear-Linear

Antimony, W-12 (mg/l)



Appendix IV: Arsenic, W-12

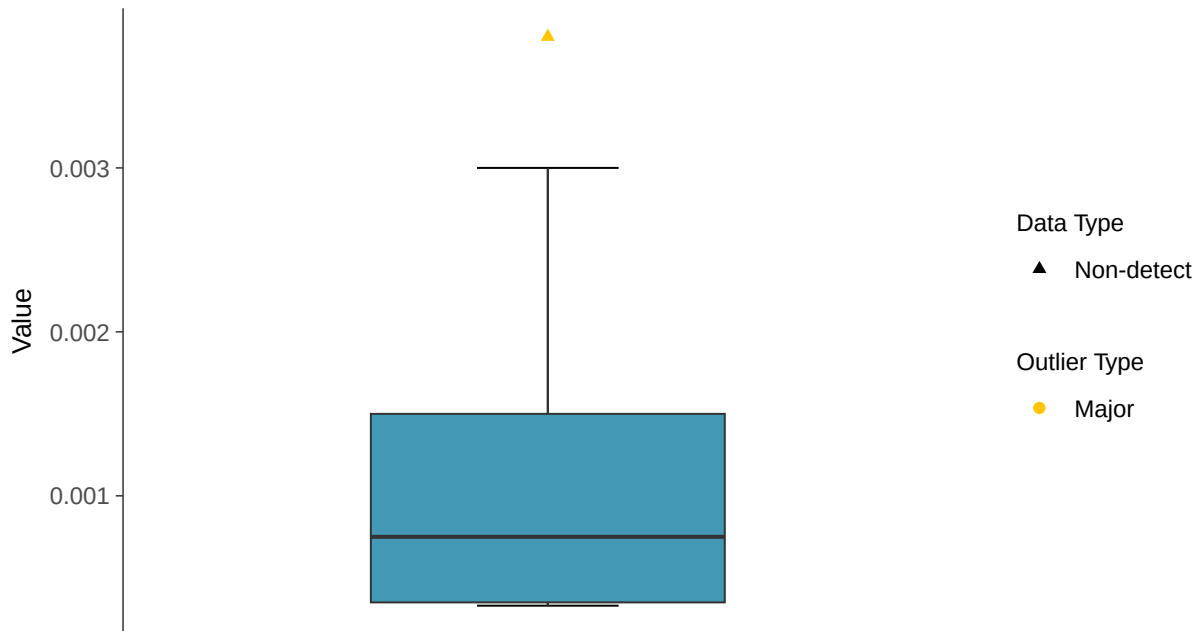
ID: 3_2_102



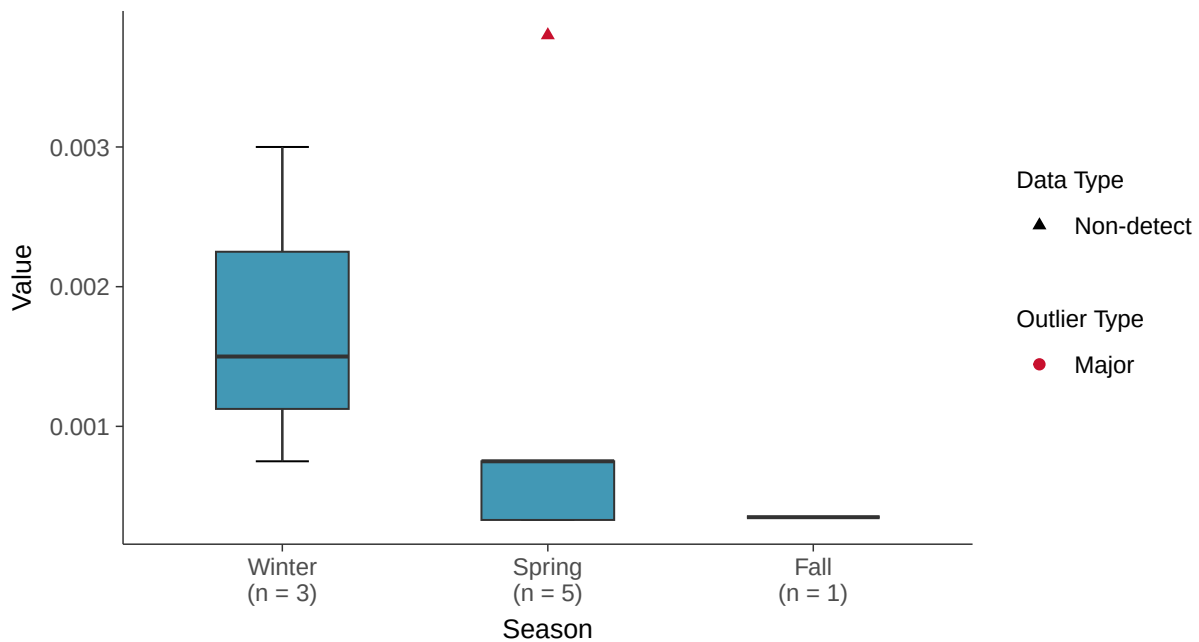
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Arsenic, W-12 (mg/l)

**Boxplot by Season**

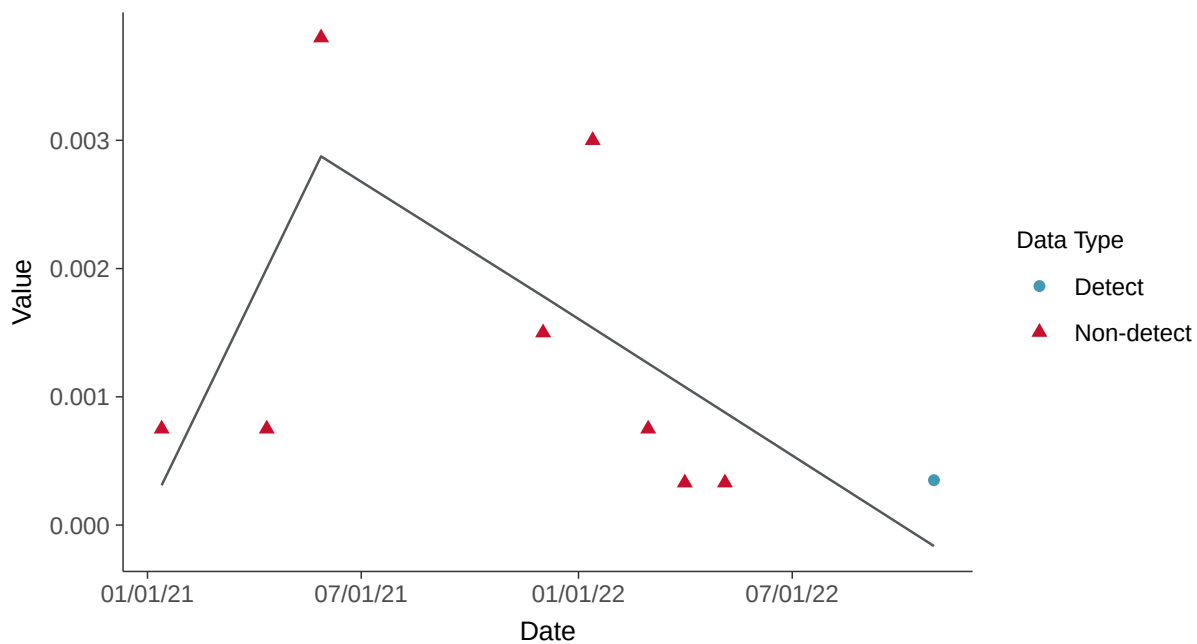
Arsenic, W-12 (mg/l)





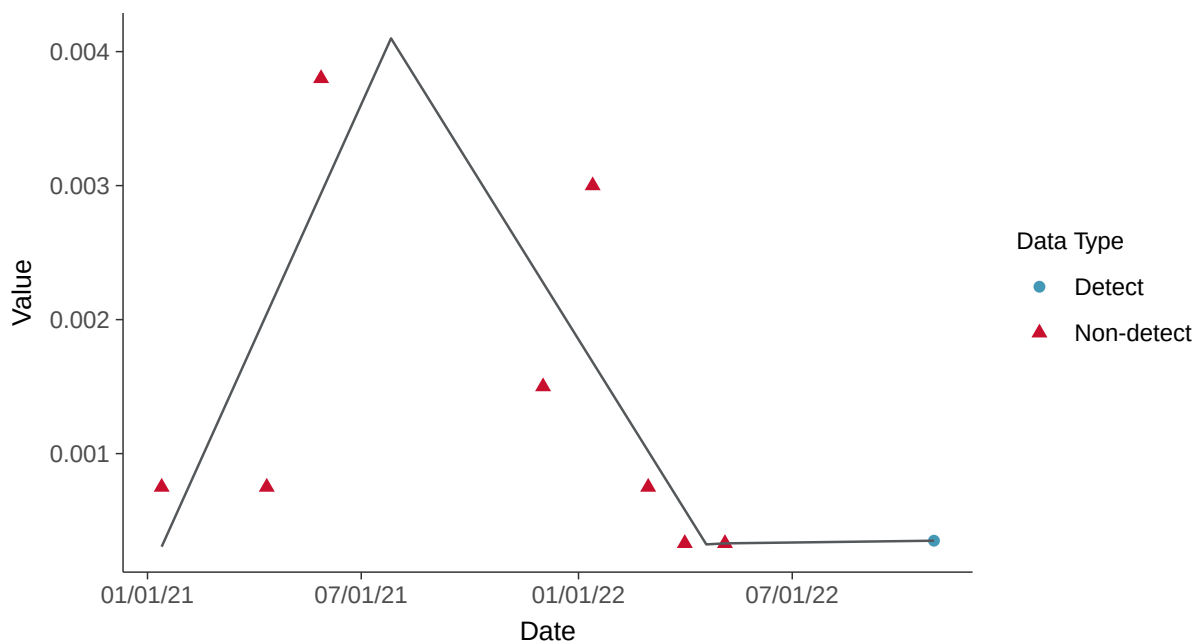
Trend Regression: Piecewise Linear-Linear

Arsenic, W-12 (mg/l)



Trend Regression: Piecewise Linear-Linear-Linear

Arsenic, W-12 (mg/l)

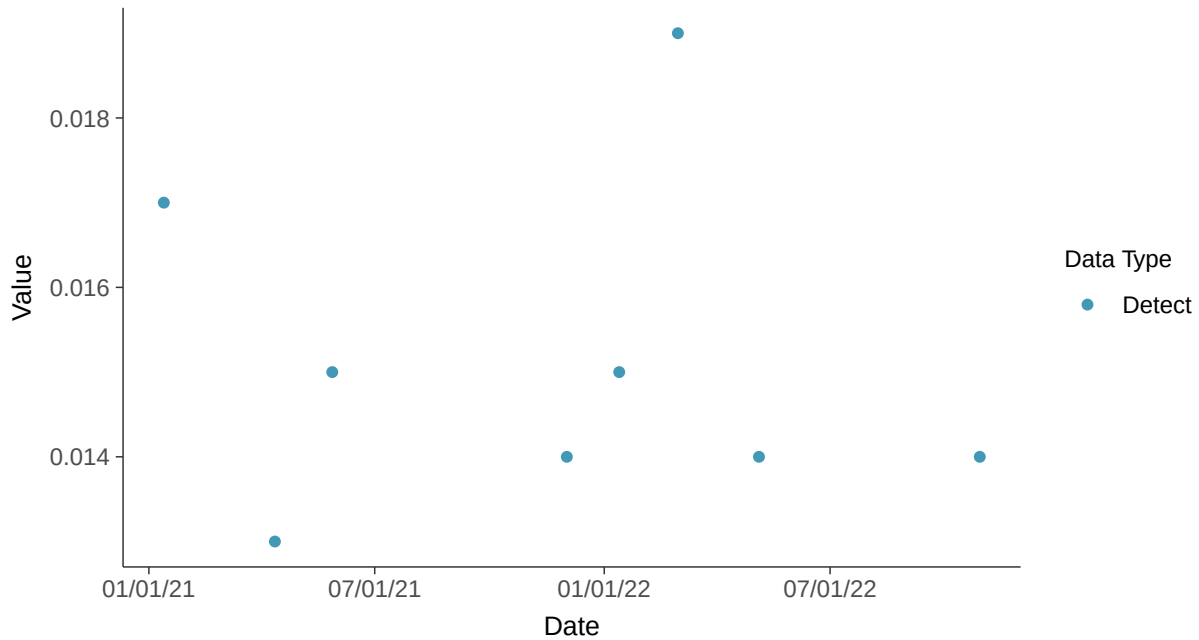


Appendix IV: Barium, W-12

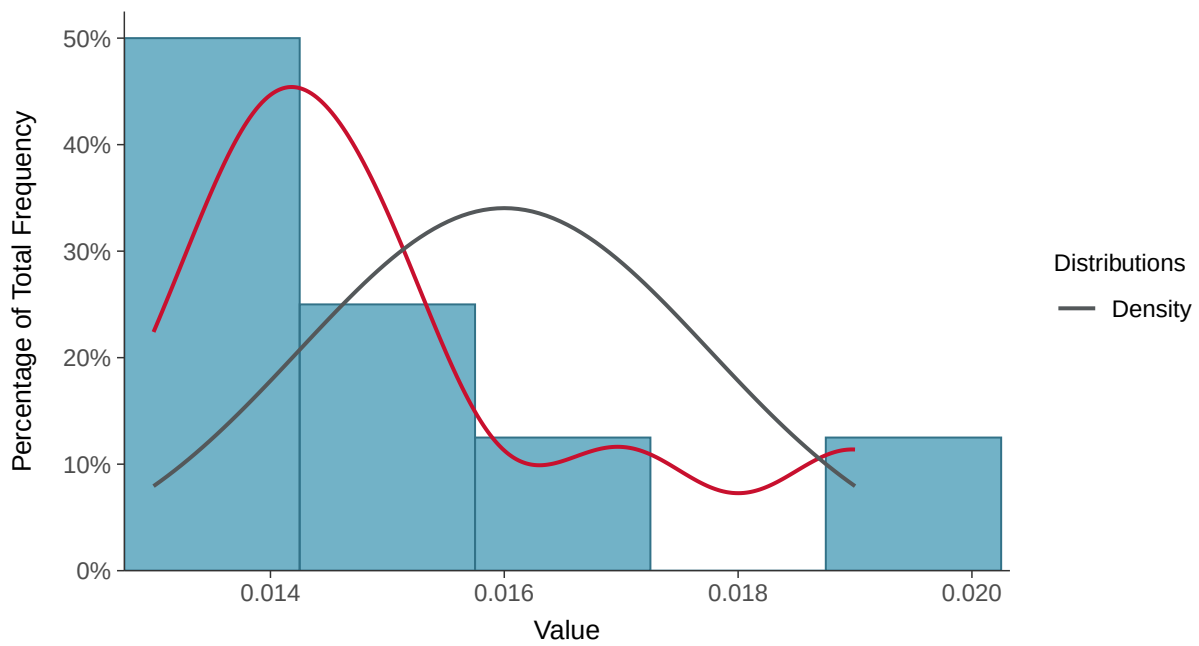
ID: 3_2_103

Scatter Plot

Barium, W-12 (mg/l)

**Histogram**

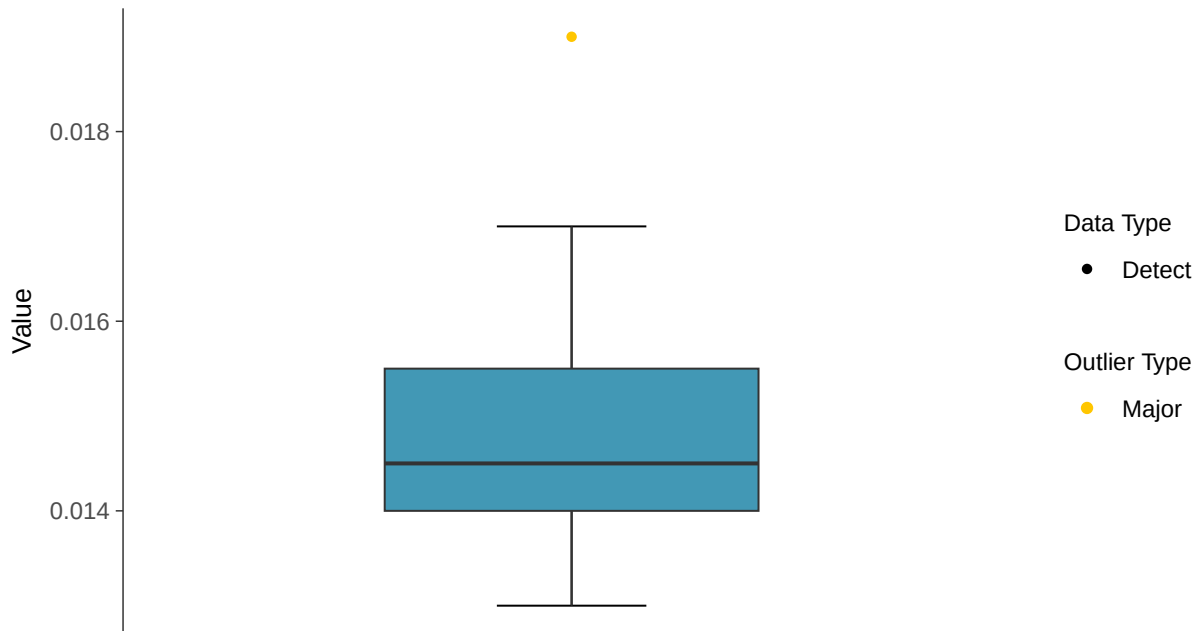
Barium, W-12 (mg/l)



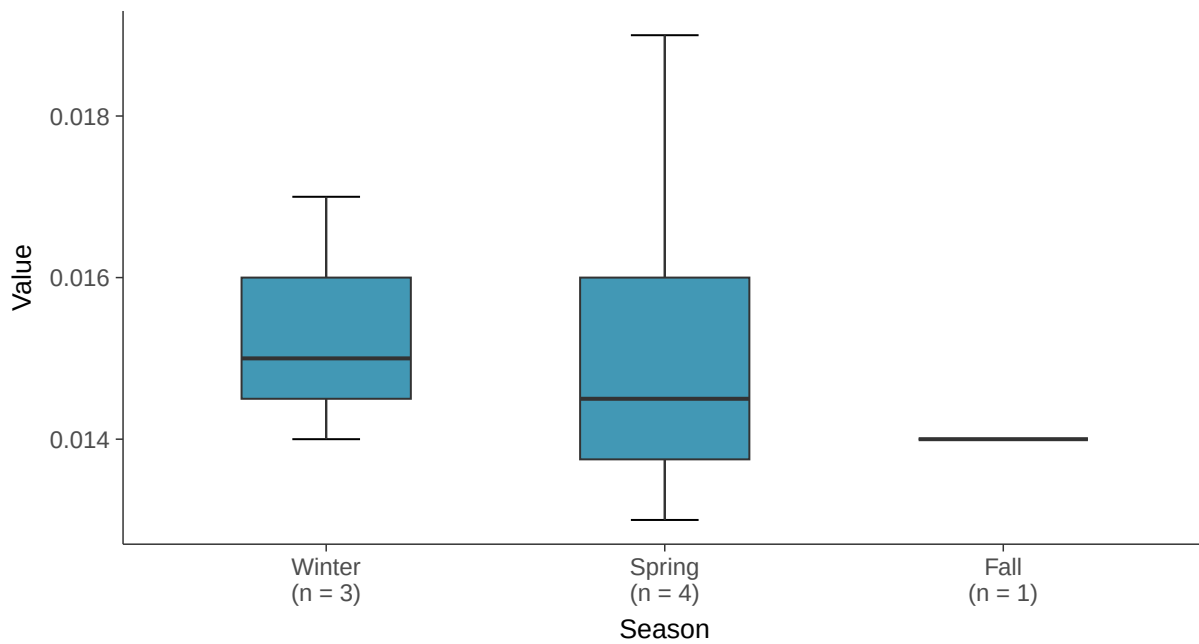
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Barium, W-12 (mg/l)

**Boxplot by Season**

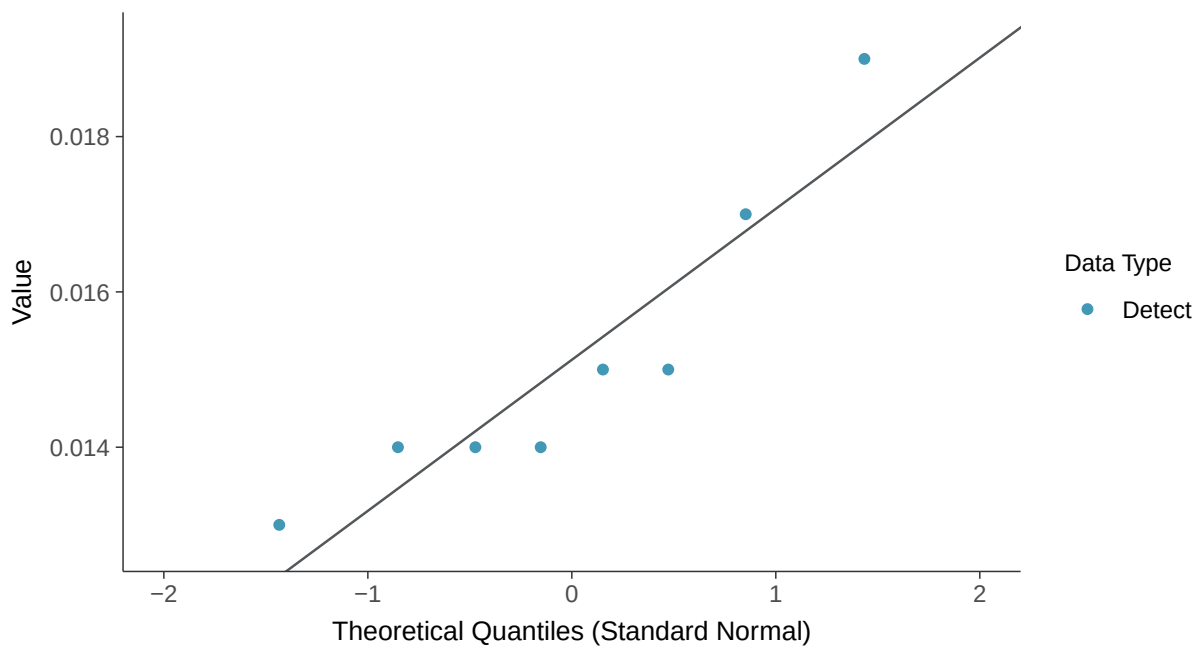
Barium, W-12 (mg/l)





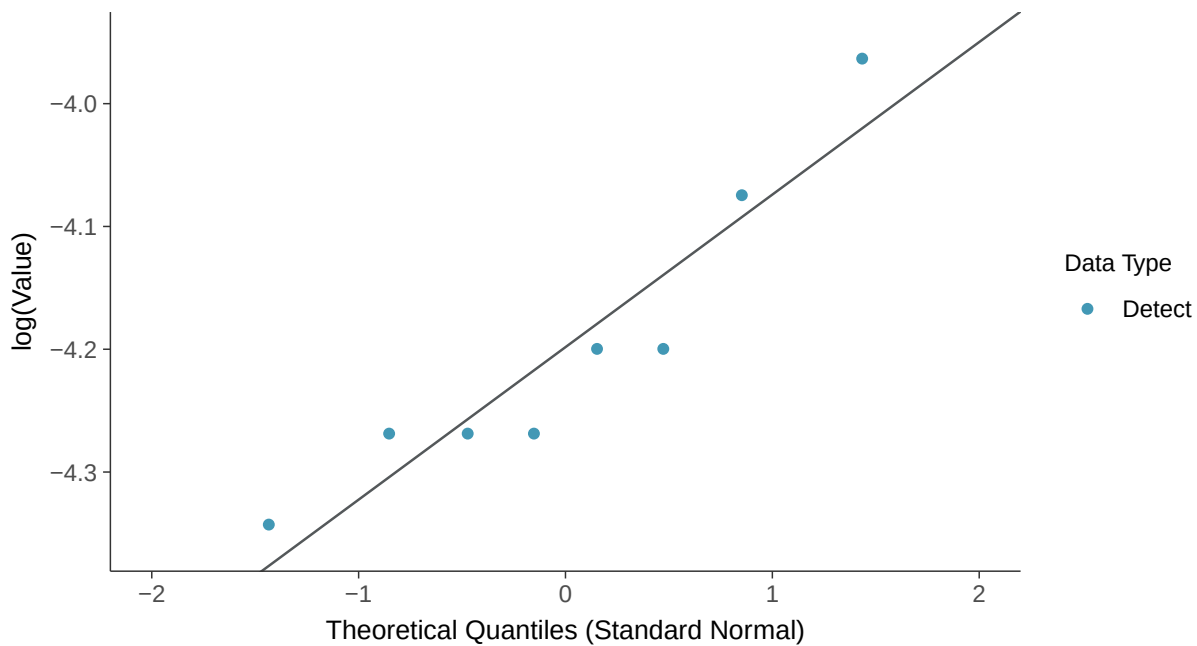
Normal Q-Q plot

Barium, W-12 (mg/l)



Lognormal Q-Q plot

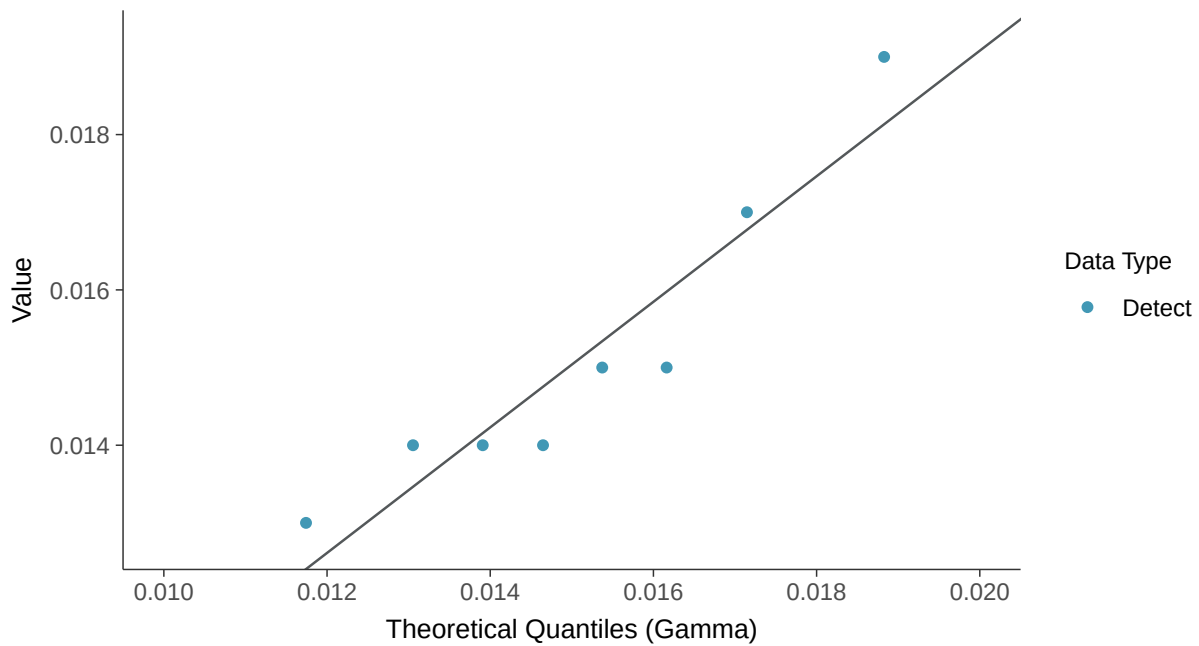
Barium, W-12 (mg/l)





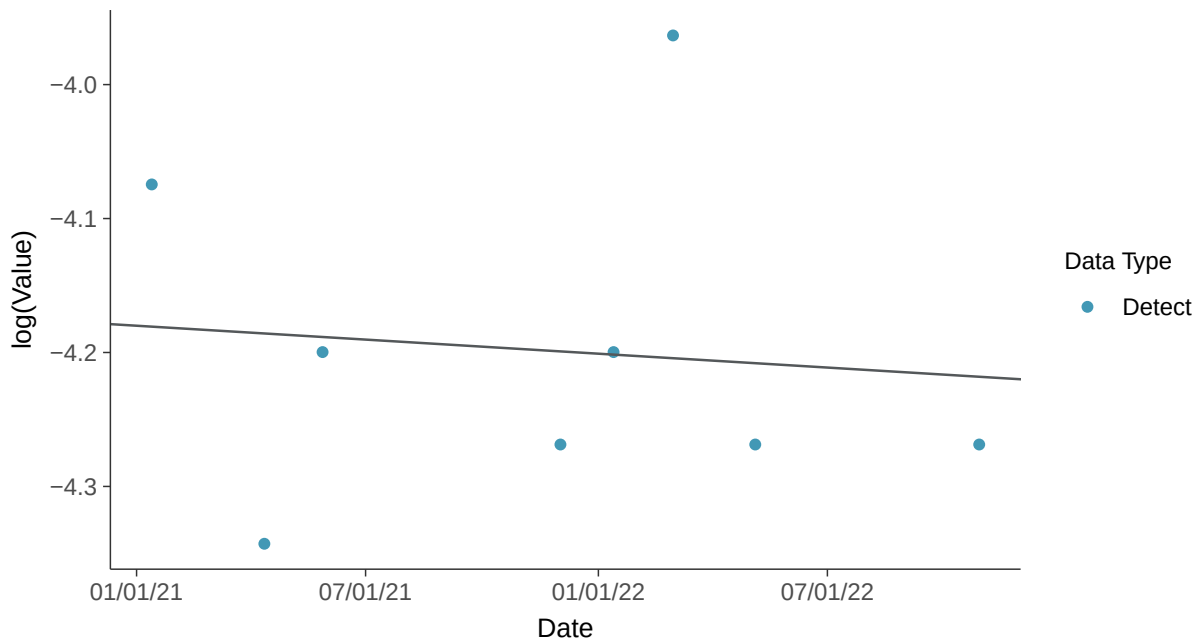
Gamma Q-Q plot

Barium, W-12 (mg/l)



Trend Regression: Lognormal MLE

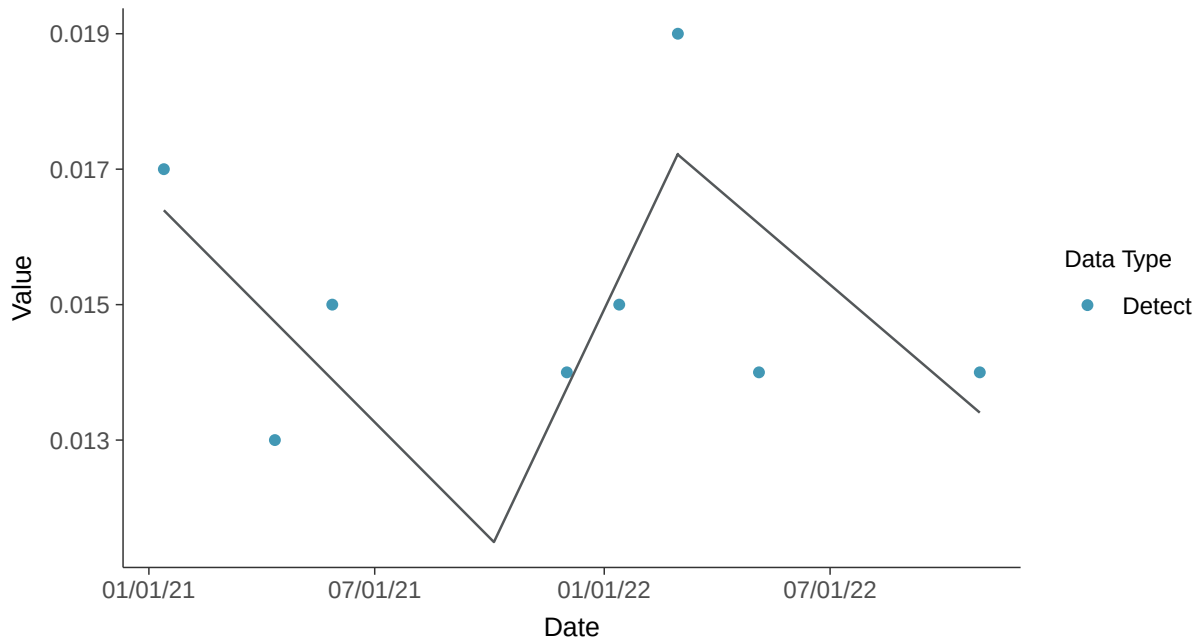
Barium, W-12 (mg/l)



Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

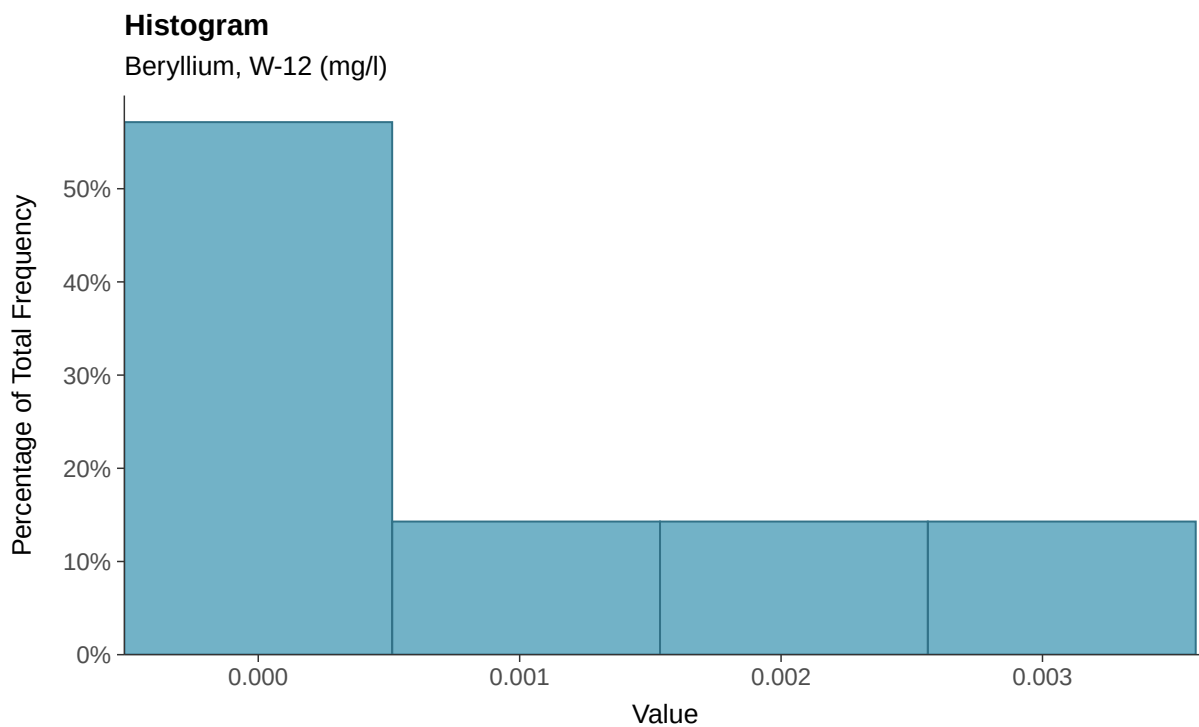
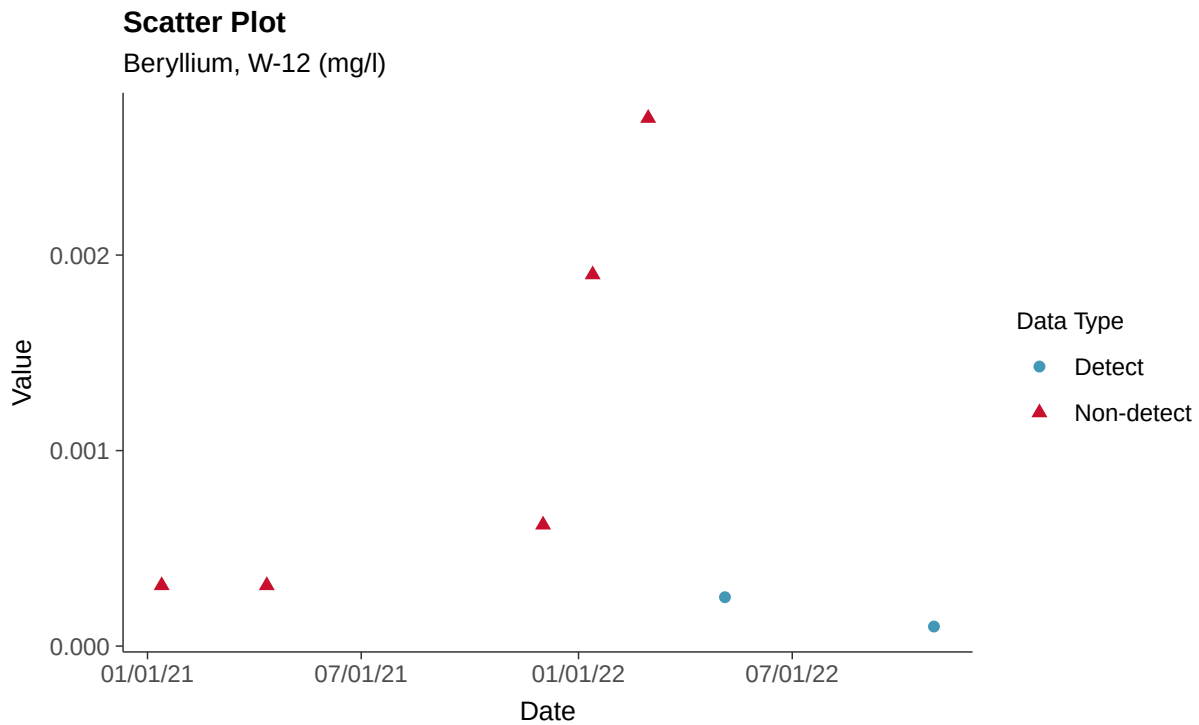
Trend Regression: Piecewise Linear-Linear-Linear

Barium, W-12 (mg/l)



Appendix IV: Beryllium, W-12

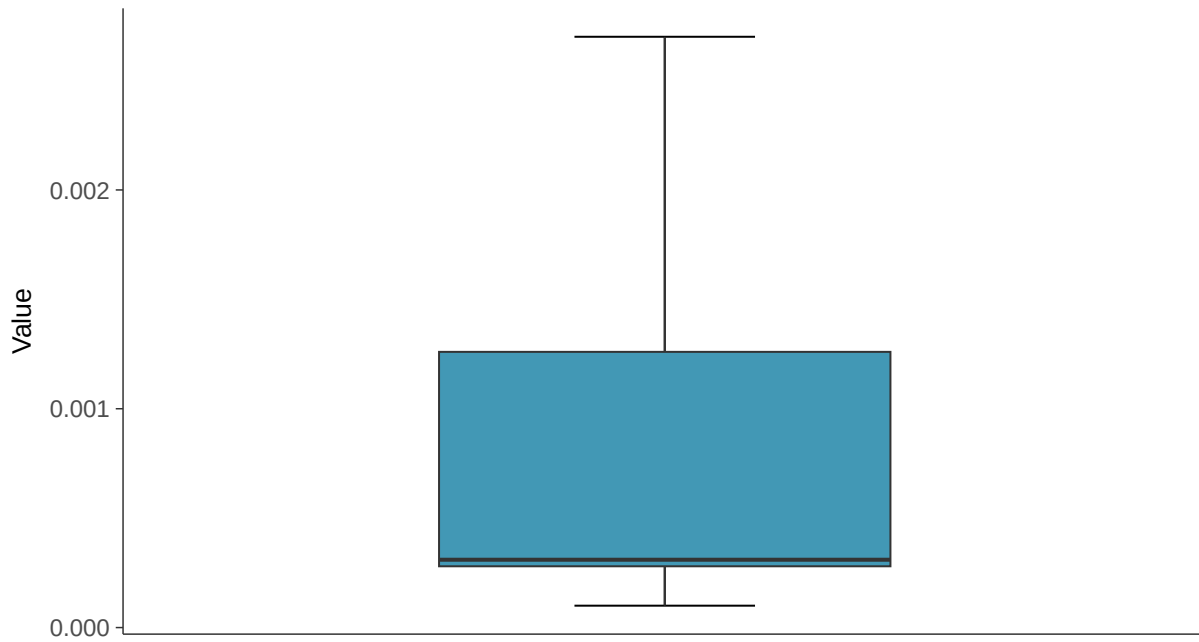
ID: 3_2_104





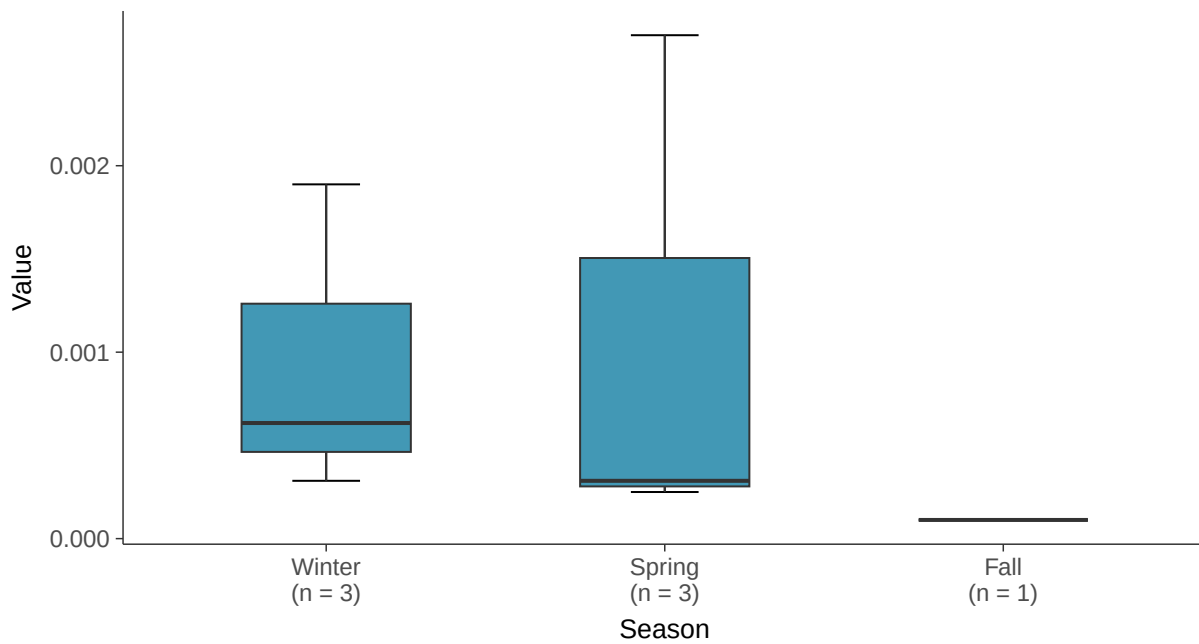
Boxplot

Beryllium, W-12 (mg/l)



Boxplot by Season

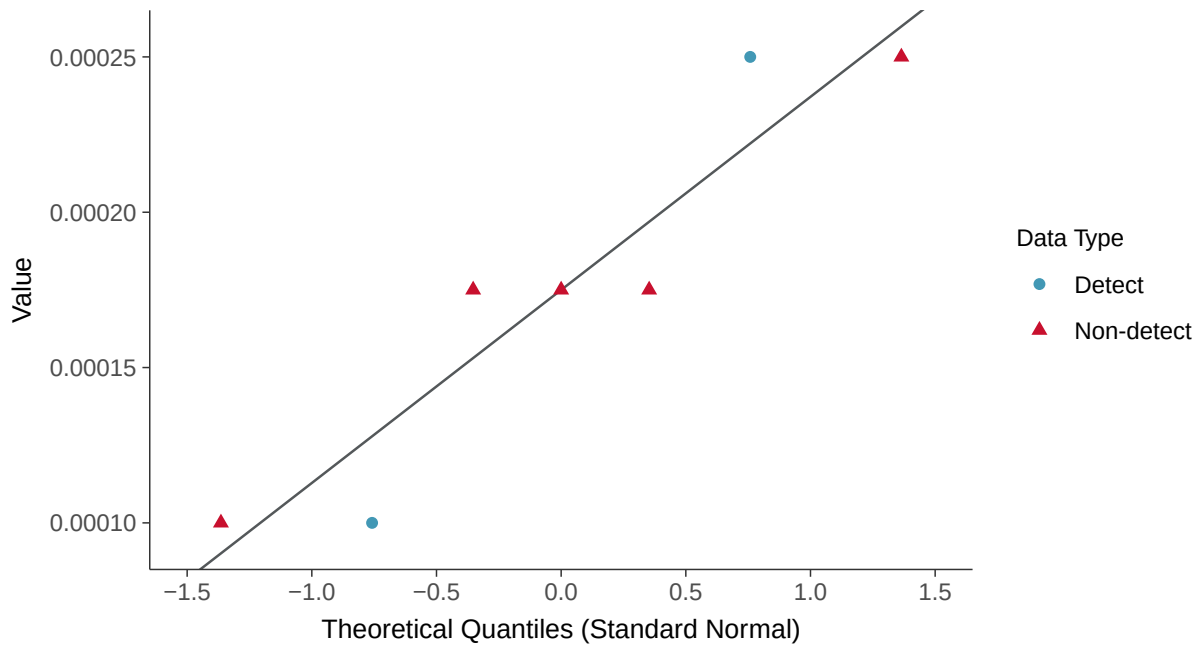
Beryllium, W-12 (mg/l)





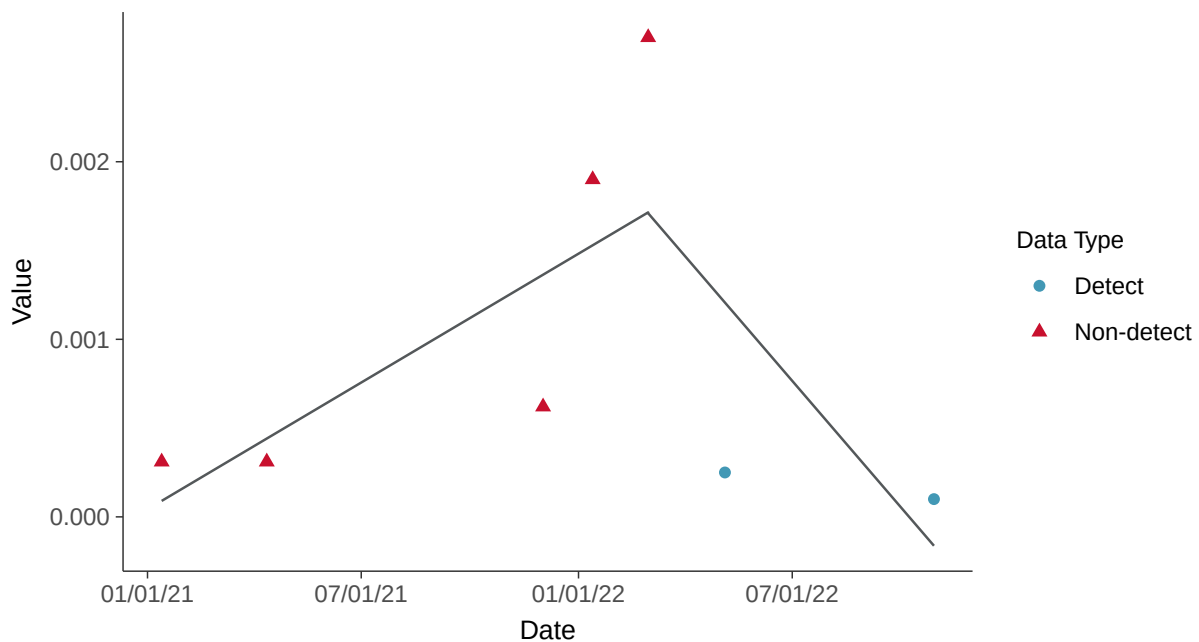
Normal Q-Q plot using ROS Imputed Estimates

Beryllium, W-12 (mg/l)



Trend Regression: Piecewise Linear-Linear

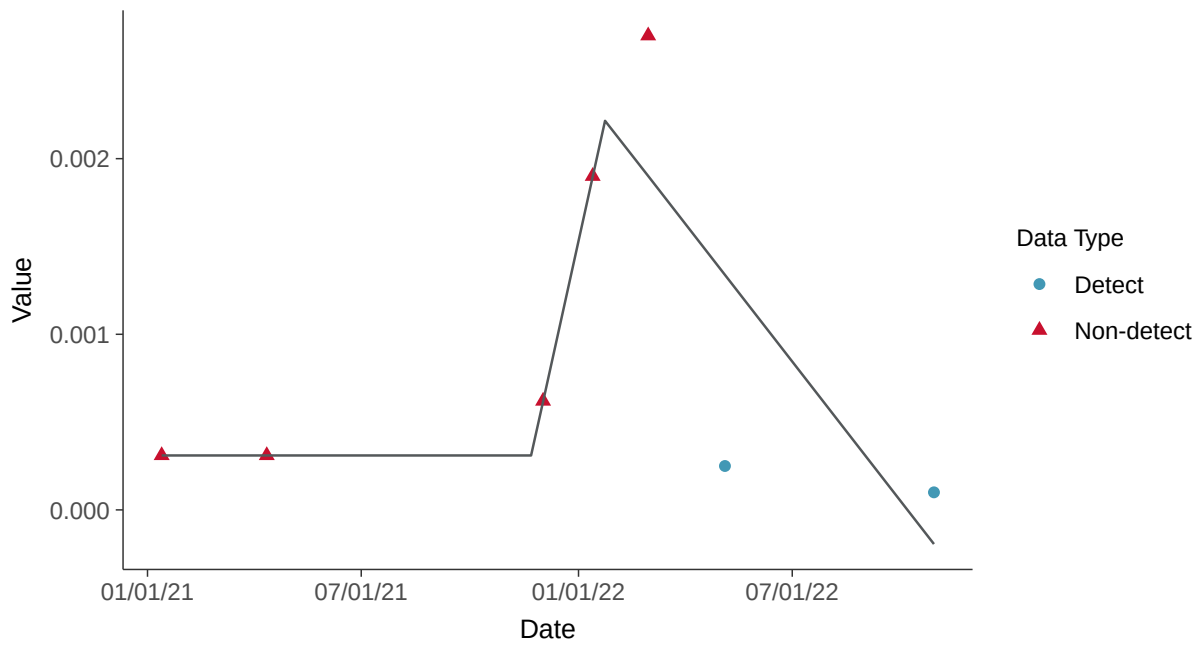
Beryllium, W-12 (mg/l)





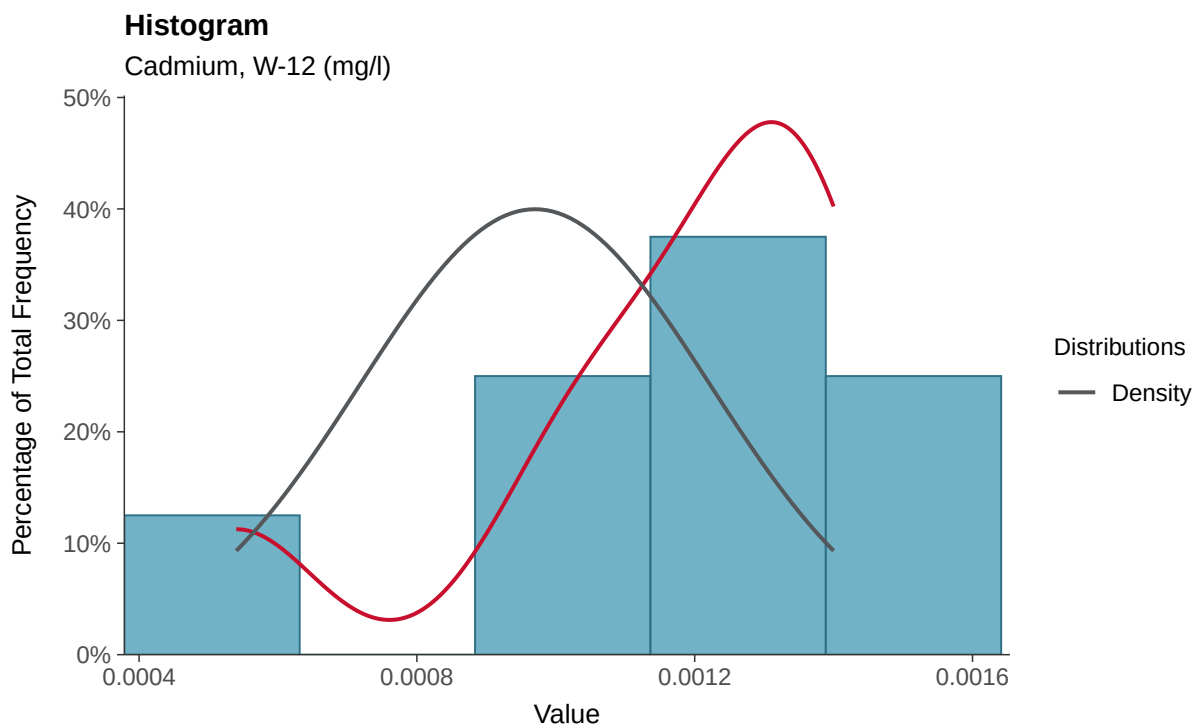
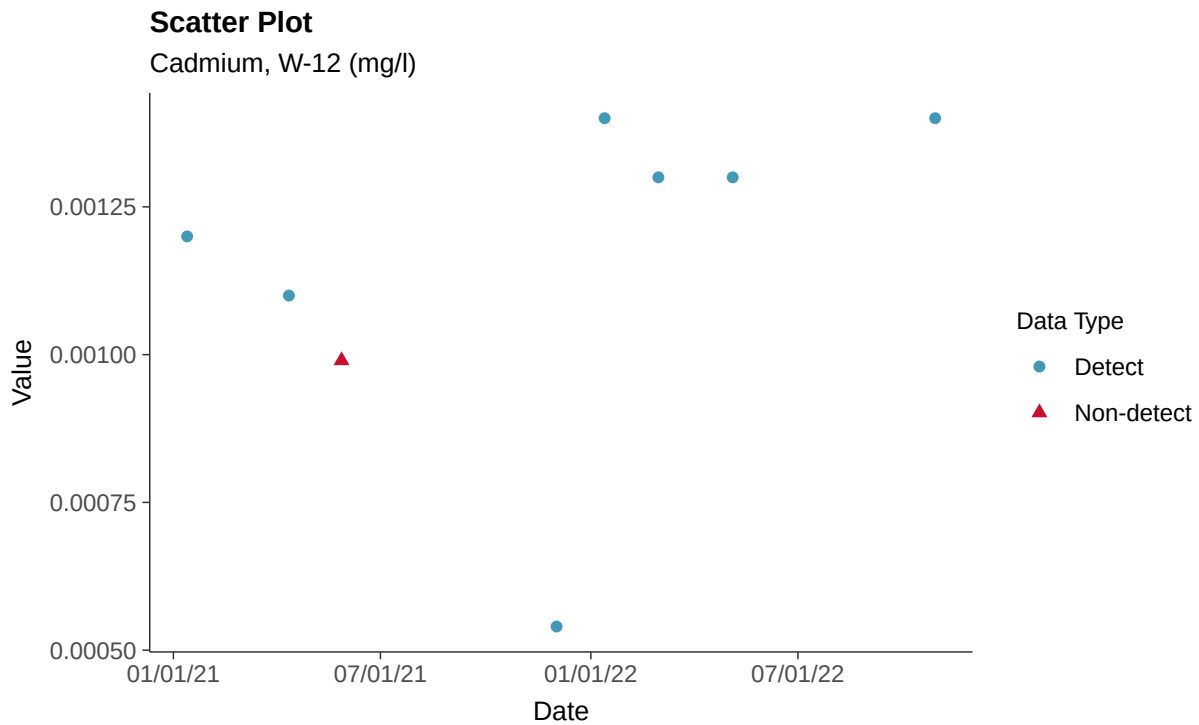
Trend Regression: Piecewise Linear-Linear-Linear

Beryllium, W-12 (mg/l)



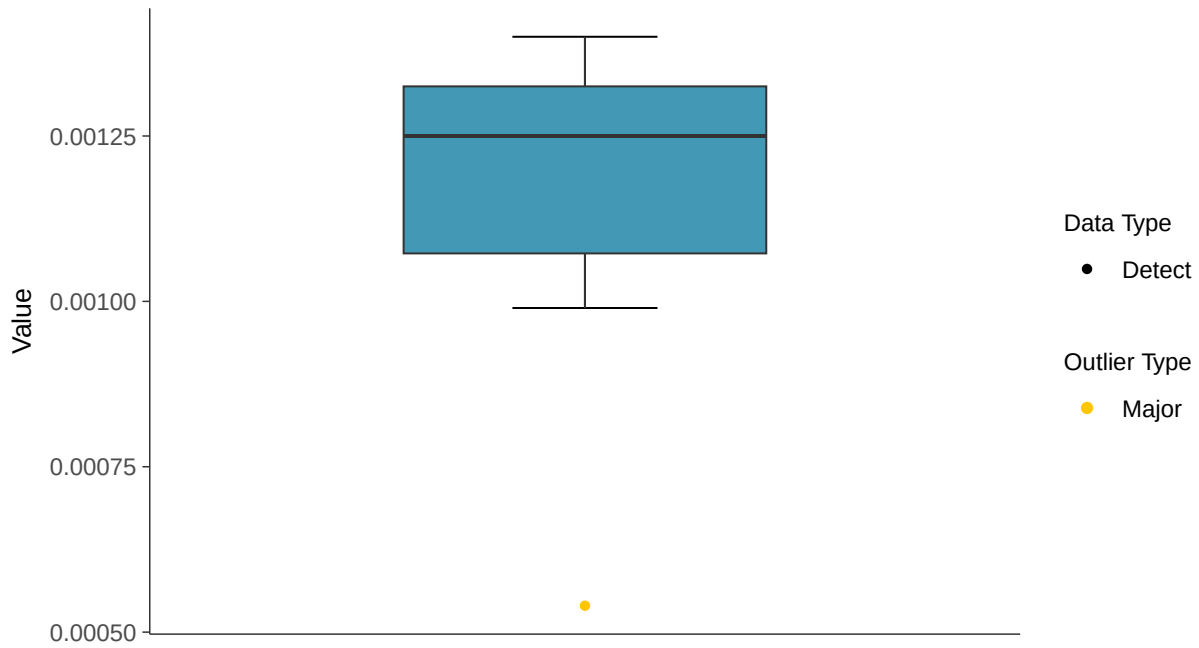
Appendix IV: Cadmium, W-12

ID: 3_2_106



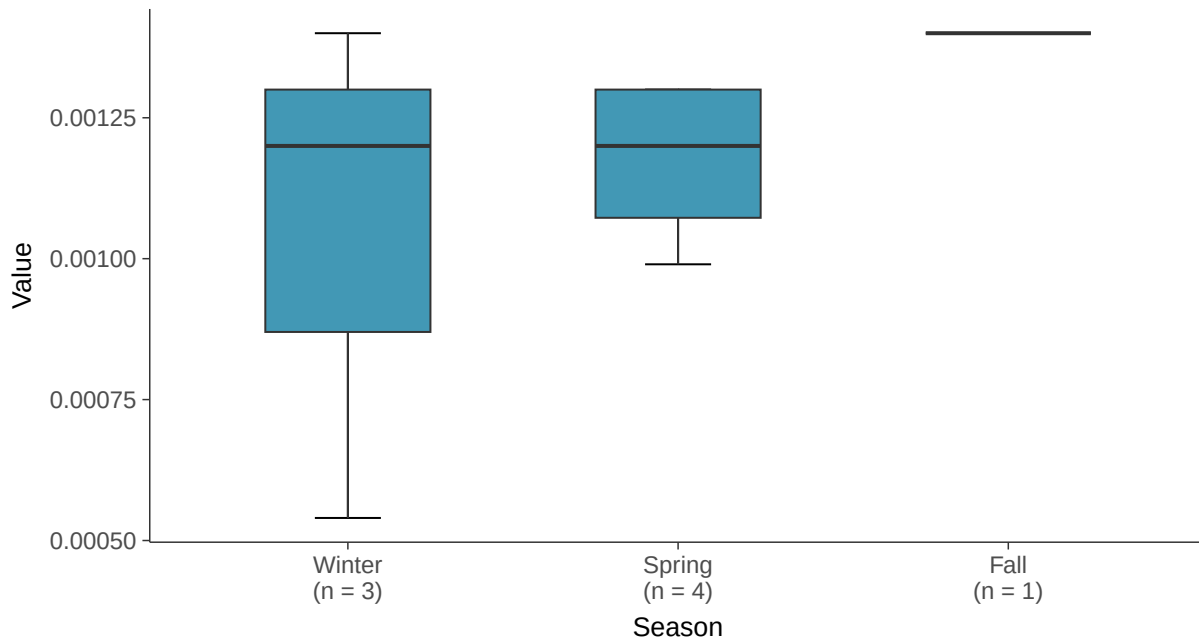
Boxplot

Cadmium, W-12 (mg/l)



Boxplot by Season

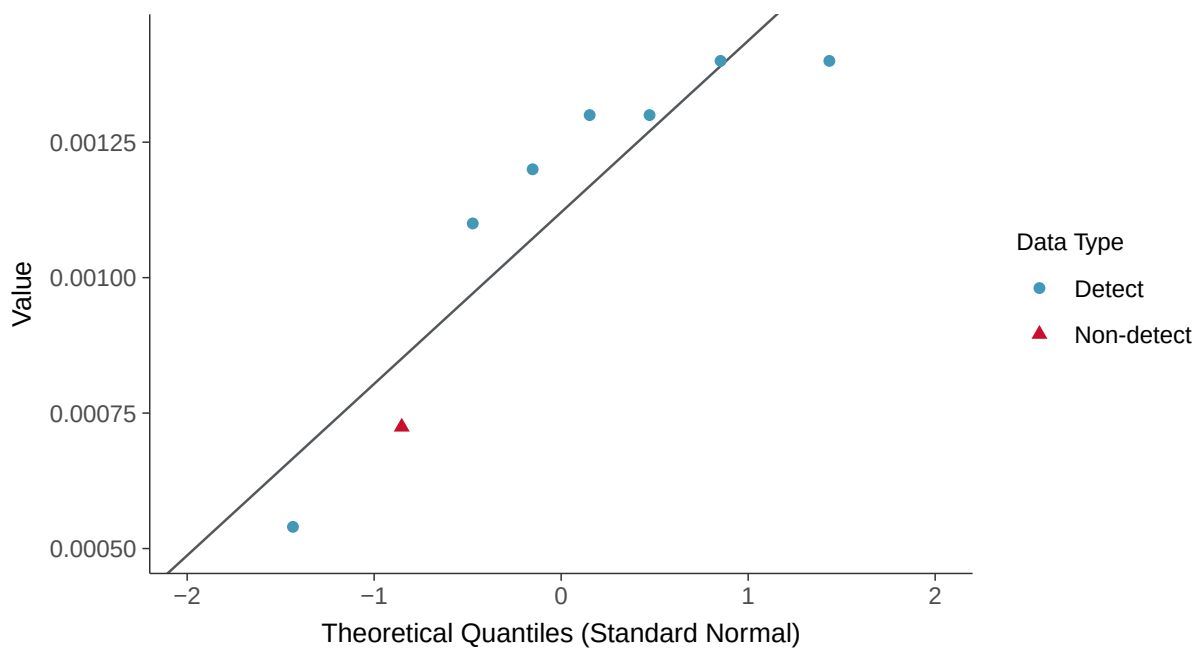
Cadmium, W-12 (mg/l)





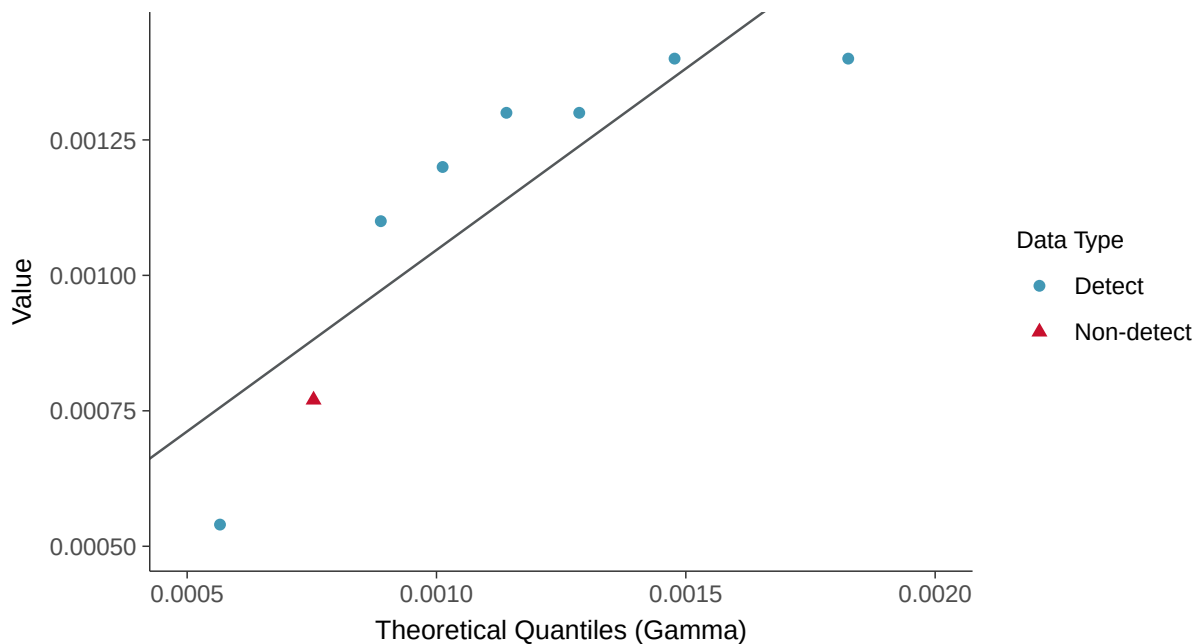
Normal Q-Q plot using ROS Imputed Estimates

Cadmium, W-12 (mg/l)



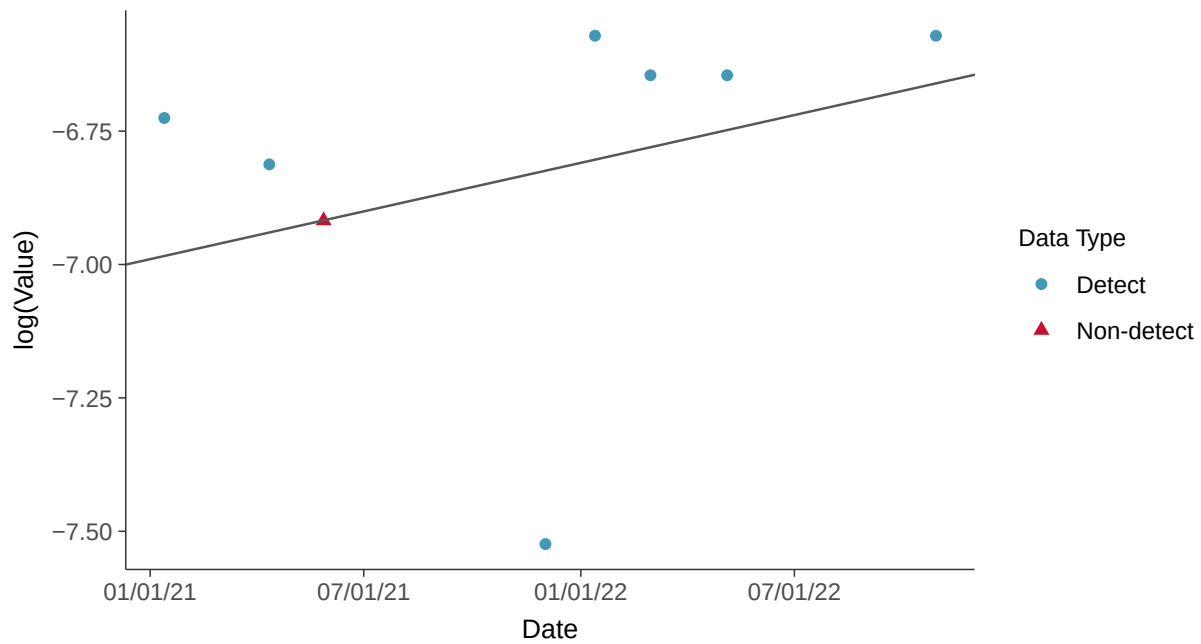
Gamma Q-Q plot using ROS Imputed Estimates

Cadmium, W-12 (mg/l)



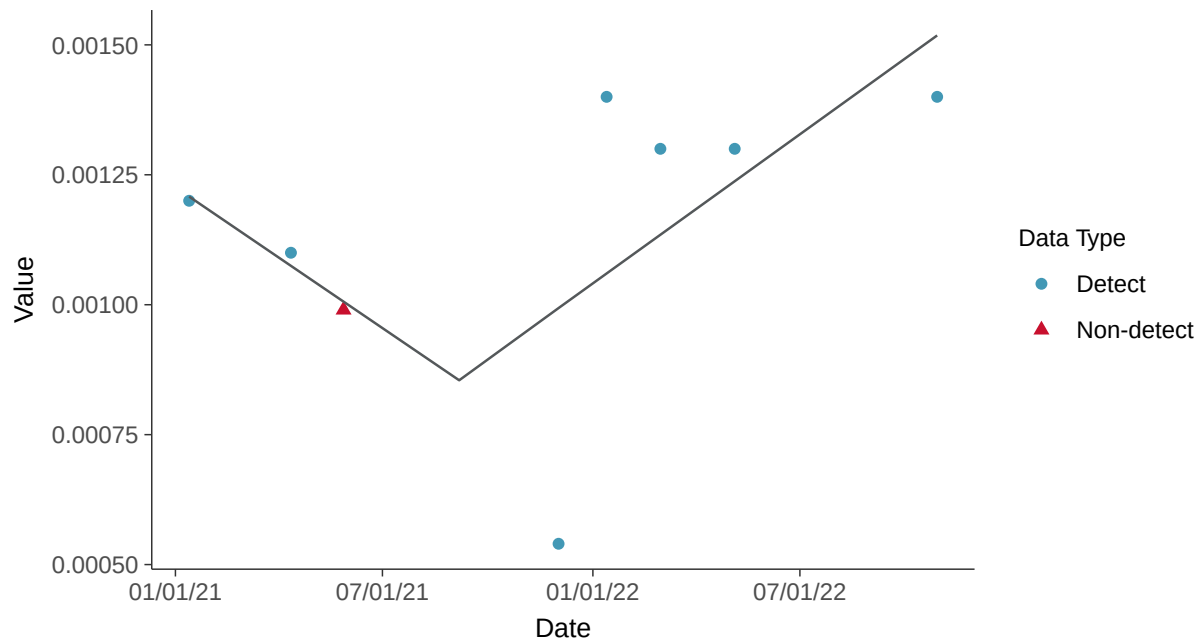
Trend Regression: Lognormal MLE

Cadmium, W-12 (mg/l)



Trend Regression: Piecewise Linear-Linear

Cadmium, W-12 (mg/l)

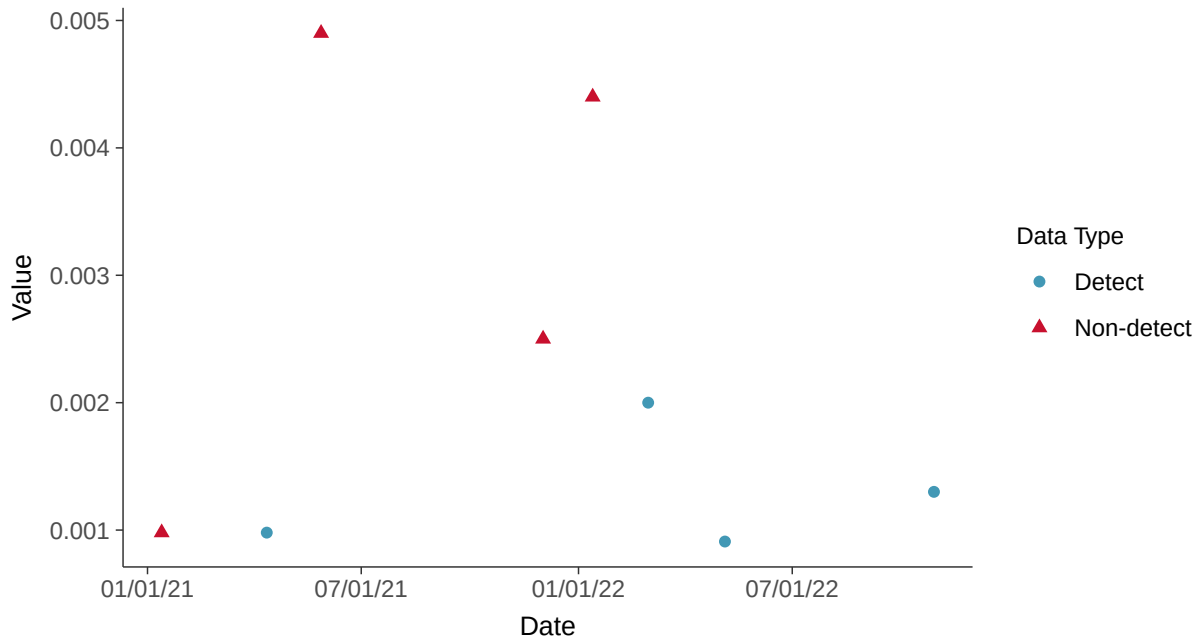


Appendix IV: Chromium, Total, W-12

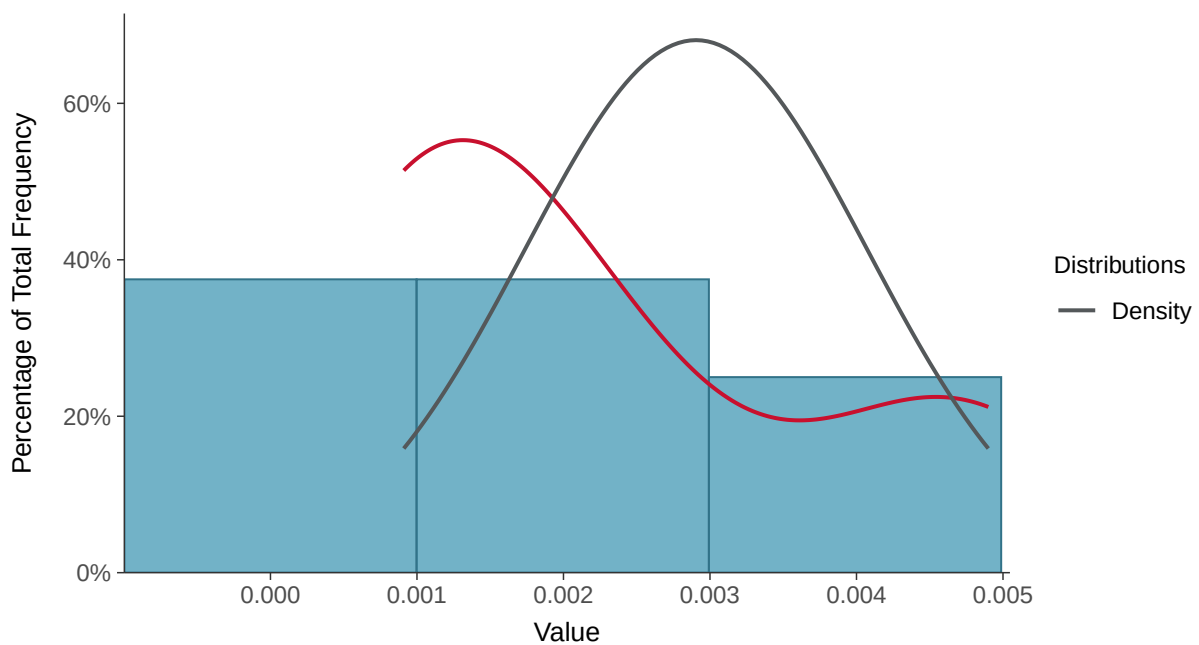
ID: 3_2_109

Scatter Plot

Chromium, Total, W-12 (mg/l)

**Histogram**

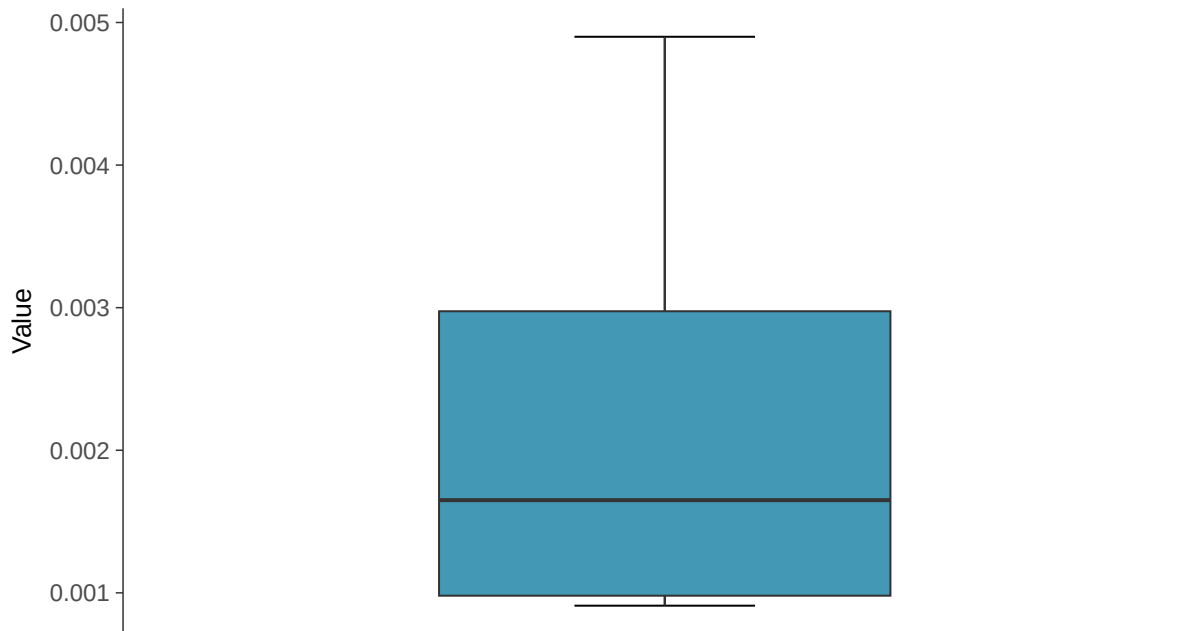
Chromium, Total, W-12 (mg/l)





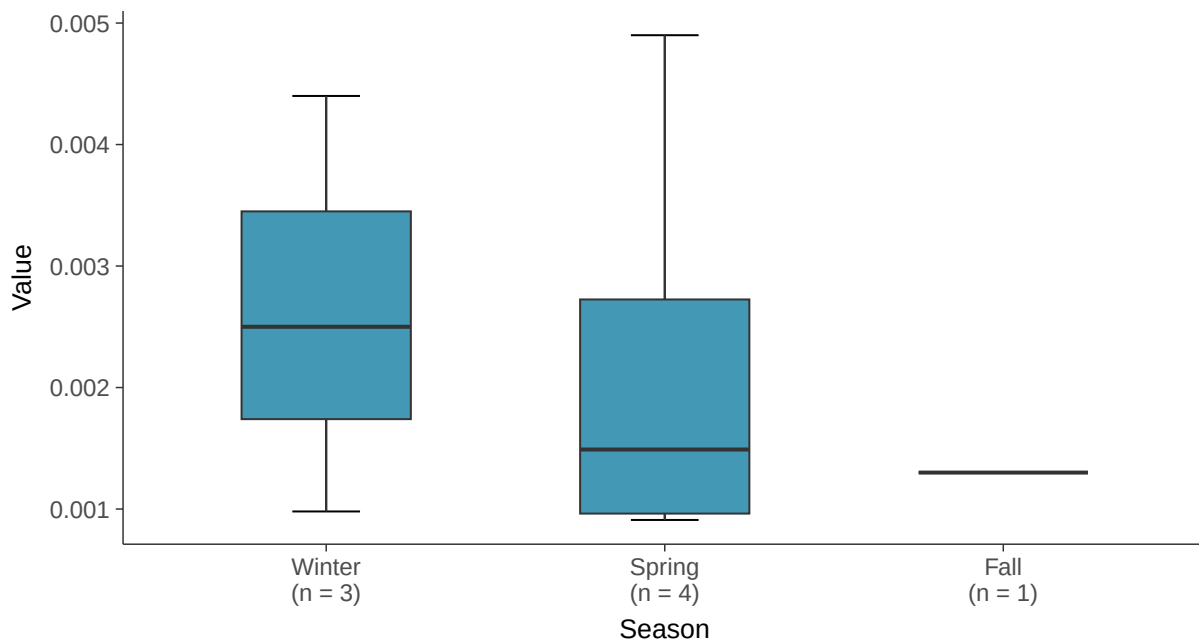
Boxplot

Chromium, Total, W-12 (mg/l)



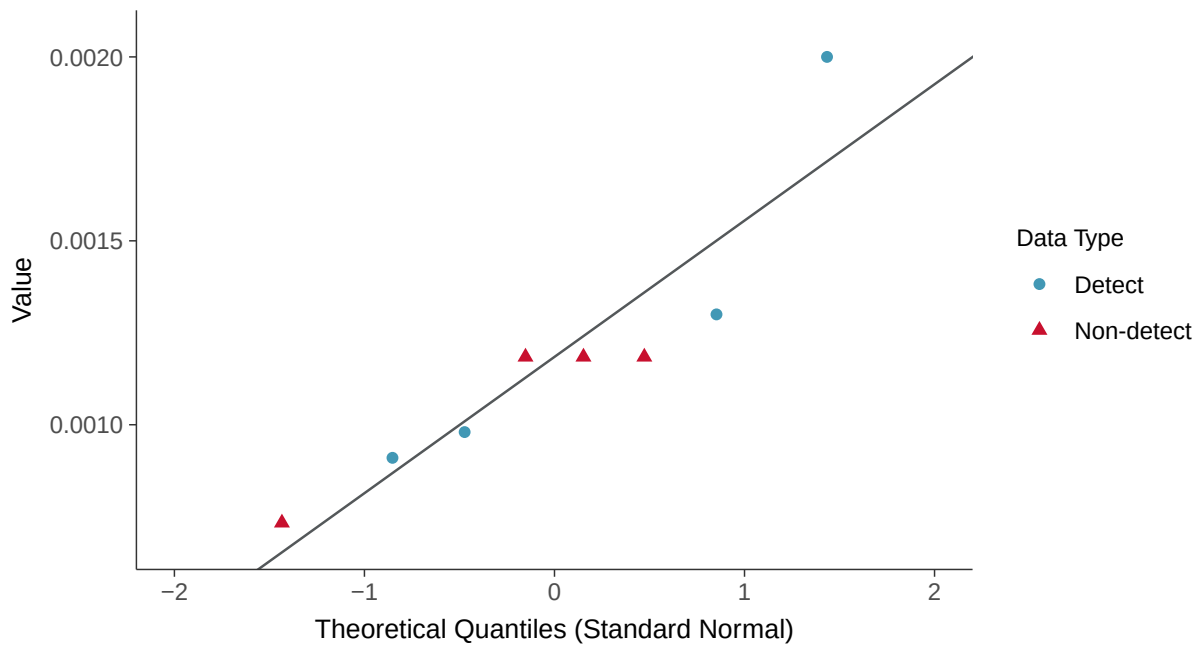
Boxplot by Season

Chromium, Total, W-12 (mg/l)



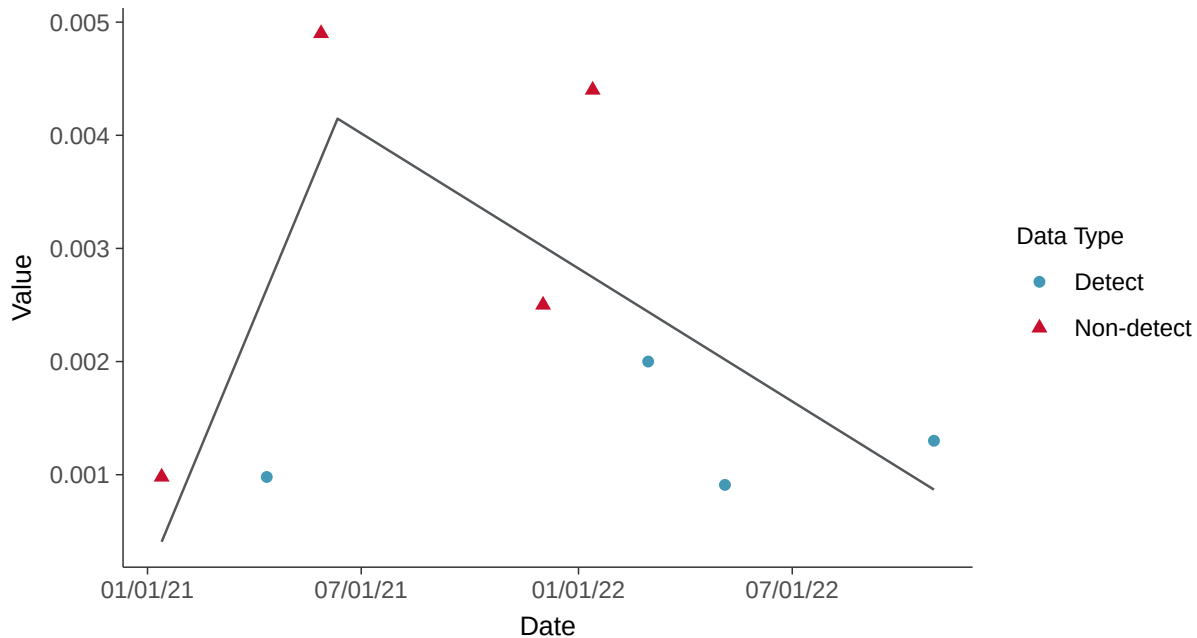
Normal Q-Q plot using ROS Imputed Estimates

Chromium, Total, W-12 (mg/l)



Trend Regression: Piecewise Linear-Linear

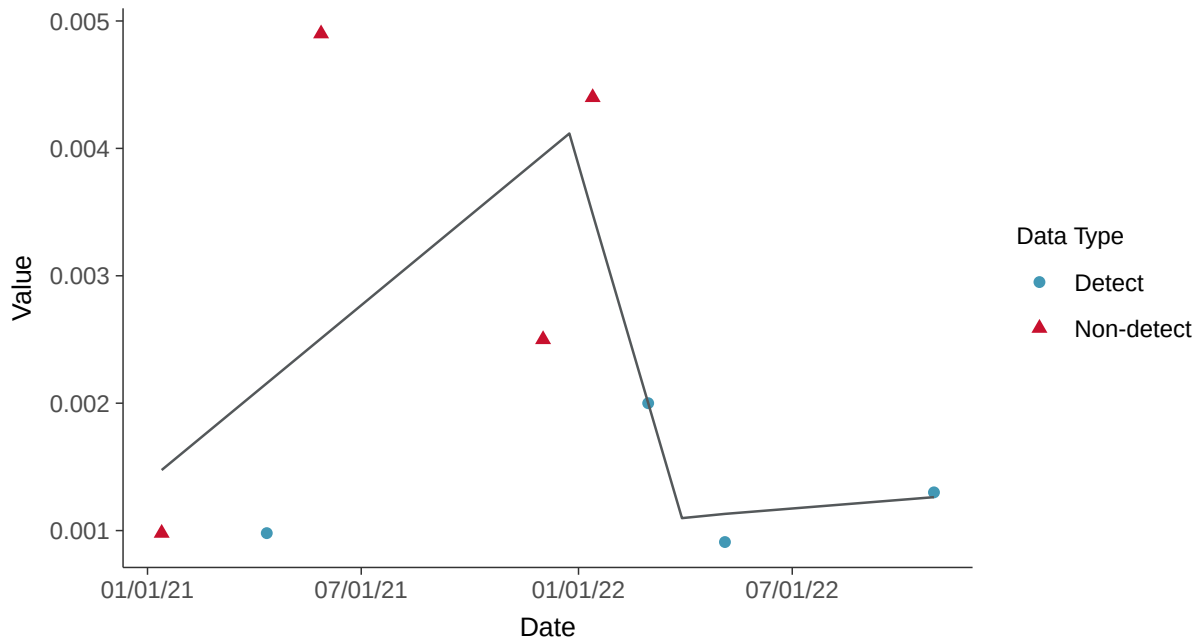
Chromium, Total, W-12 (mg/l)



Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Trend Regression: Piecewise Linear-Linear-Linear

Chromium, Total, W-12 (mg/l)

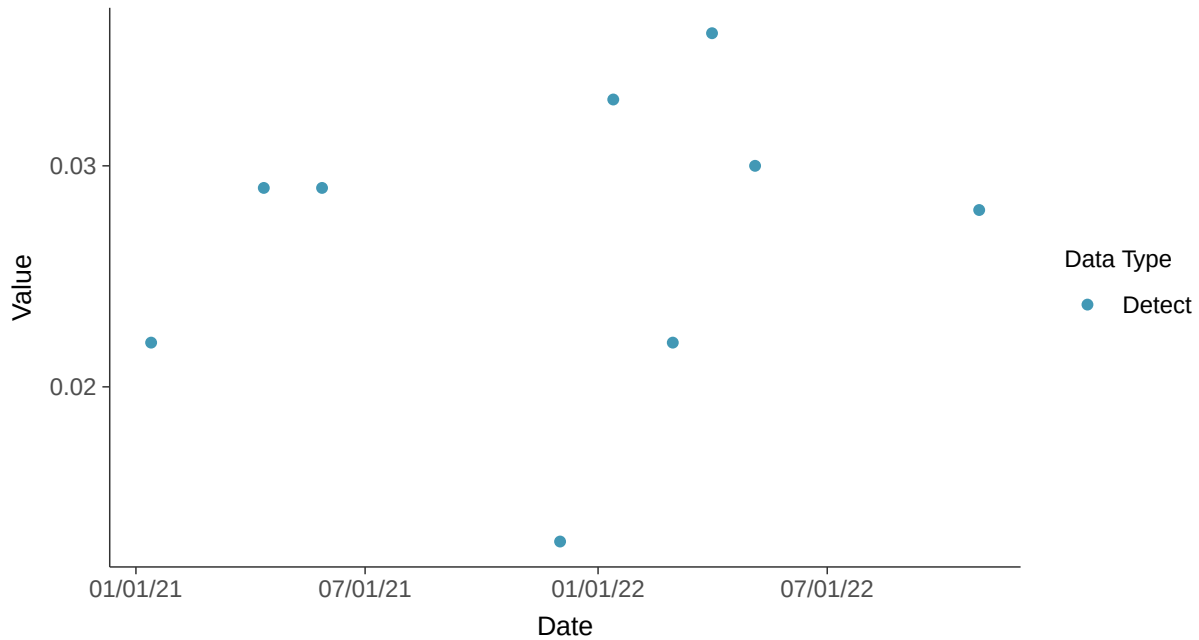


Appendix IV: Cobalt, W-12

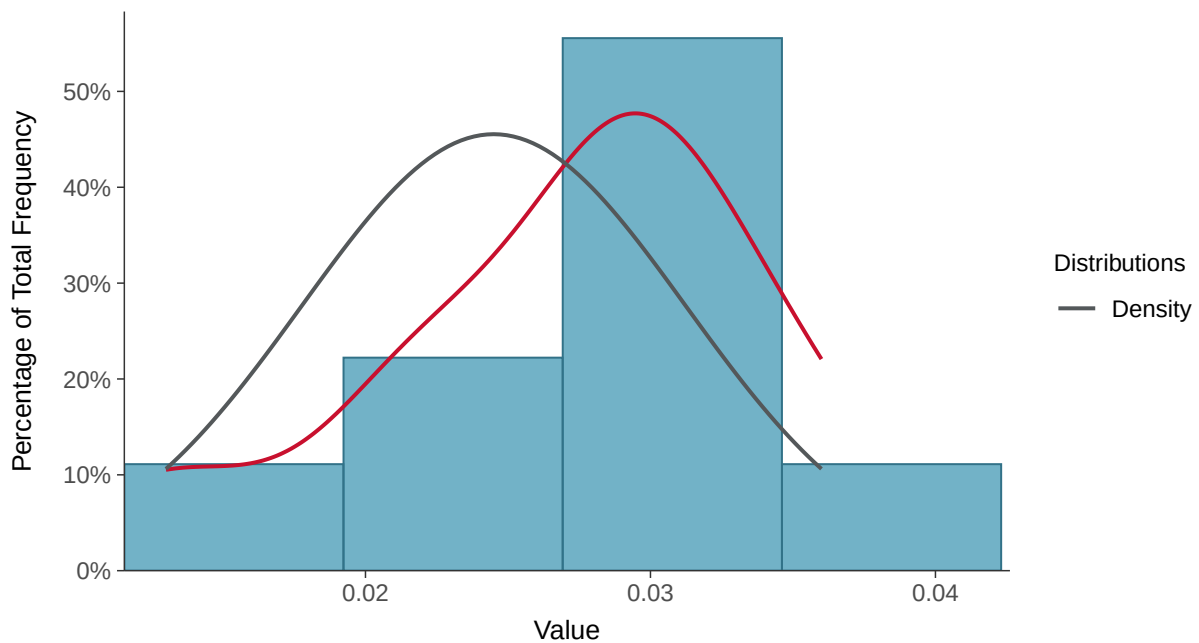
ID: 3_2_110

Scatter Plot

Cobalt, W-12 (mg/l)

**Histogram**

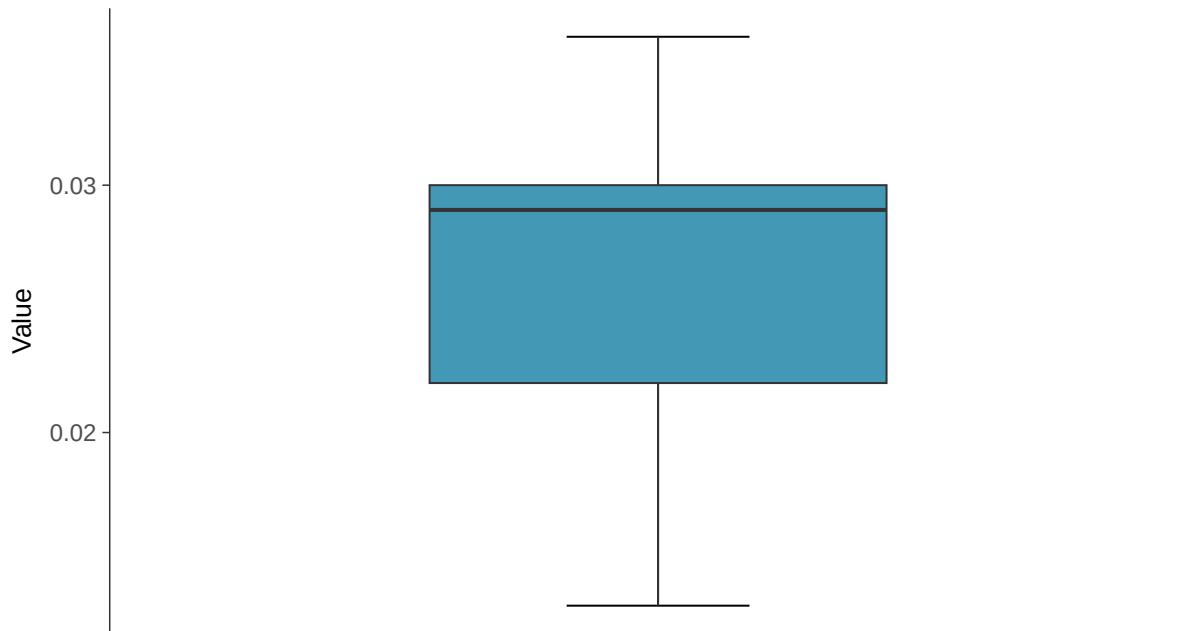
Cobalt, W-12 (mg/l)





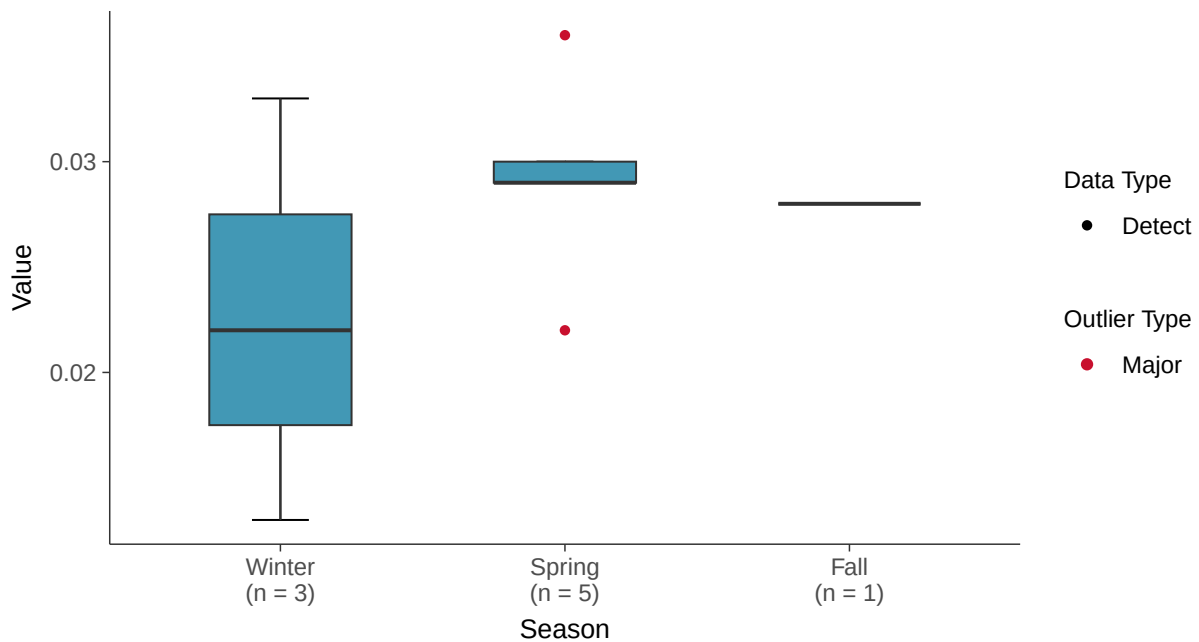
Boxplot

Cobalt, W-12 (mg/l)



Boxplot by Season

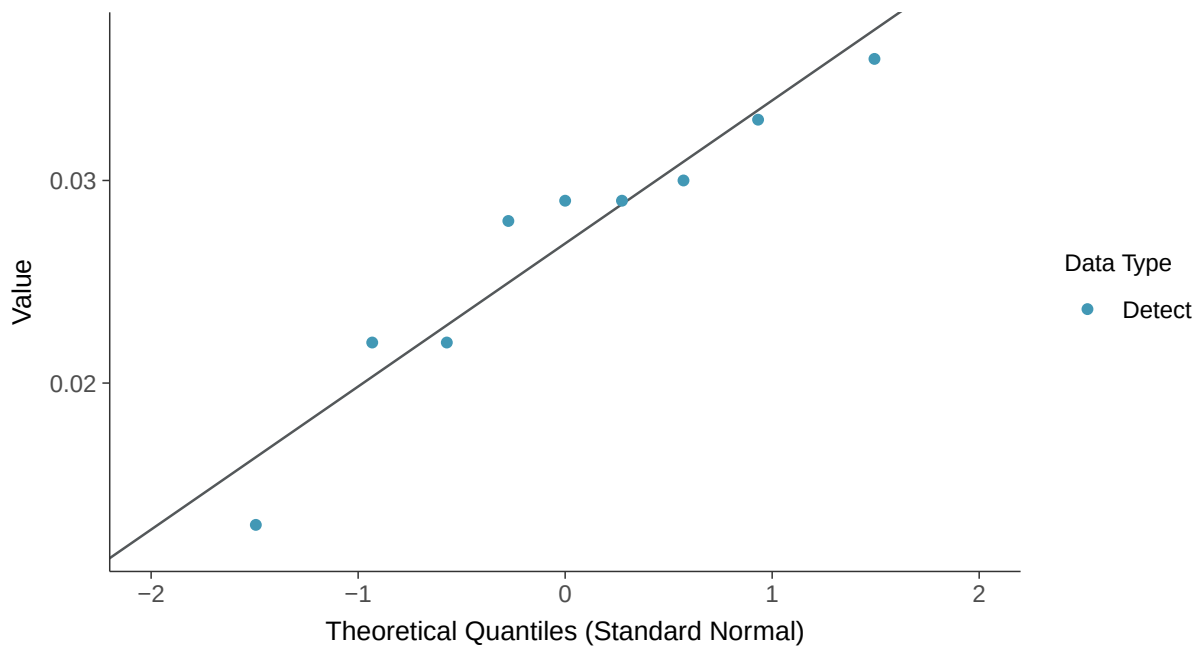
Cobalt, W-12 (mg/l)





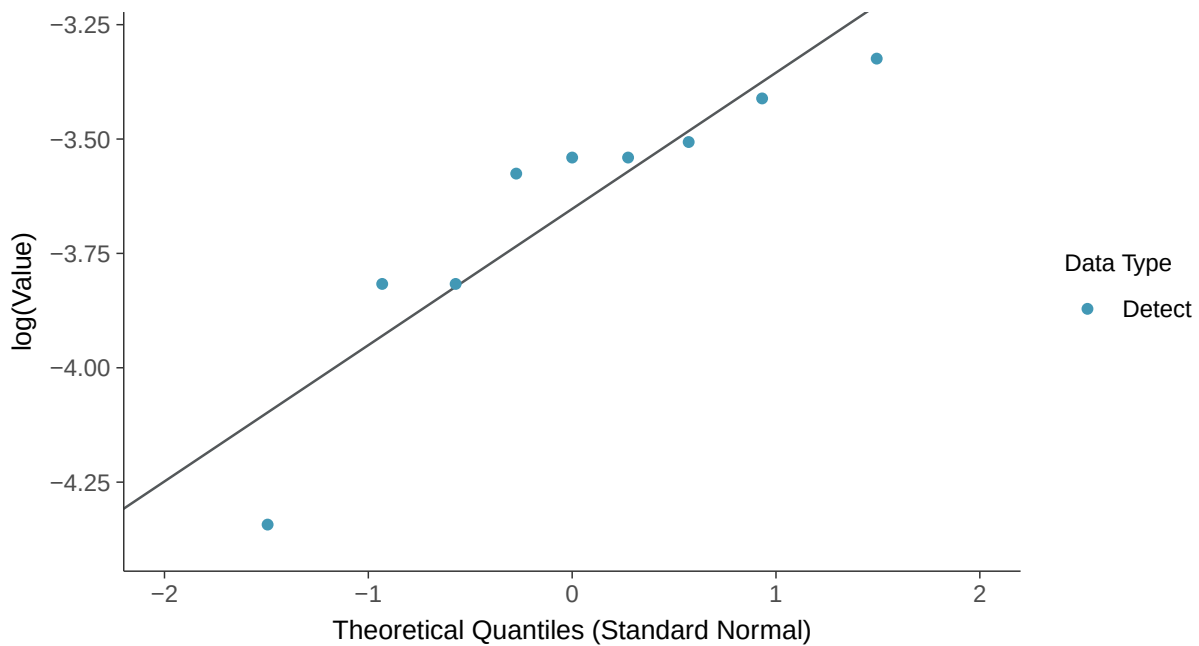
Normal Q-Q plot

Cobalt, W-12 (mg/l)



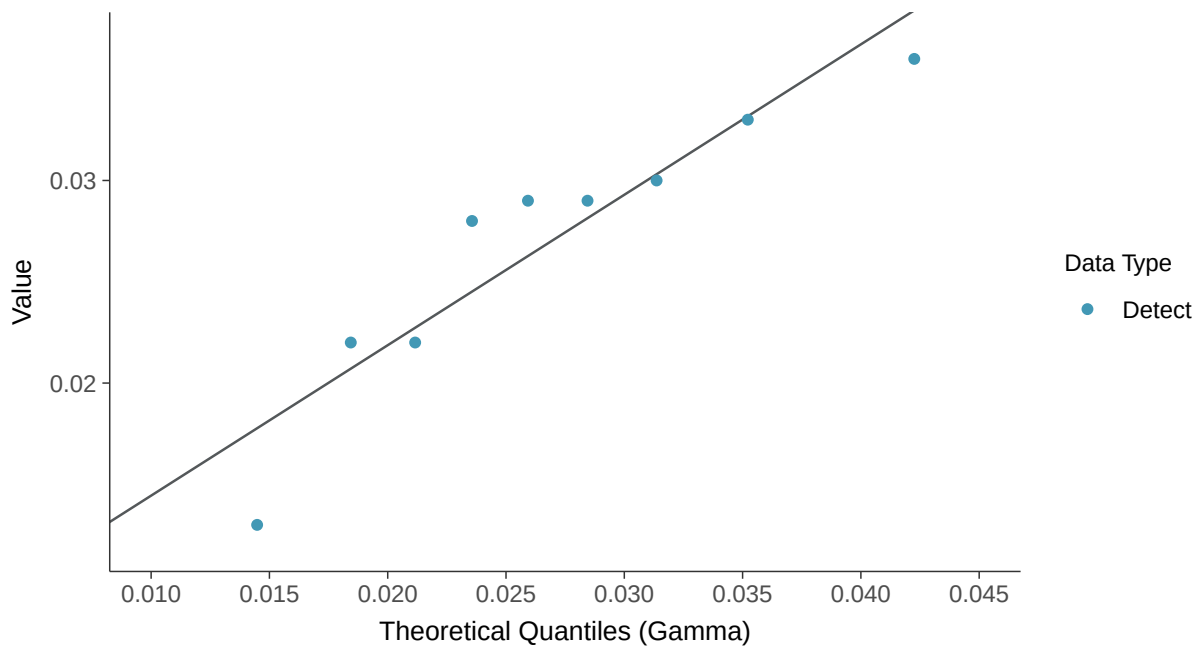
Lognormal Q-Q plot

Cobalt, W-12 (mg/l)

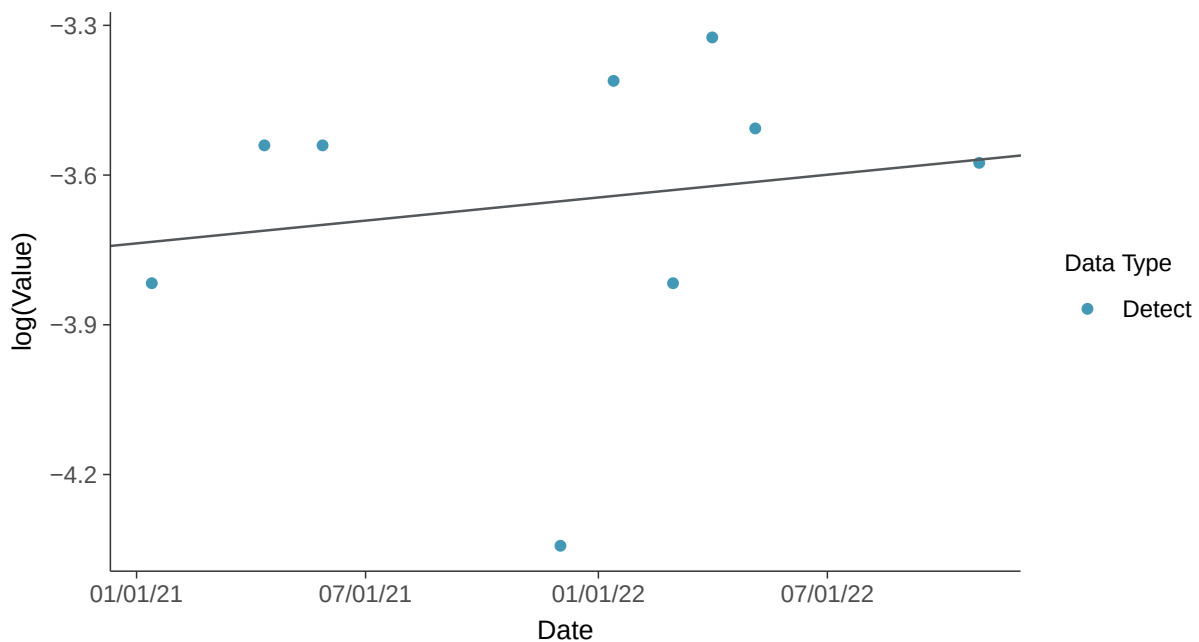




Gamma Q-Q plot
Cobalt, W-12 (mg/l)



Trend Regression: Lognormal MLE
Cobalt, W-12 (mg/l)

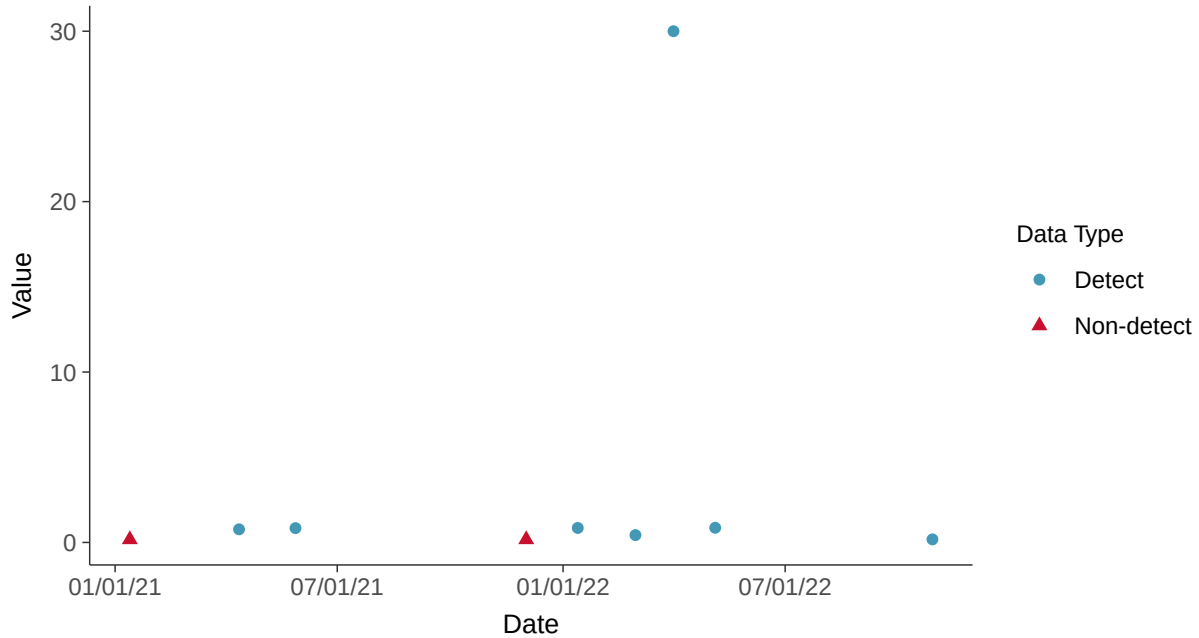


Appendix IV: Fluoride (App IV), W-12

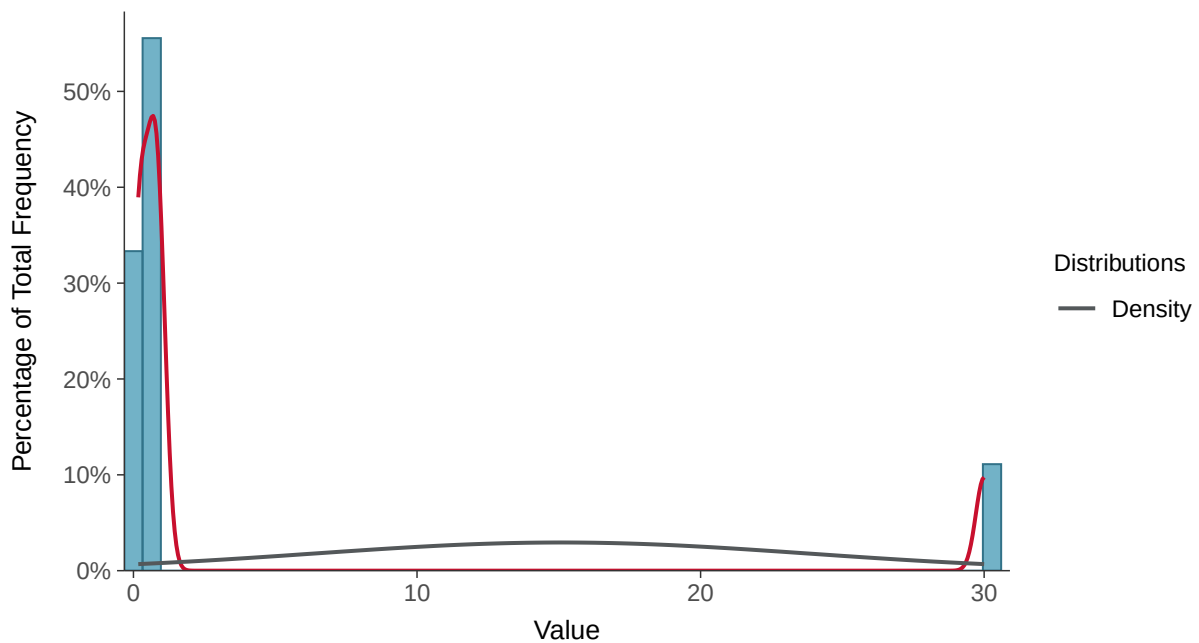
ID: 3_2_112

Scatter Plot

Fluoride (App IV), W-12 (mg/l)

**Histogram**

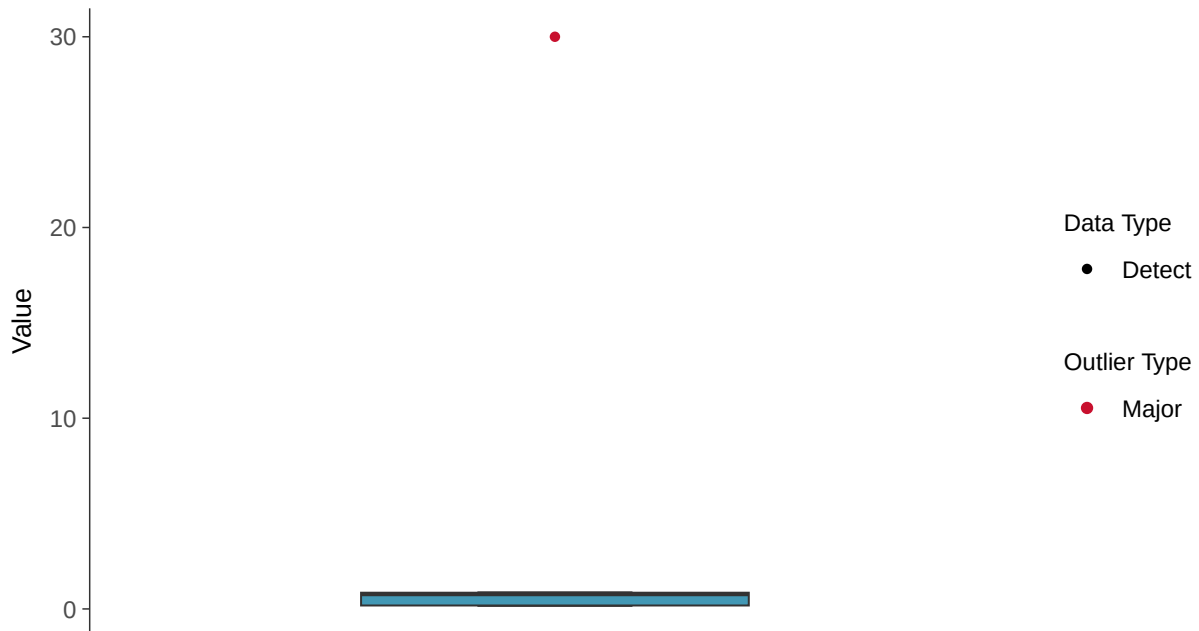
Fluoride (App IV), W-12 (mg/l)



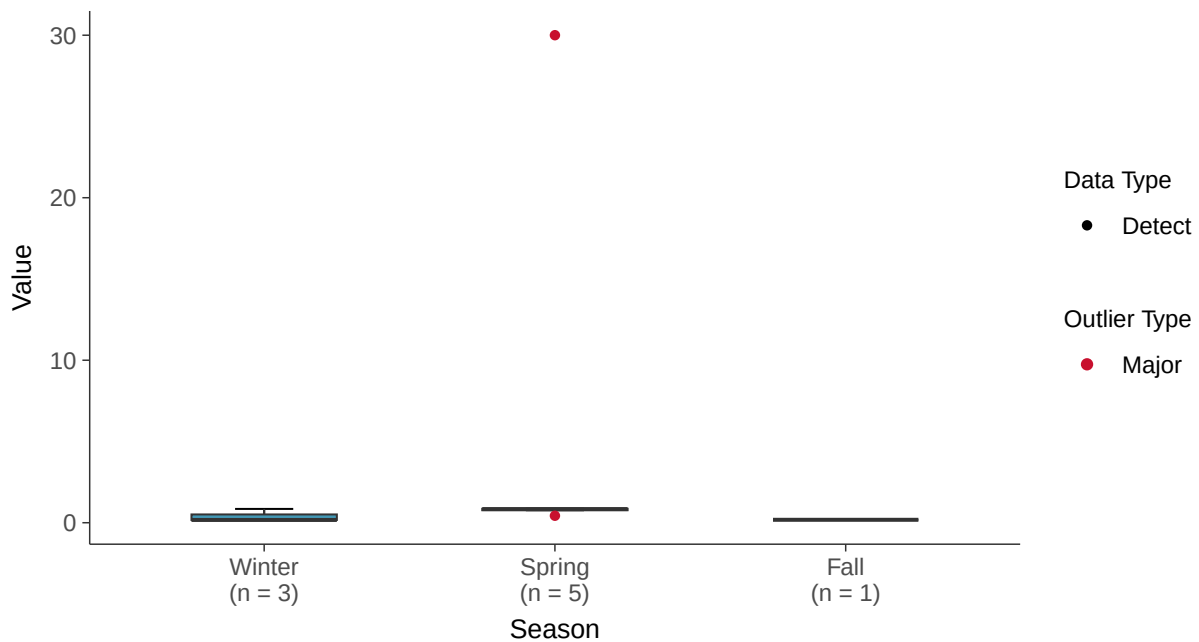
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Fluoride (App IV), W-12 (mg/l)

**Boxplot by Season**

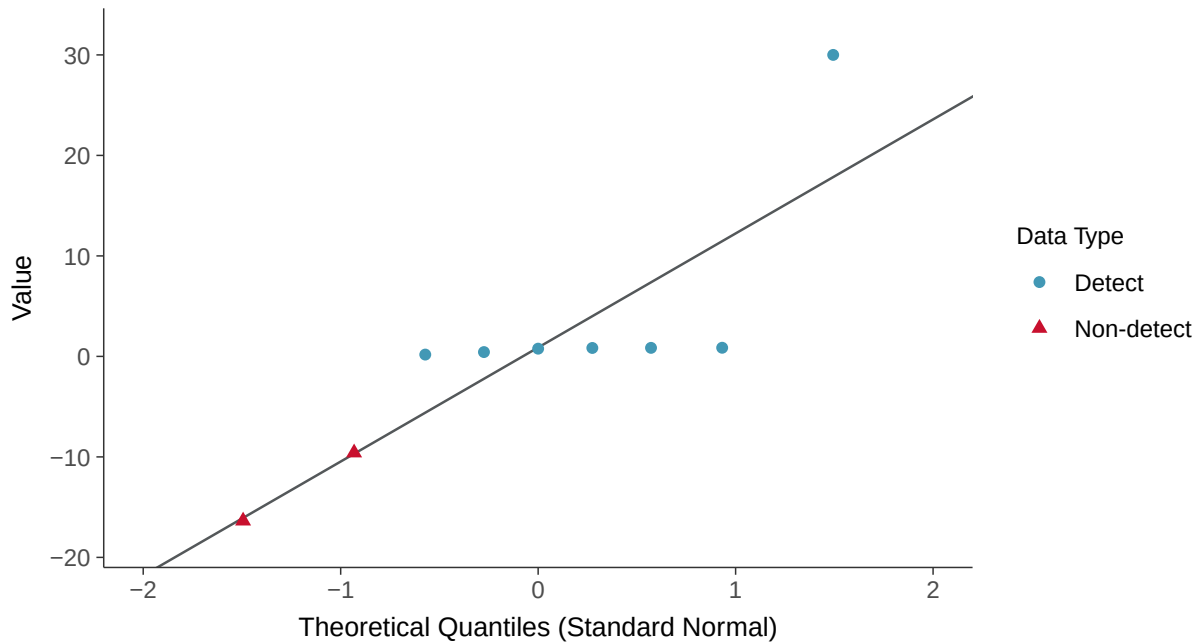
Fluoride (App IV), W-12 (mg/l)



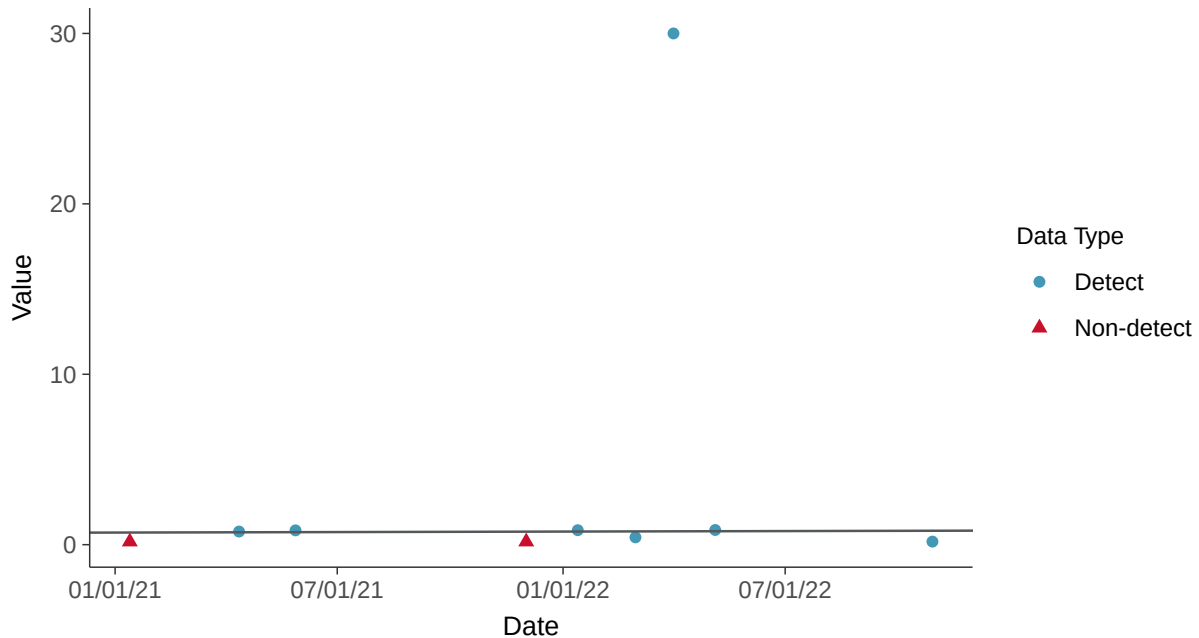
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Normal Q-Q plot using ROS Imputed Estimates

Fluoride (App IV), W-12 (mg/l)

**Trend Regression: Mann-Kendall/Theil-Sen Estimate**

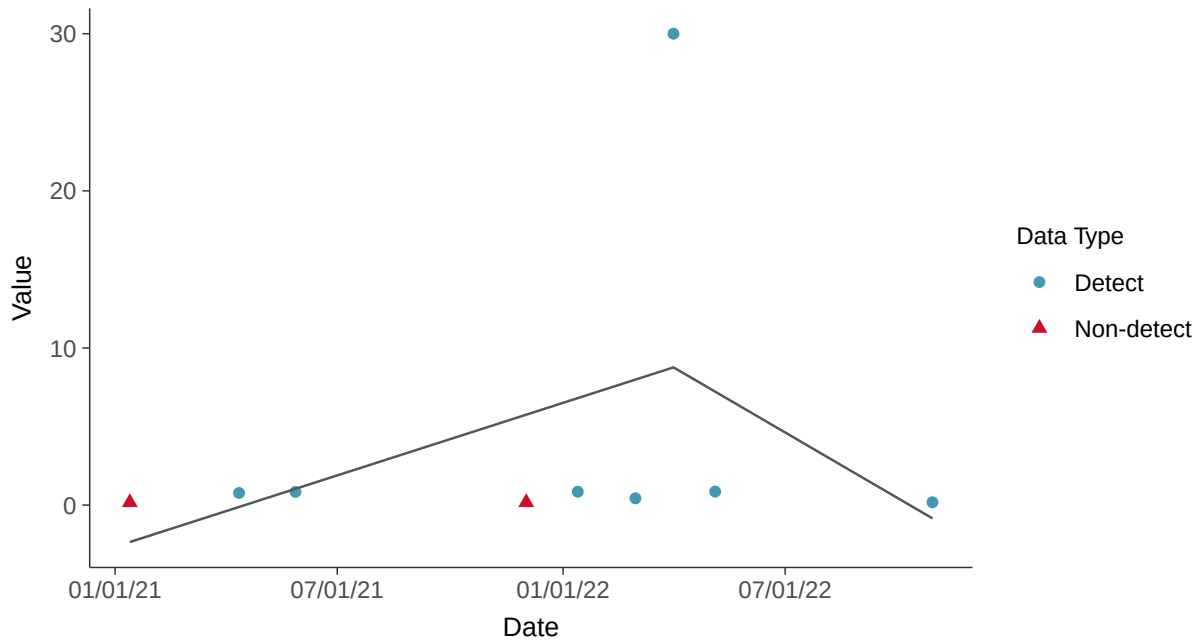
Fluoride (App IV), W-12 (mg/l)



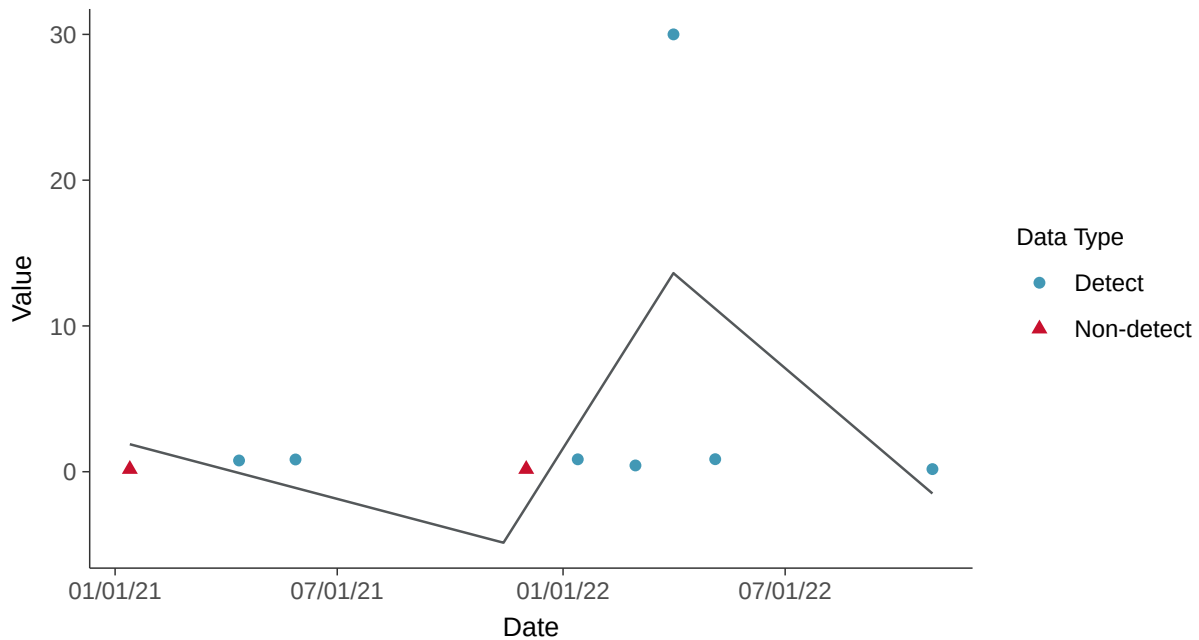
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Trend Regression: Piecewise Linear-Linear

Fluoride (App IV), W-12 (mg/l)

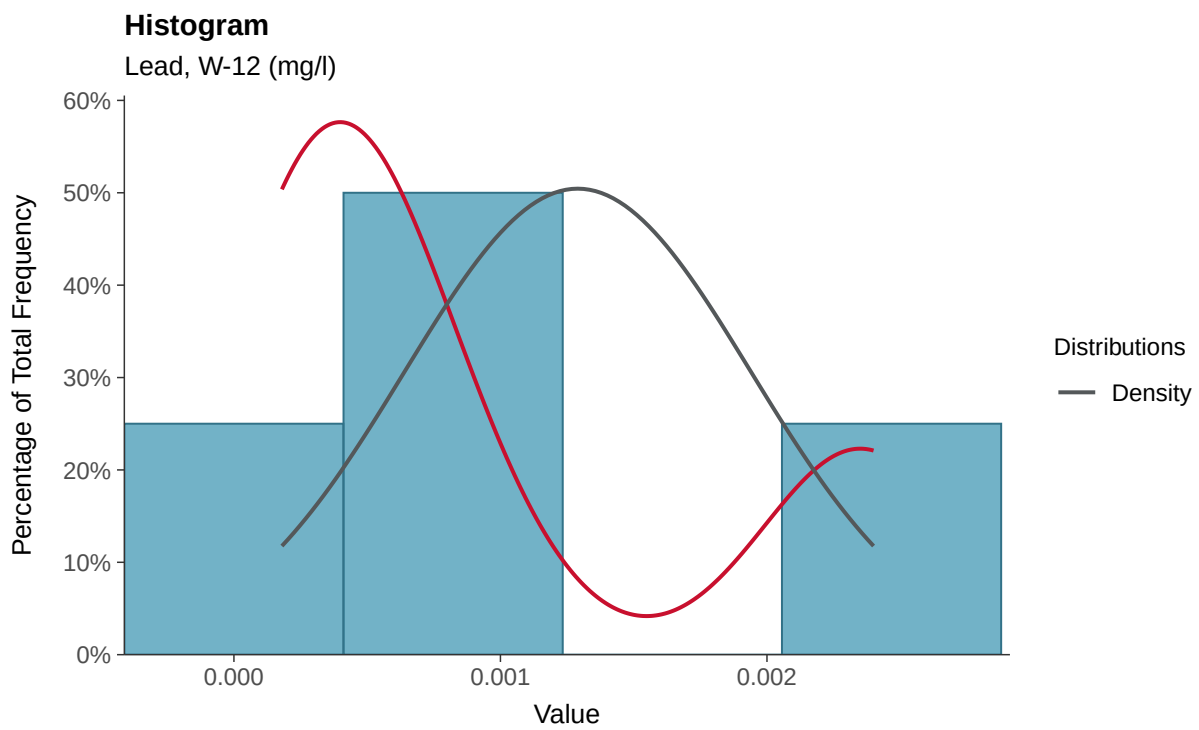
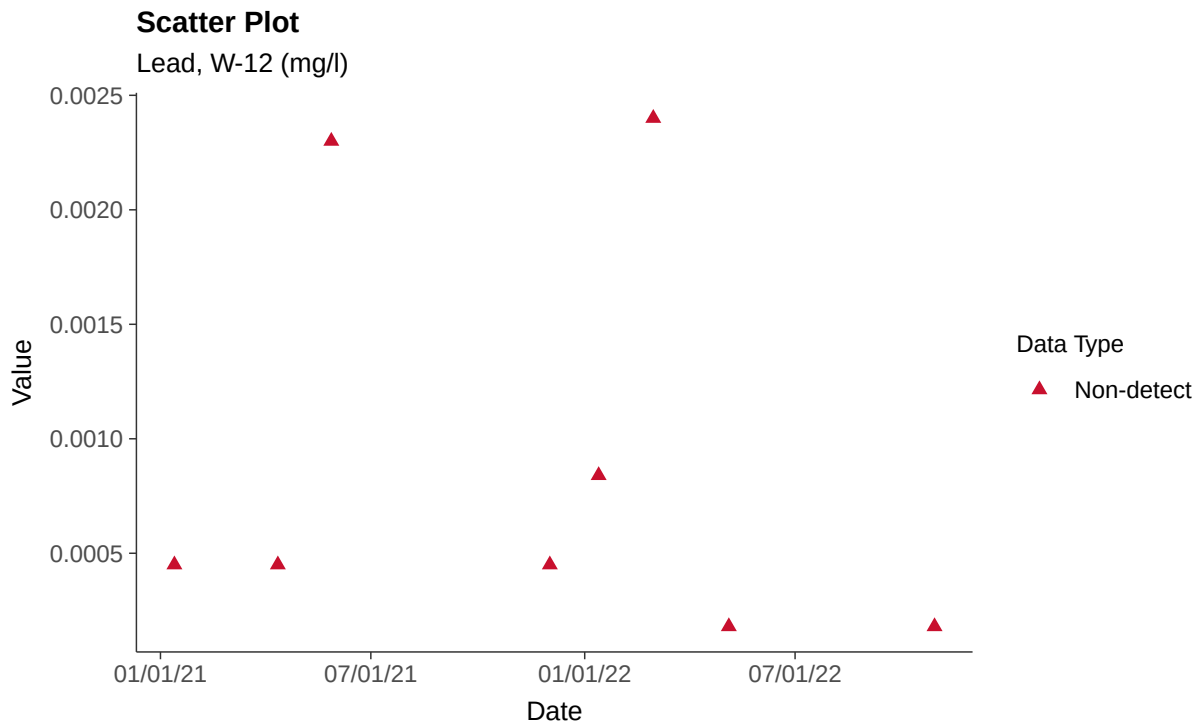
**Trend Regression: Piecewise Linear-Linear-Linear**

Fluoride (App IV), W-12 (mg/l)



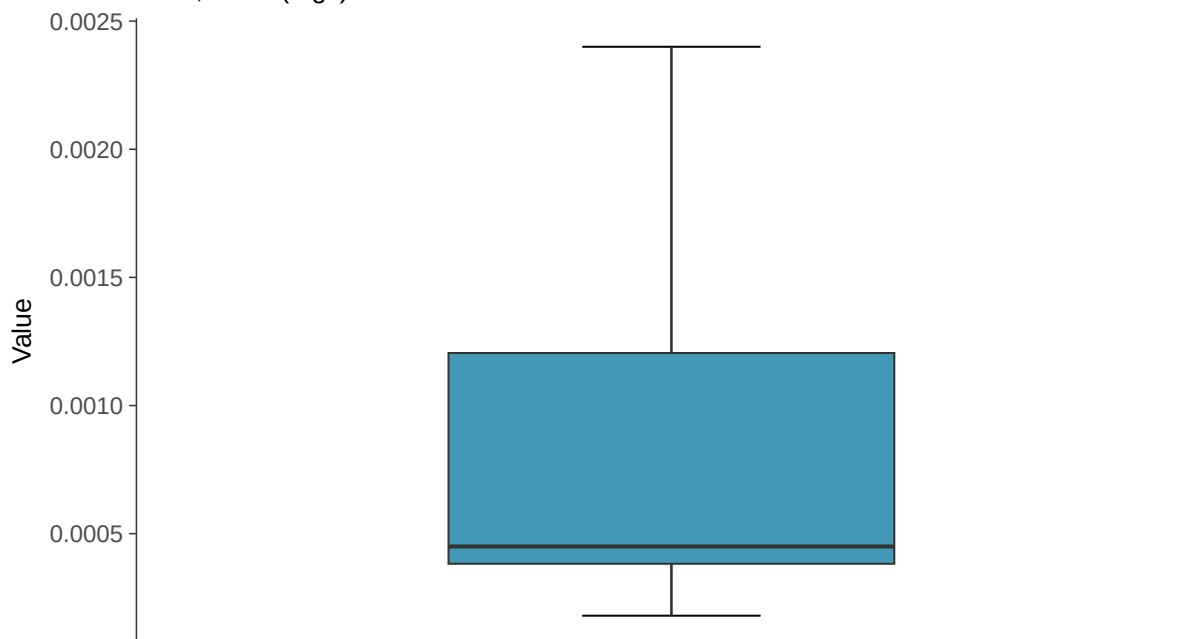
Appendix IV: Lead, W-12

ID: 3_2_113



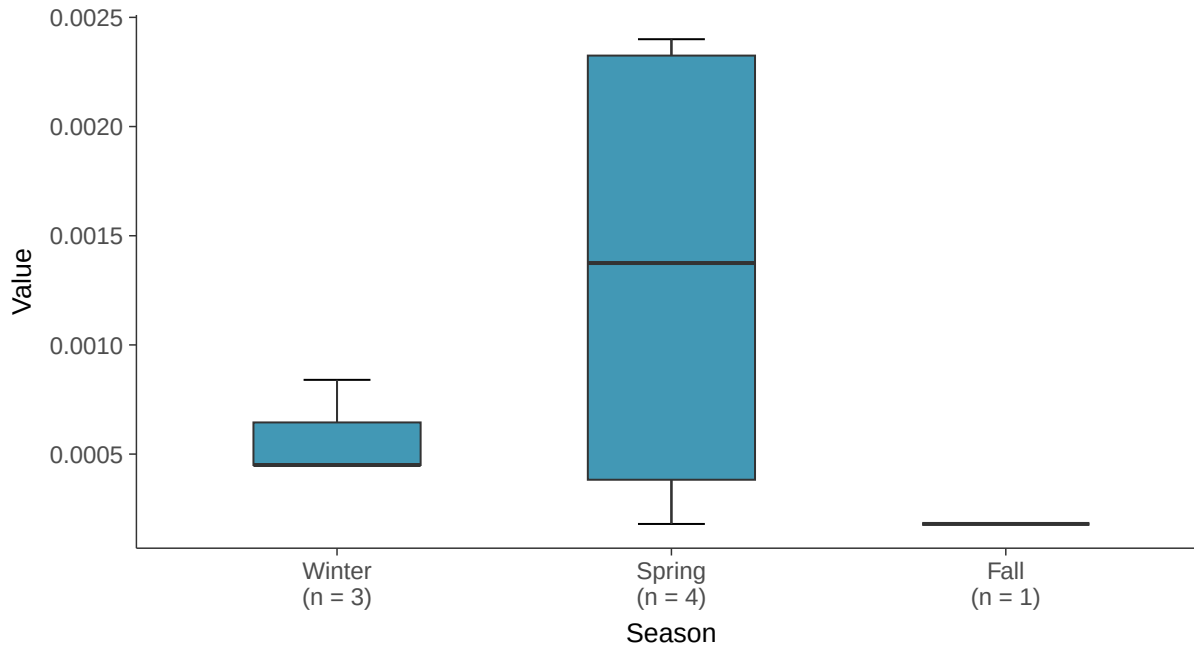
Boxplot

Lead, W-12 (mg/l)



Boxplot by Season

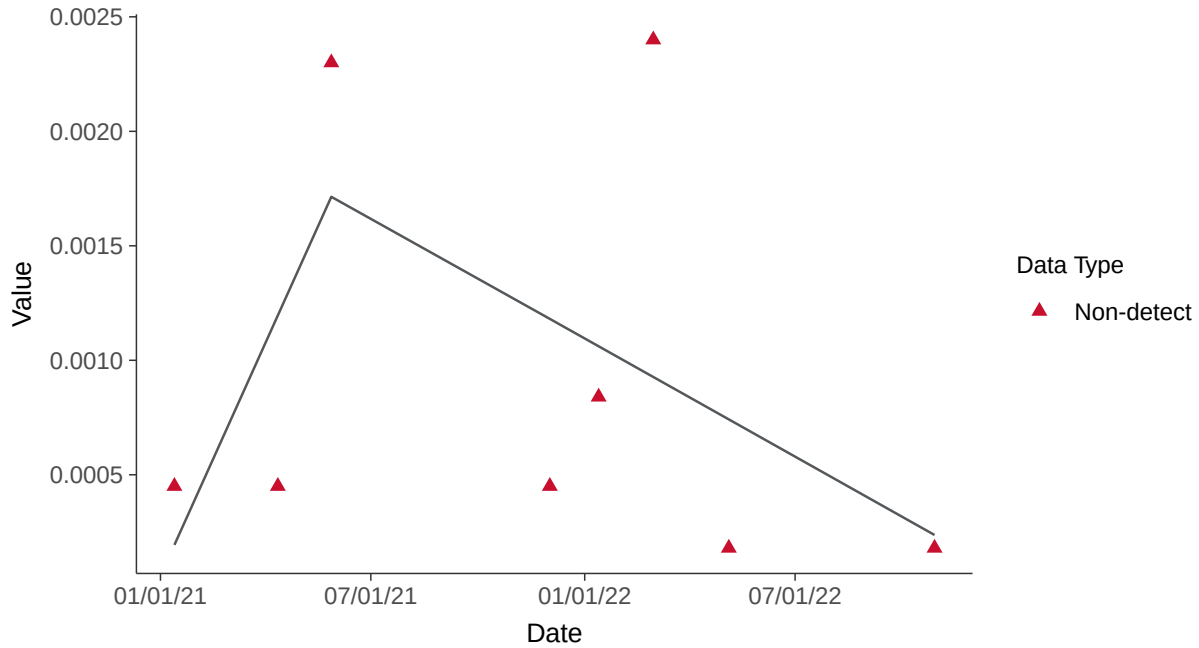
Lead, W-12 (mg/l)





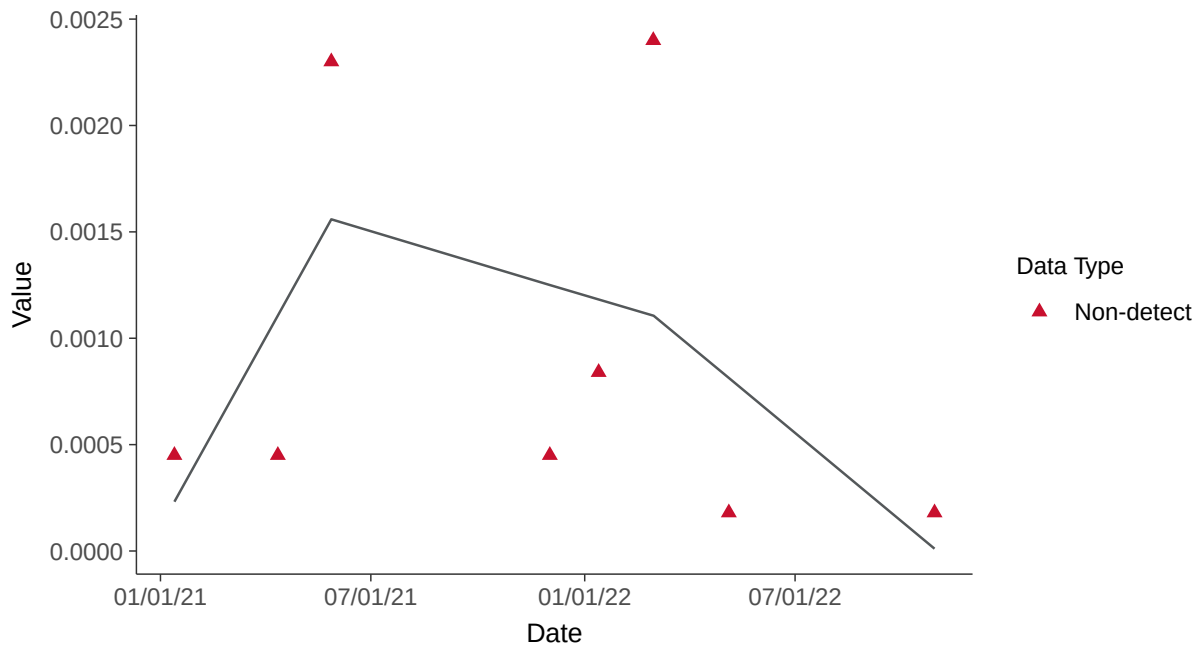
Trend Regression: Piecewise Linear-Linear

Lead, W-12 (mg/l)



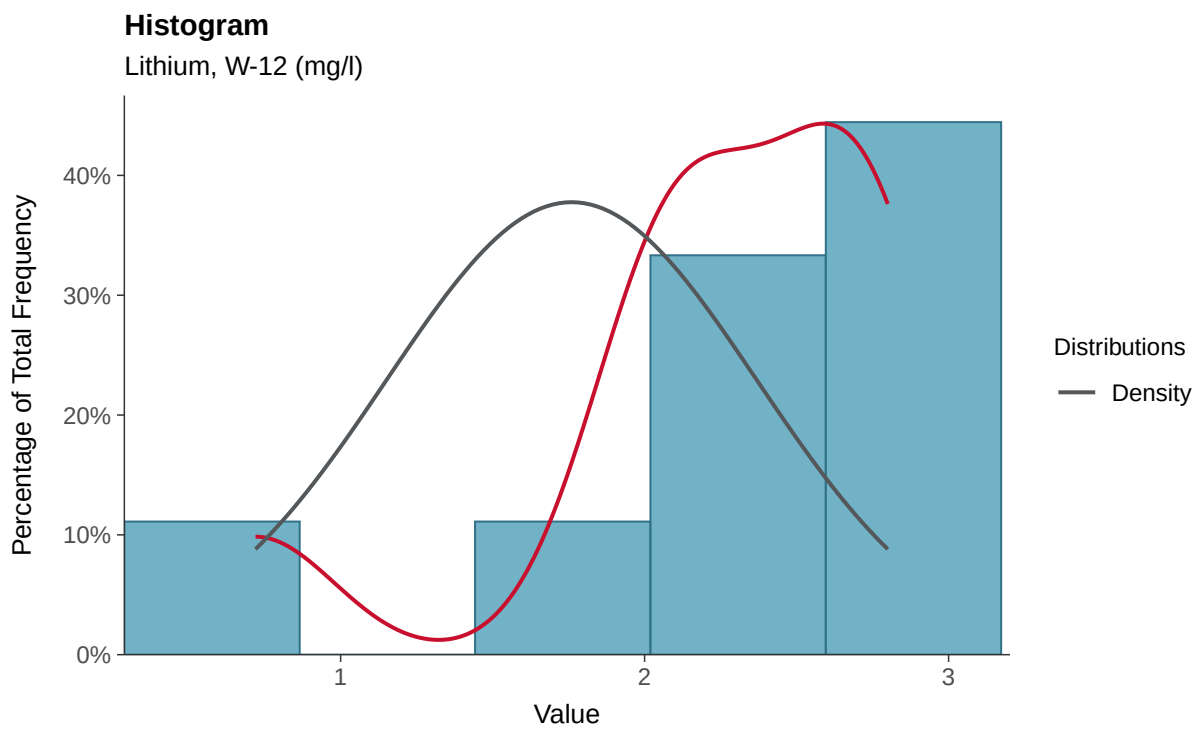
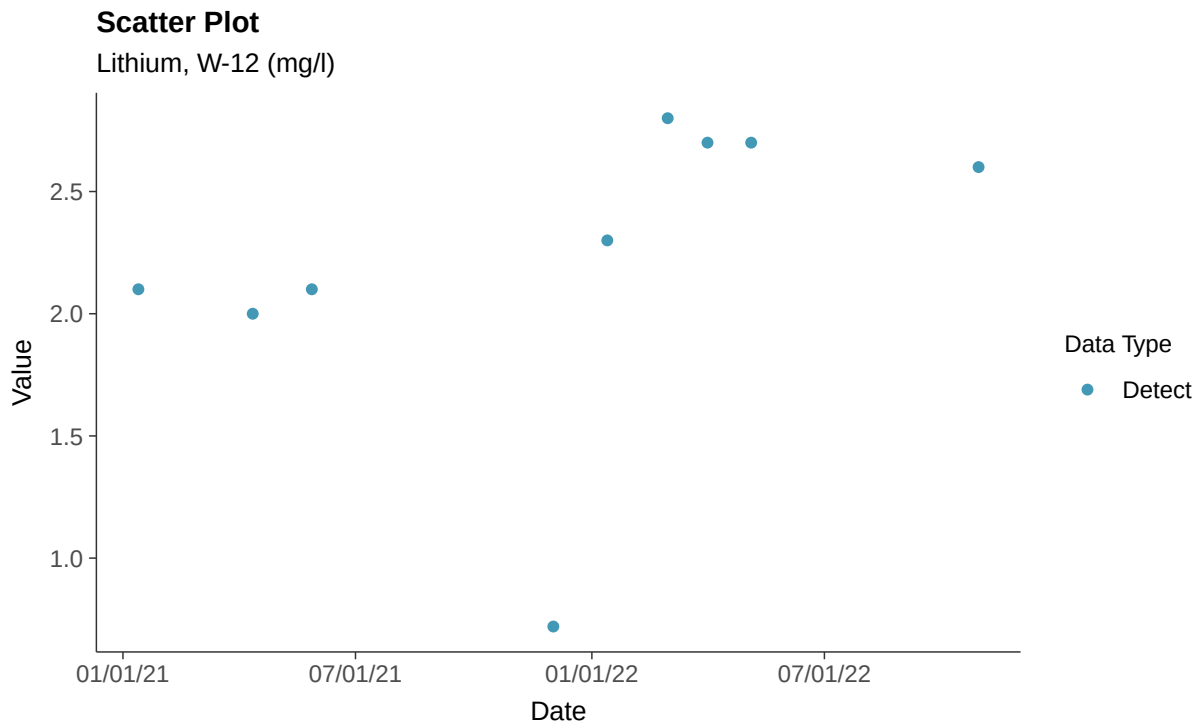
Trend Regression: Piecewise Linear-Linear-Linear

Lead, W-12 (mg/l)



Appendix IV: Lithium, W-12

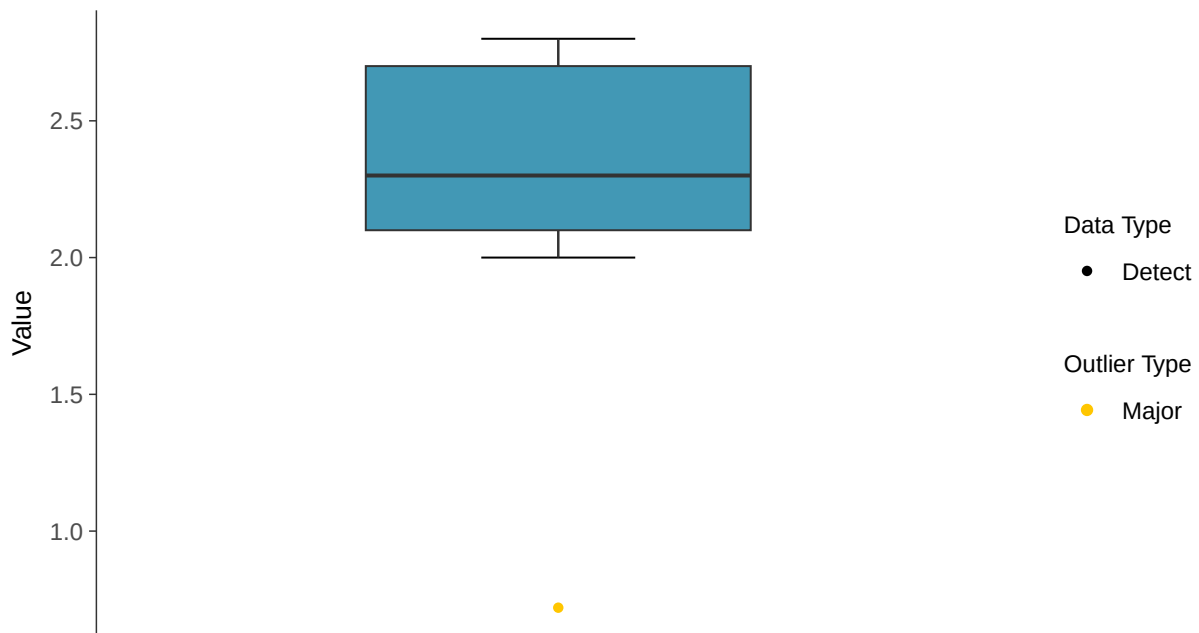
ID: 3_2_114



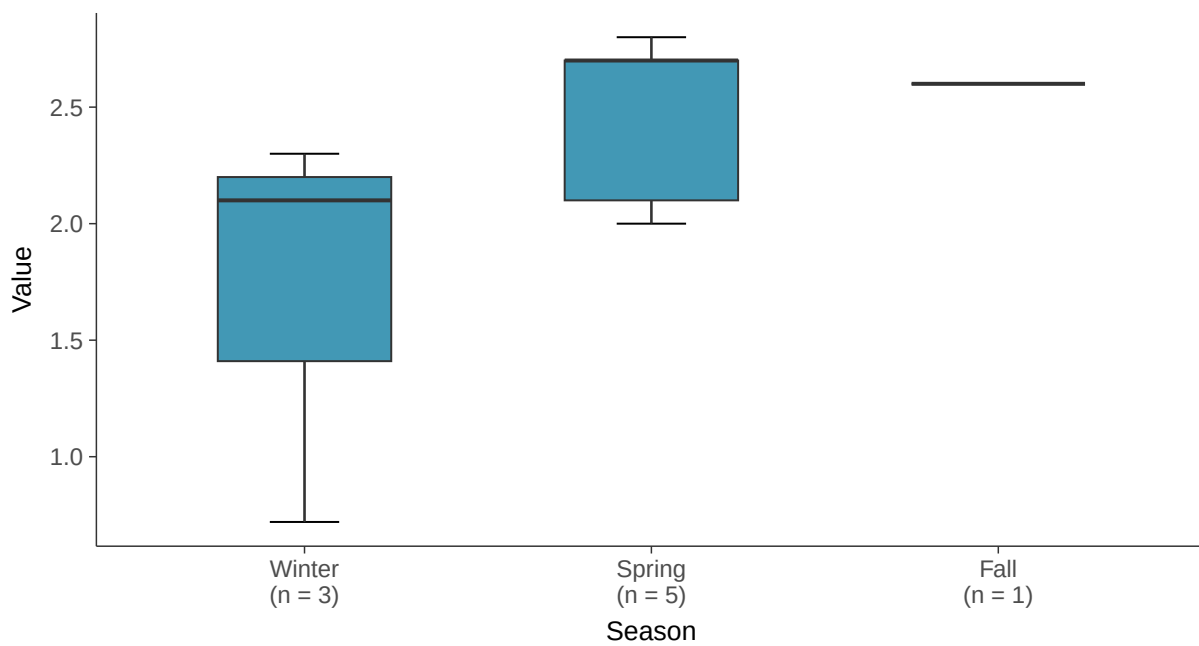
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Lithium, W-12 (mg/l)

**Boxplot by Season**

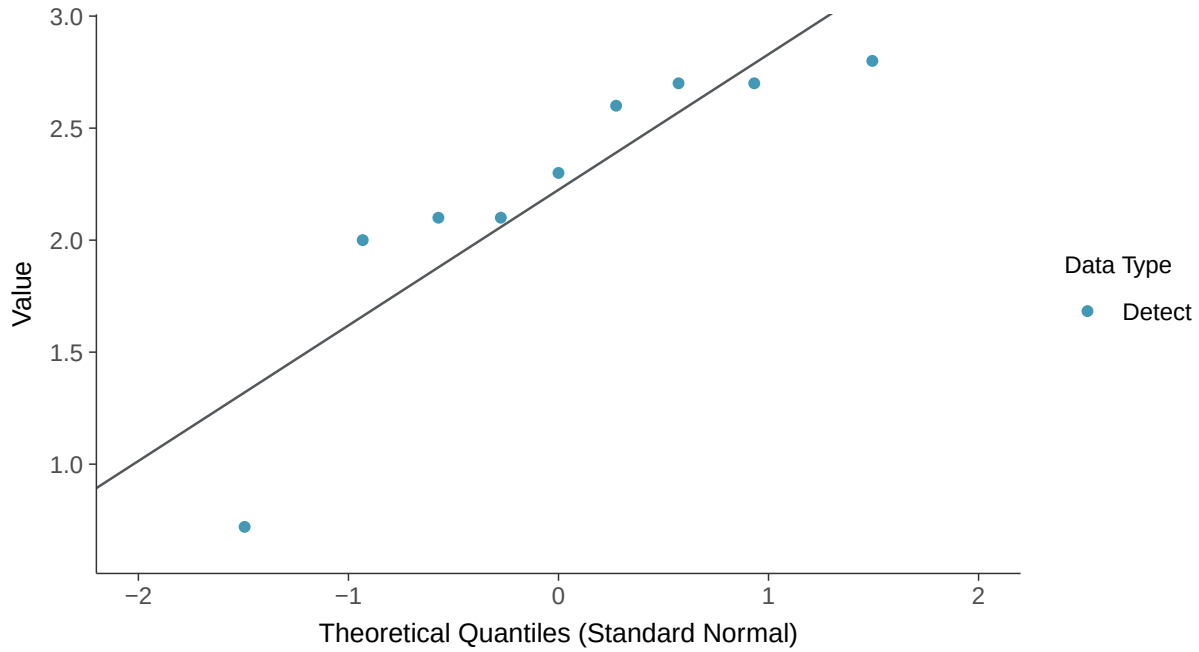
Lithium, W-12 (mg/l)



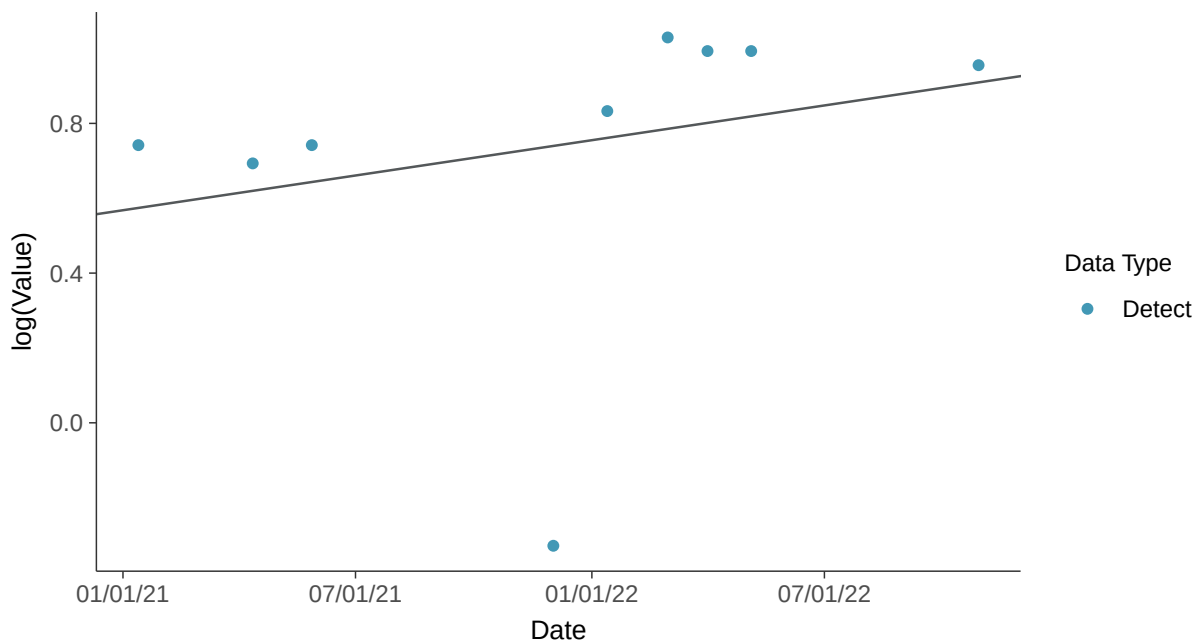
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Normal Q-Q plot

Lithium, W-12 (mg/l)

**Trend Regression: Lognormal MLE**

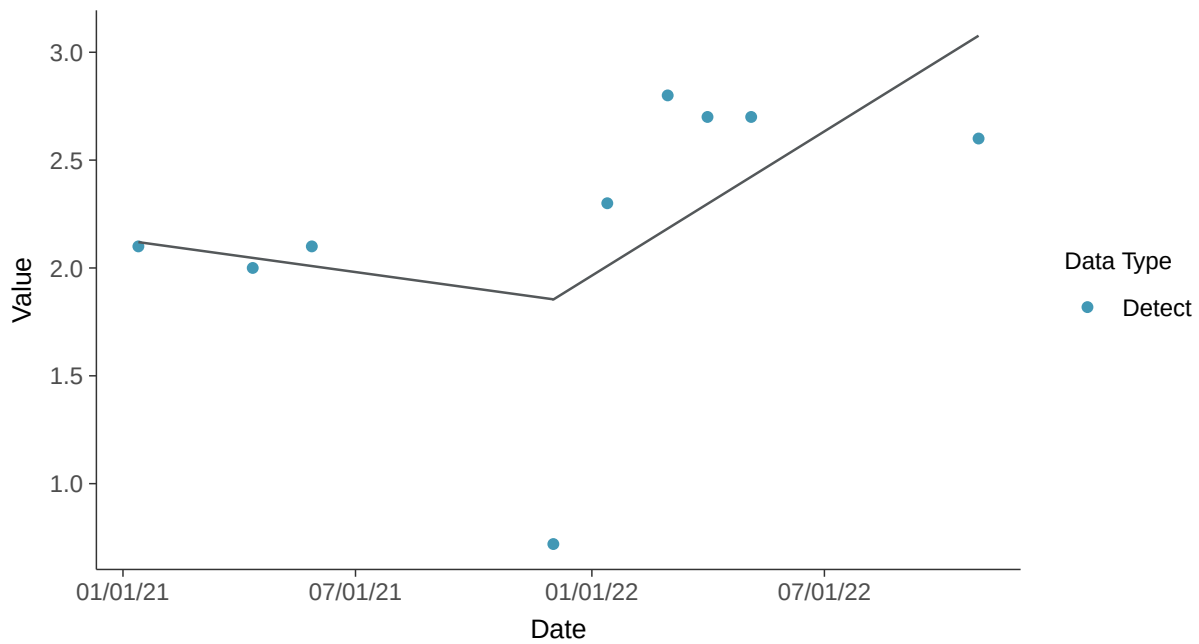
Lithium, W-12 (mg/l)



Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

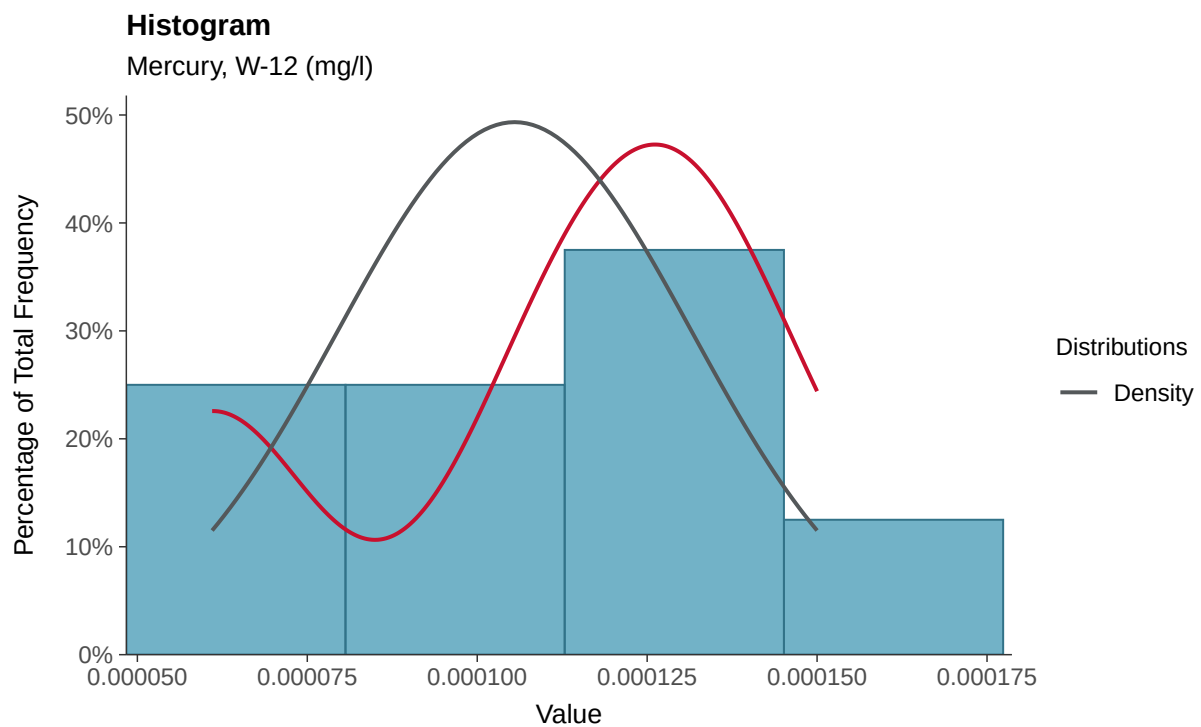
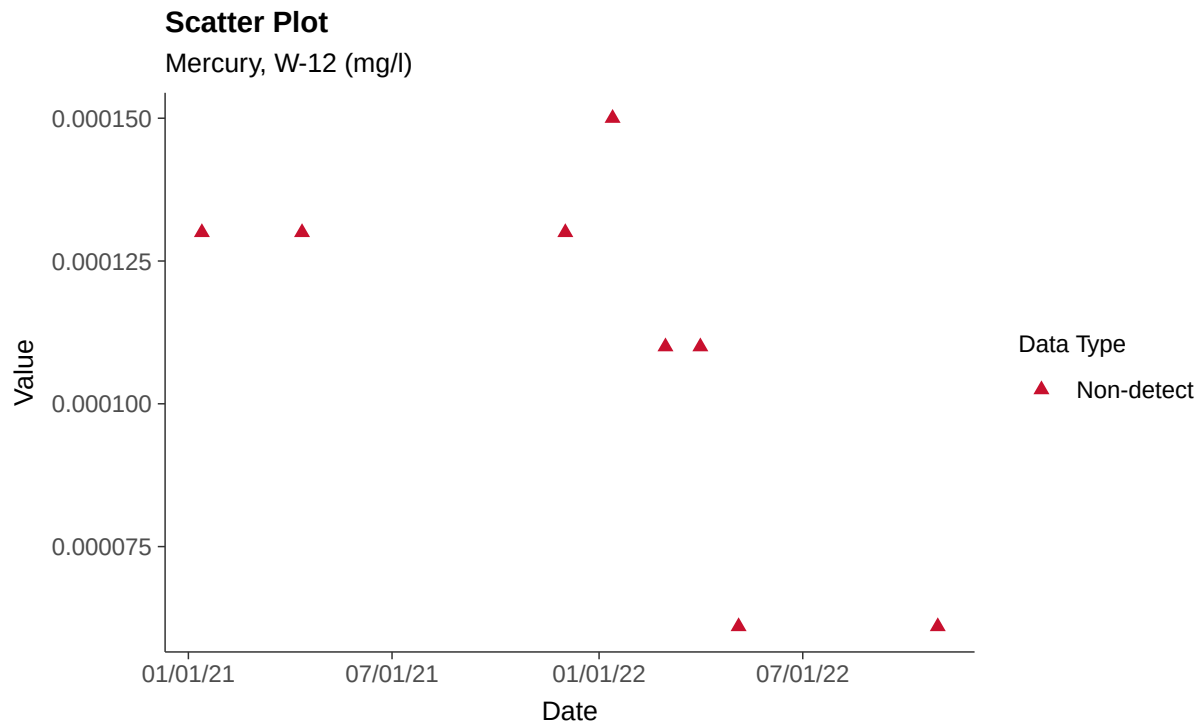
Trend Regression: Piecewise Linear-Linear

Lithium, W-12 (mg/l)



Appendix IV: Mercury, W-12

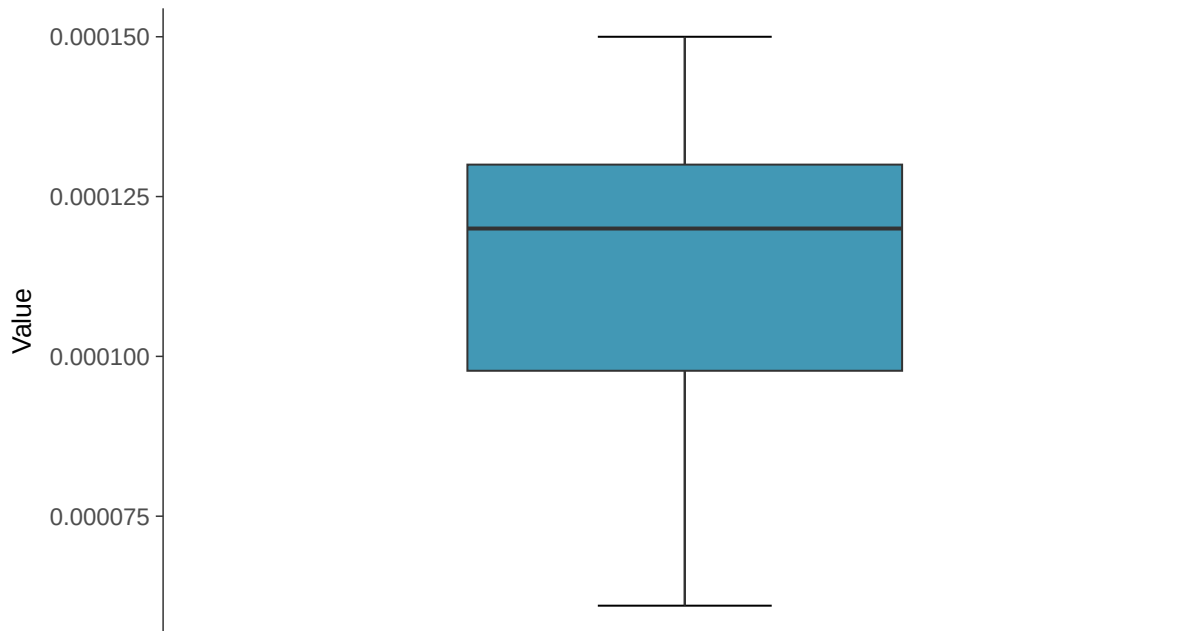
ID: 3_2_115





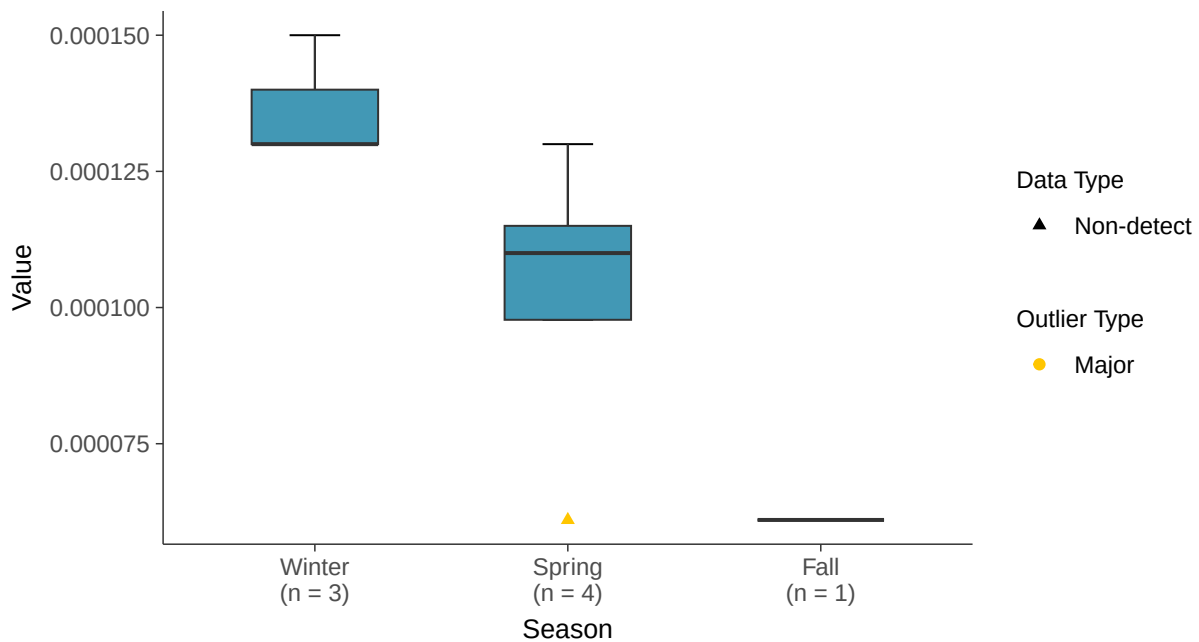
Boxplot

Mercury, W-12 (mg/l)



Boxplot by Season

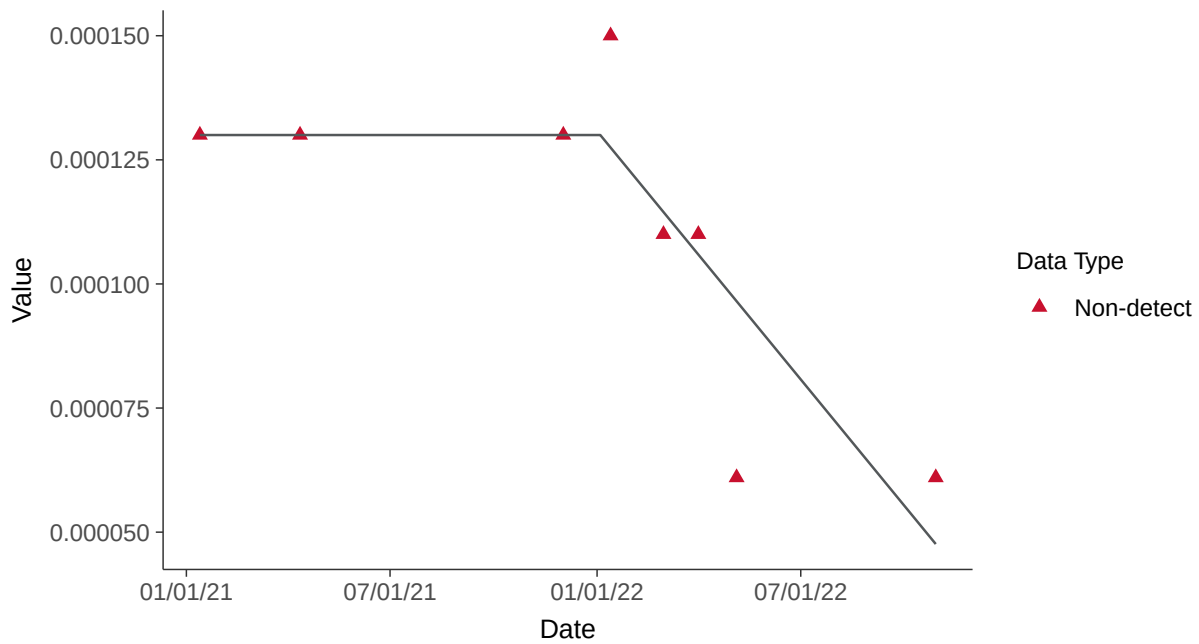
Mercury, W-12 (mg/l)





Trend Regression: Piecewise Linear-Linear

Mercury, W-12 (mg/l)

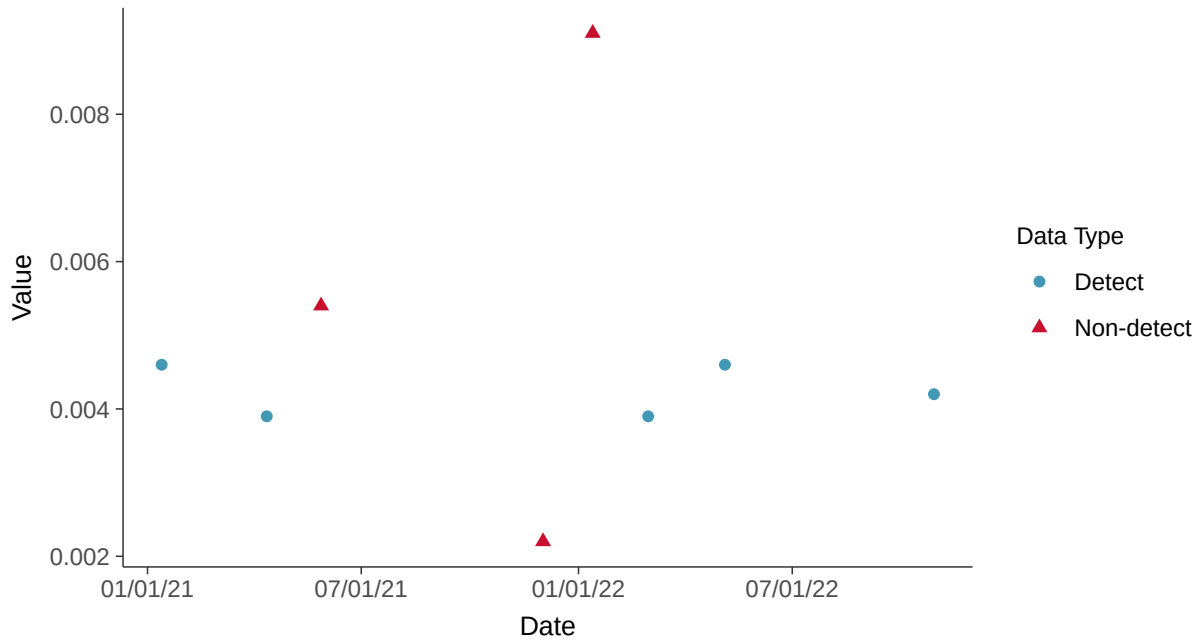


Appendix IV: Molybdenum, W-12

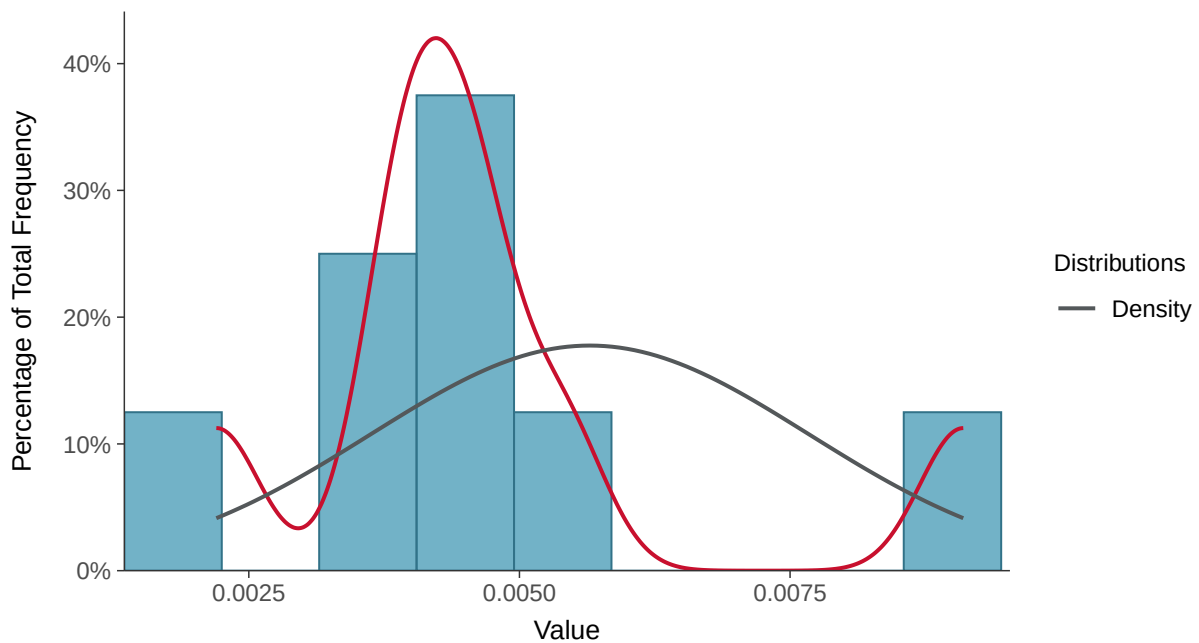
ID: 3_2_116

Scatter Plot

Molybdenum, W-12 (mg/l)

**Histogram**

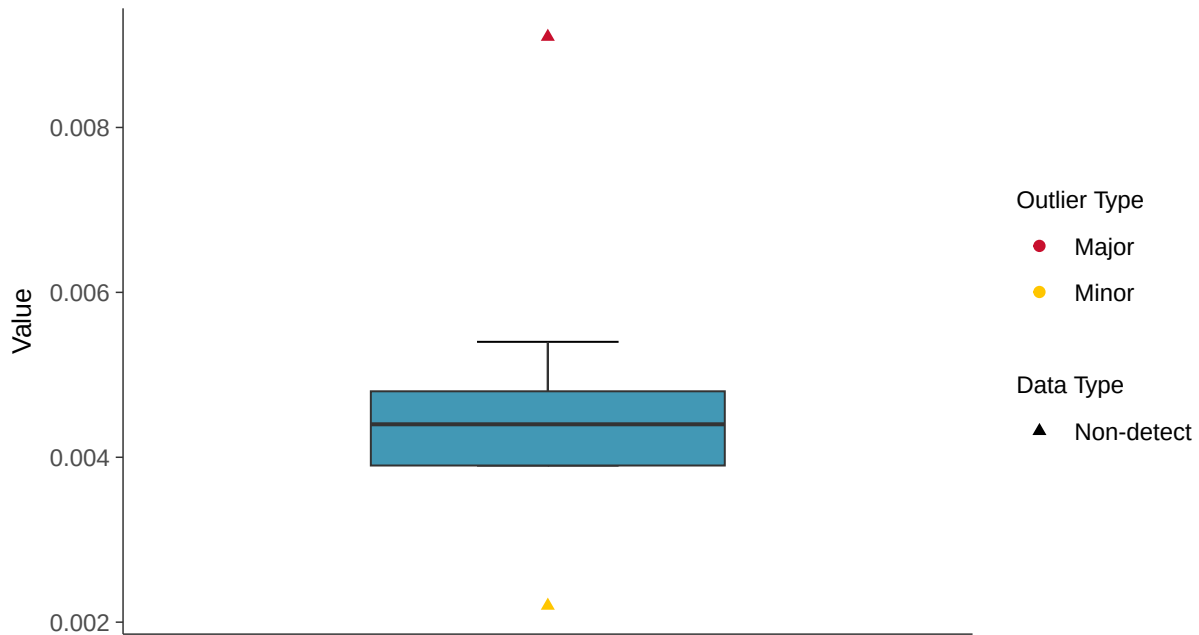
Molybdenum, W-12 (mg/l)



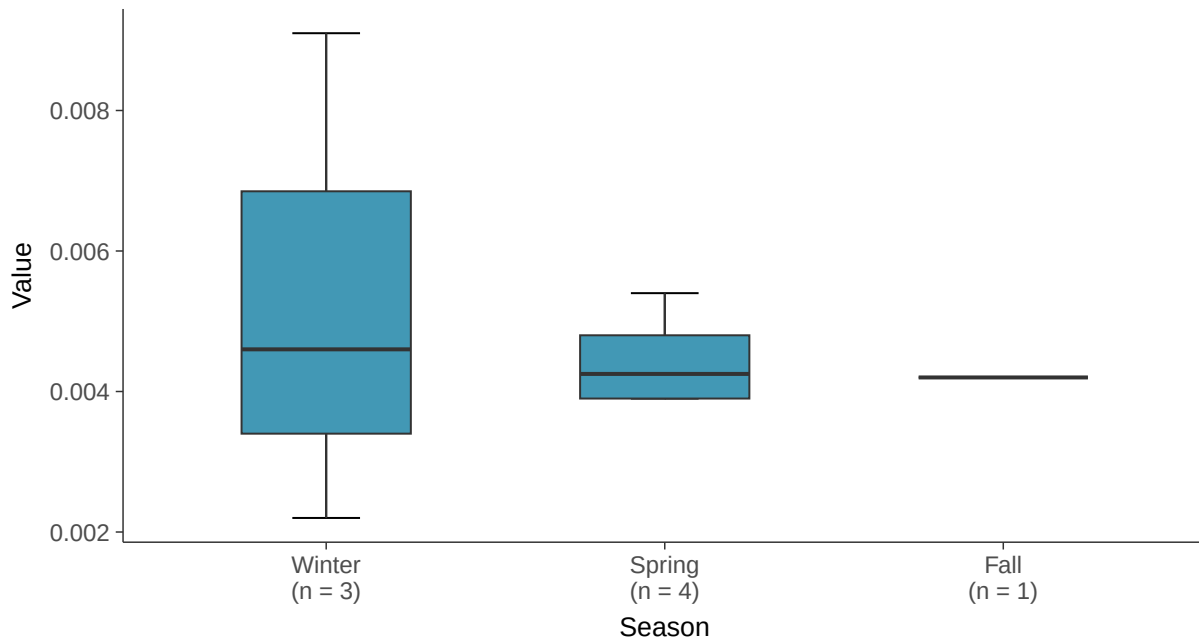
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Molybdenum, W-12 (mg/l)

**Boxplot by Season**

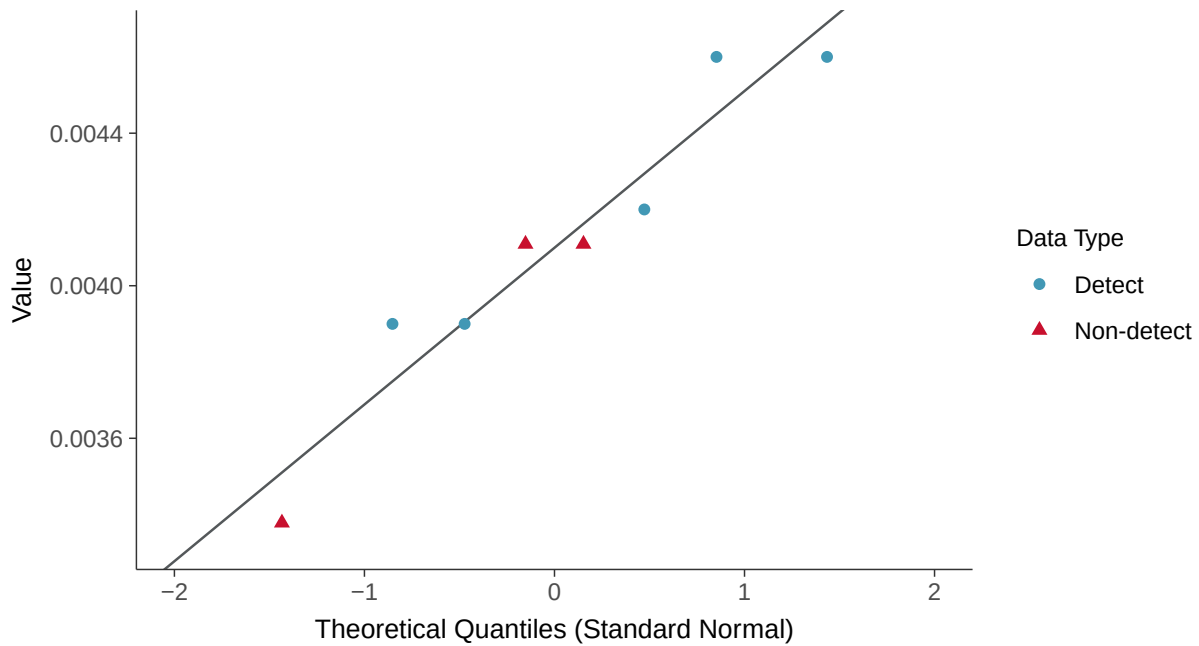
Molybdenum, W-12 (mg/l)





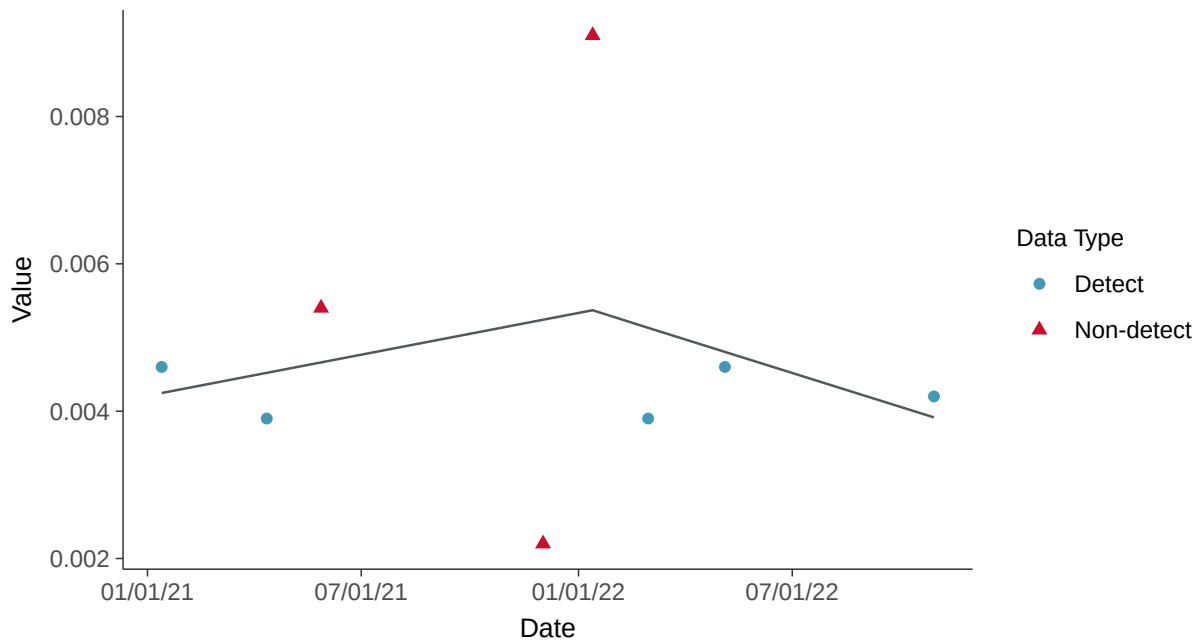
Normal Q-Q plot using ROS Imputed Estimates

Molybdenum, W-12 (mg/l)



Trend Regression: Piecewise Linear-Linear

Molybdenum, W-12 (mg/l)

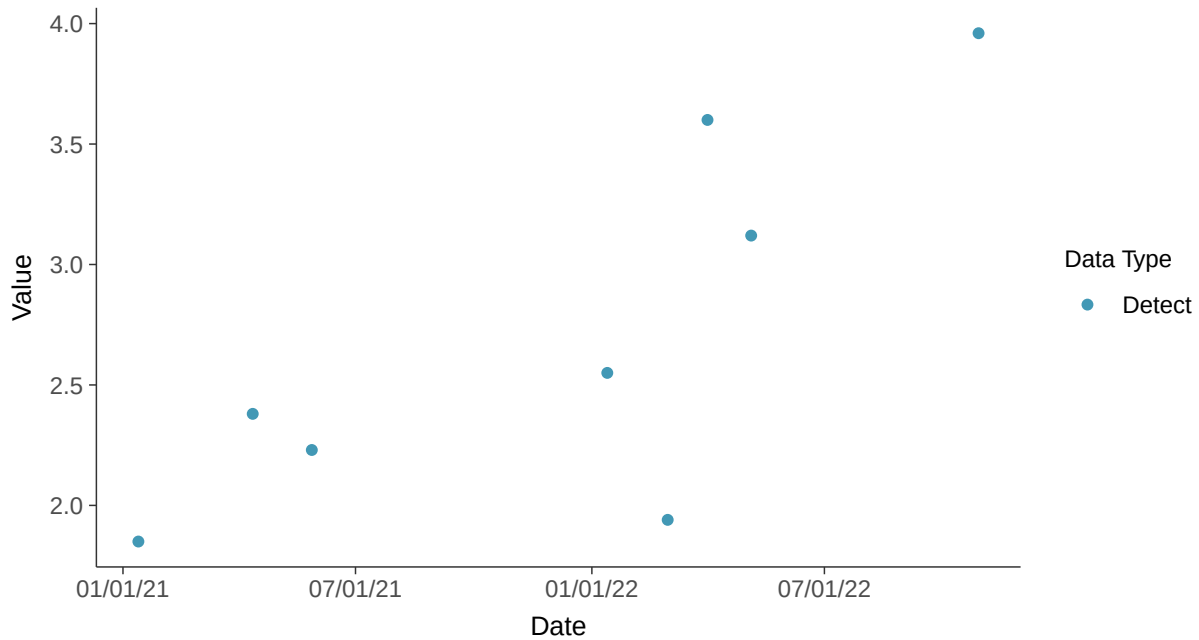


Appendix IV: Radium-226+228, W-12

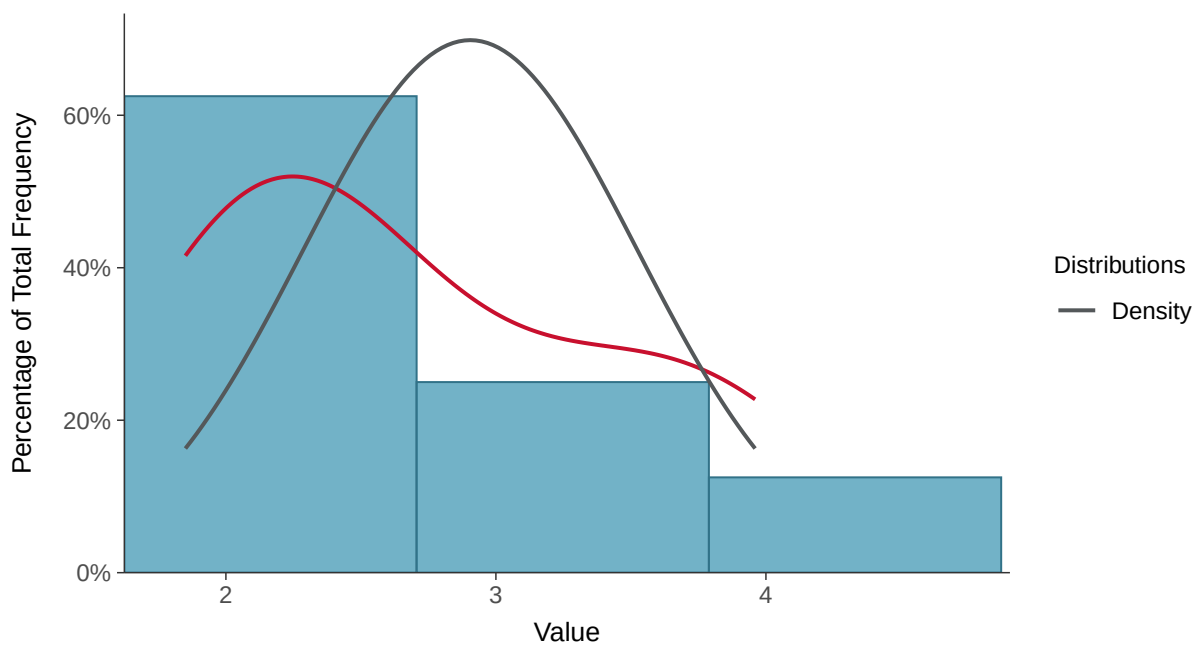
ID: 3_2_120

Scatter Plot

Radium-226+228, W-12 (pci/l)

**Histogram**

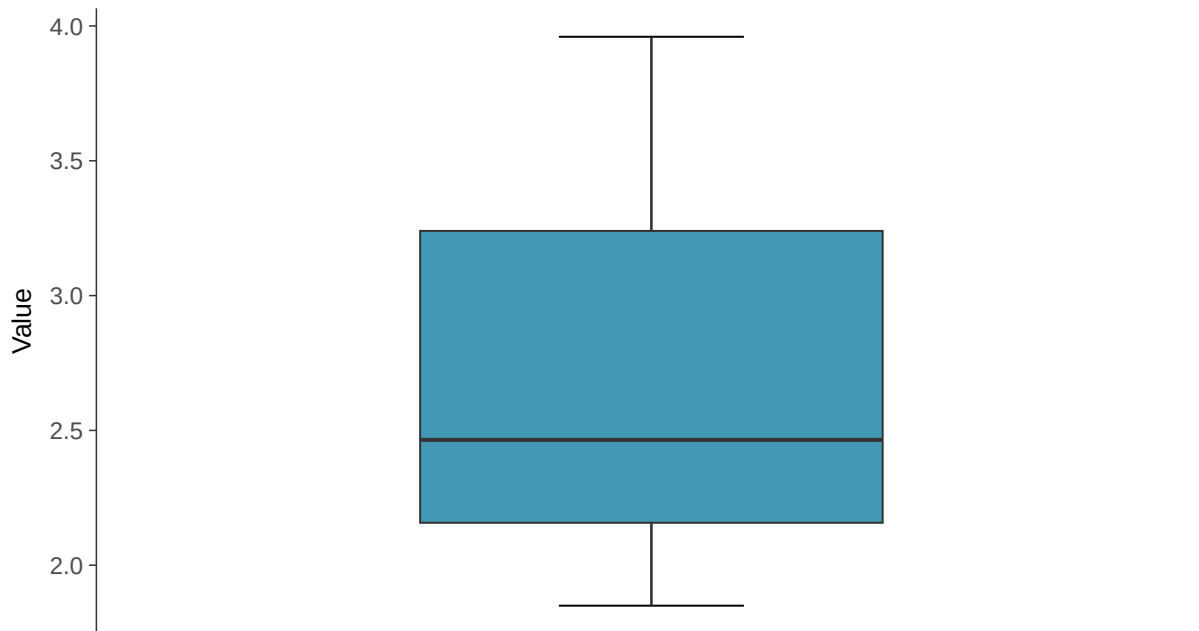
Radium-226+228, W-12 (pci/l)



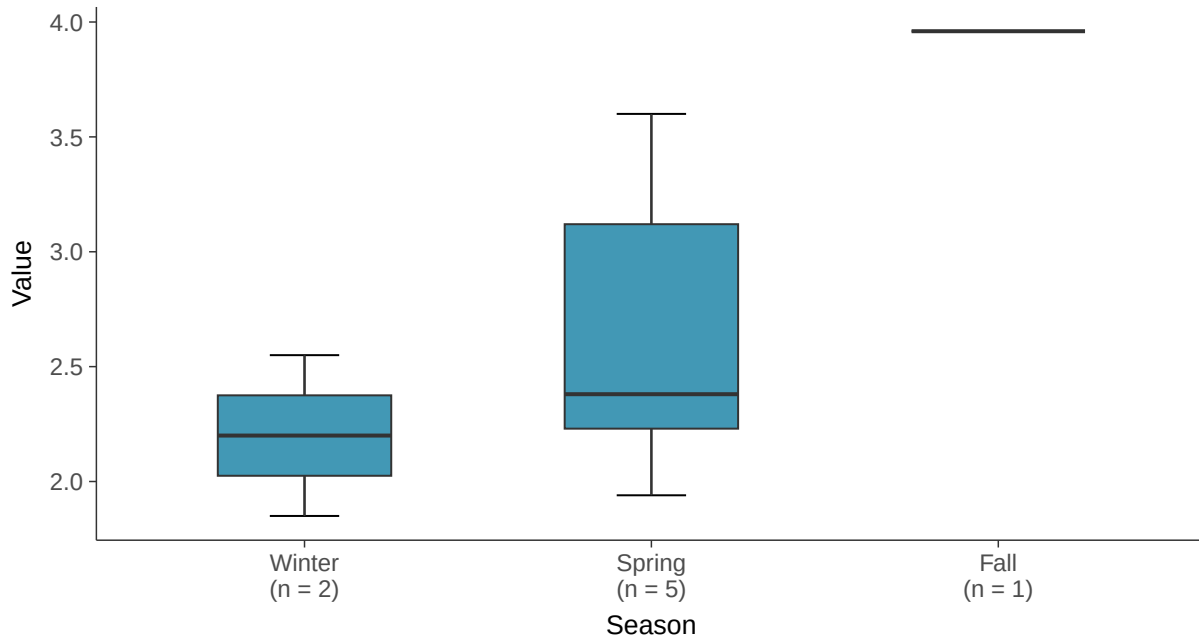
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Radium-226+228, W-12 (pci/l)

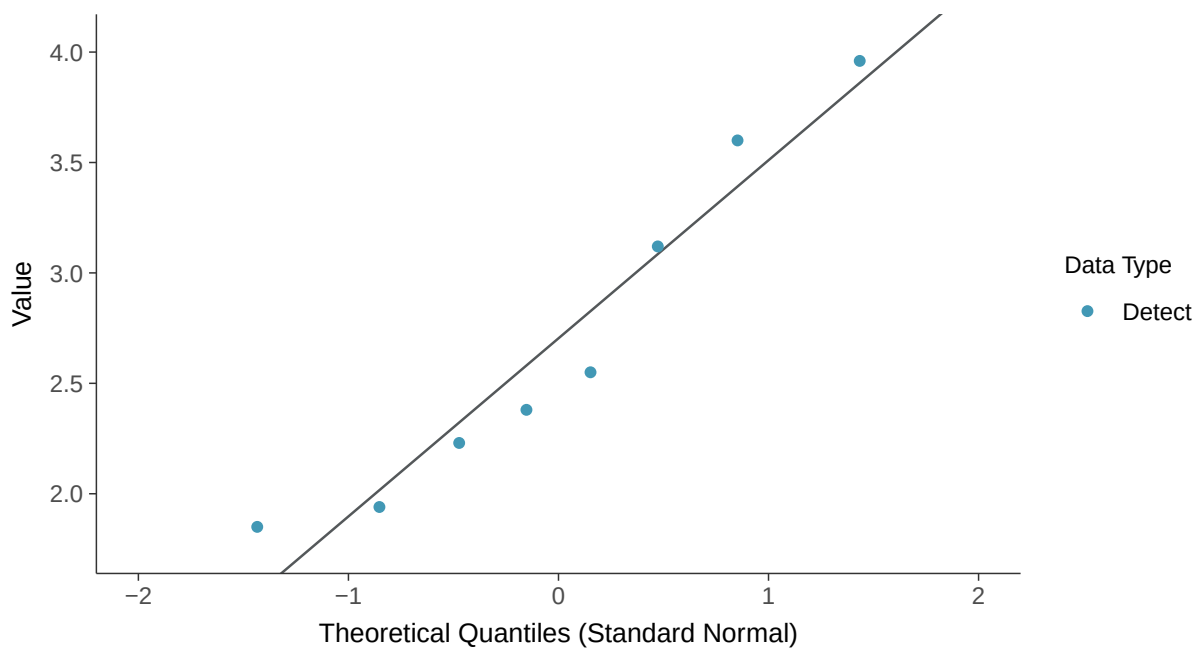
**Boxplot by Season**

Radium-226+228, W-12 (pci/l)



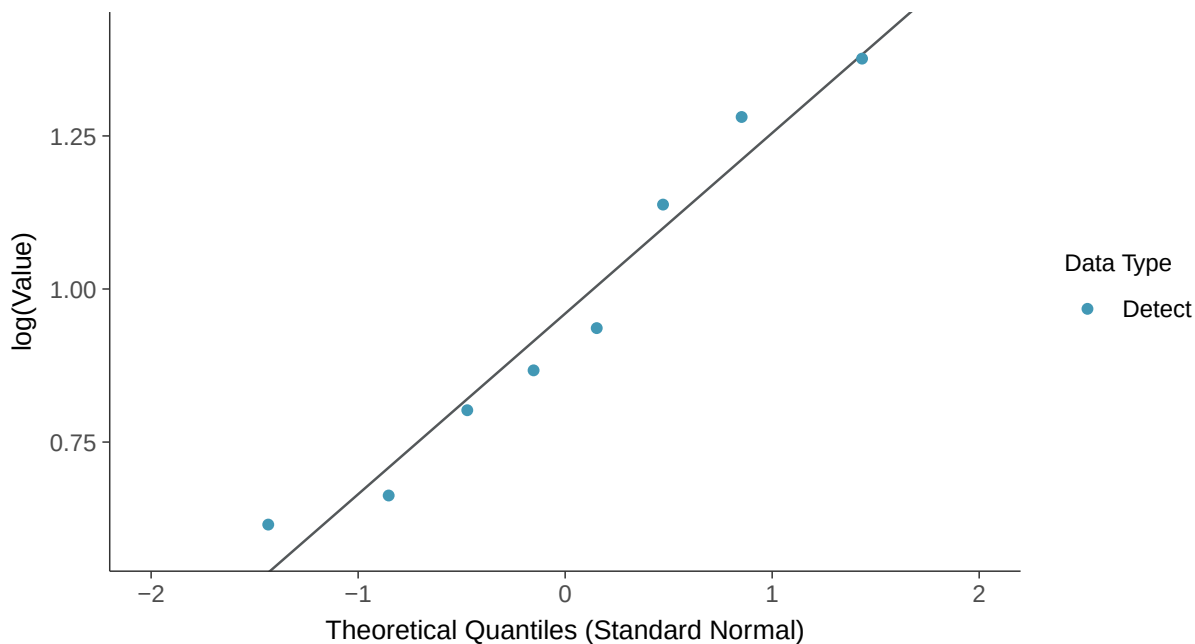
Normal Q-Q plot

Radium-226+228, W-12 (pci/l)



Lognormal Q-Q plot

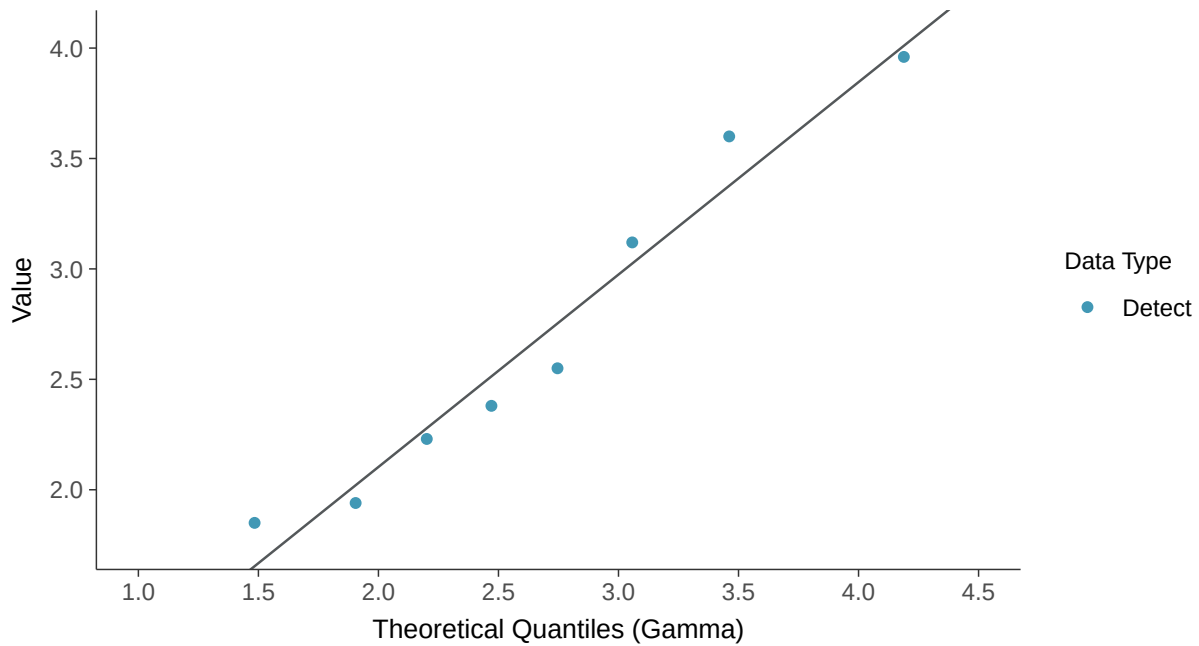
Radium-226+228, W-12 (pci/l)





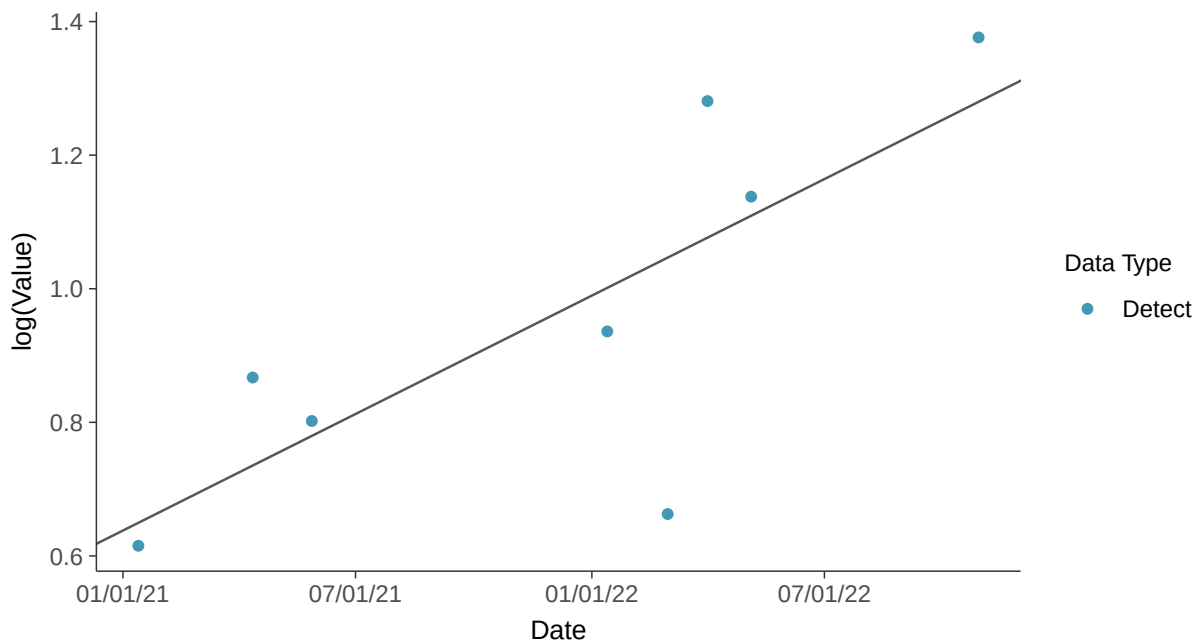
Gamma Q-Q plot

Radium-226+228, W-12 (pci/l)



Trend Regression: Lognormal MLE

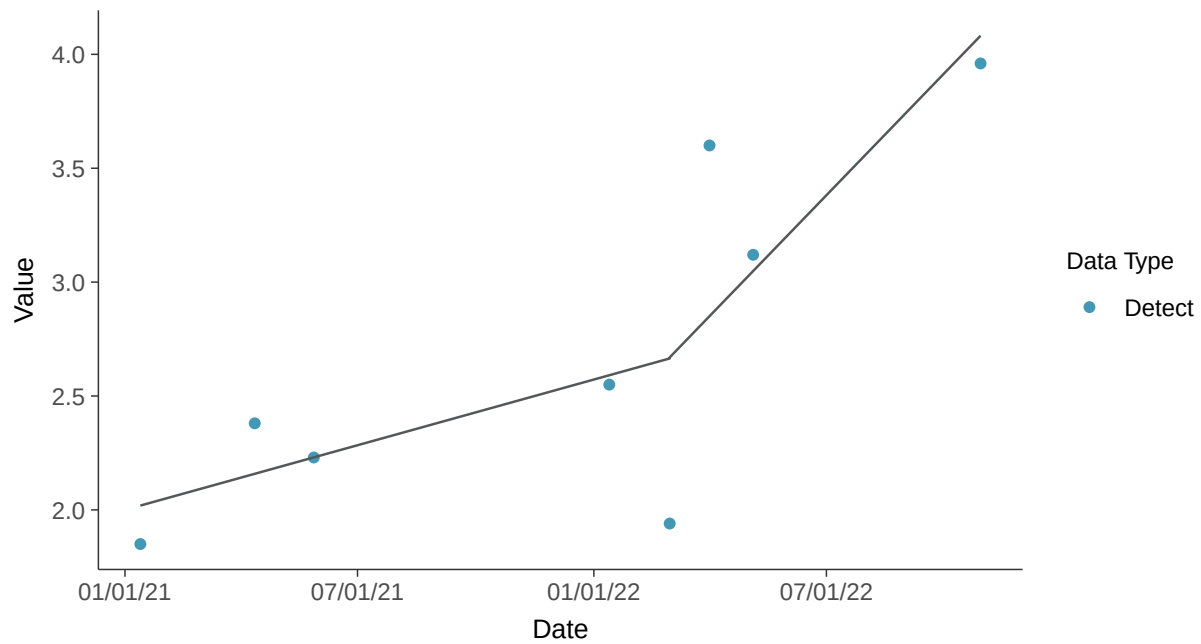
Radium-226+228, W-12 (pci/l)





Trend Regression: Piecewise Linear-Linear

Radium-226+228, W-12 (pci/l)

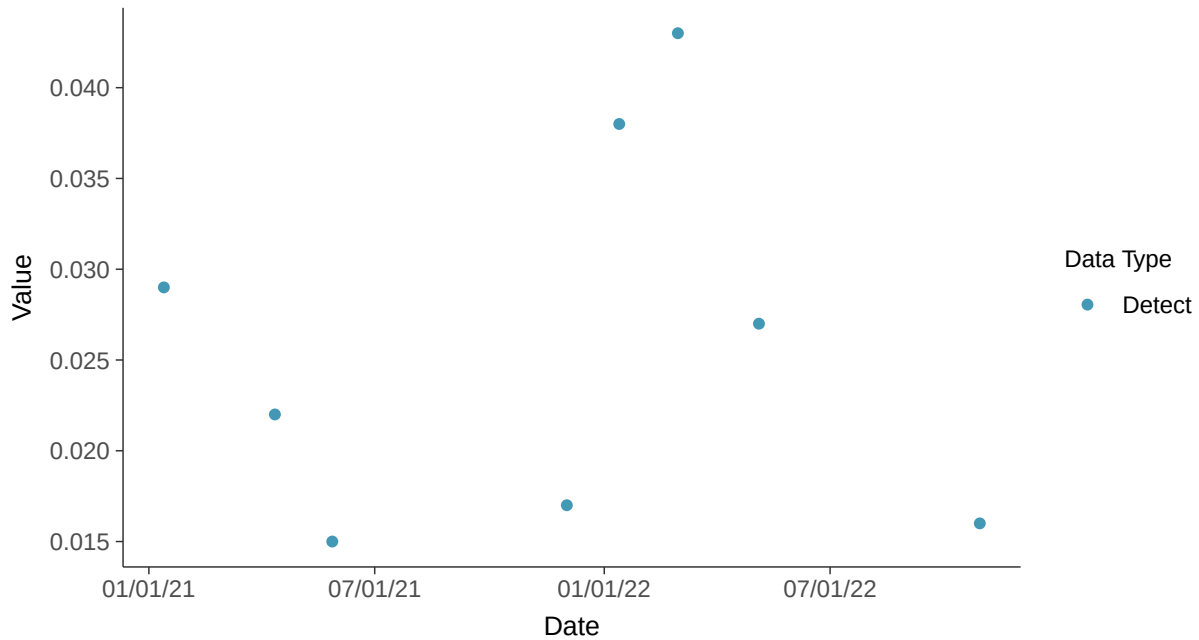


Appendix IV: Selenium, W-12

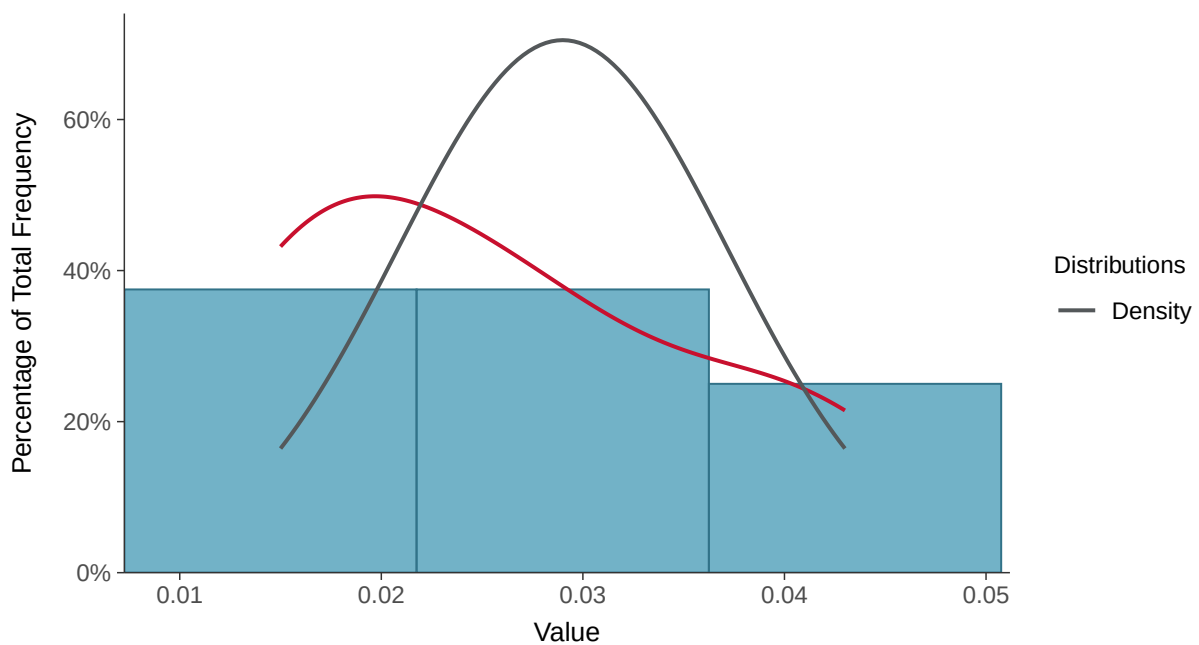
ID: 3_2_122

Scatter Plot

Selenium, W-12 (mg/l)

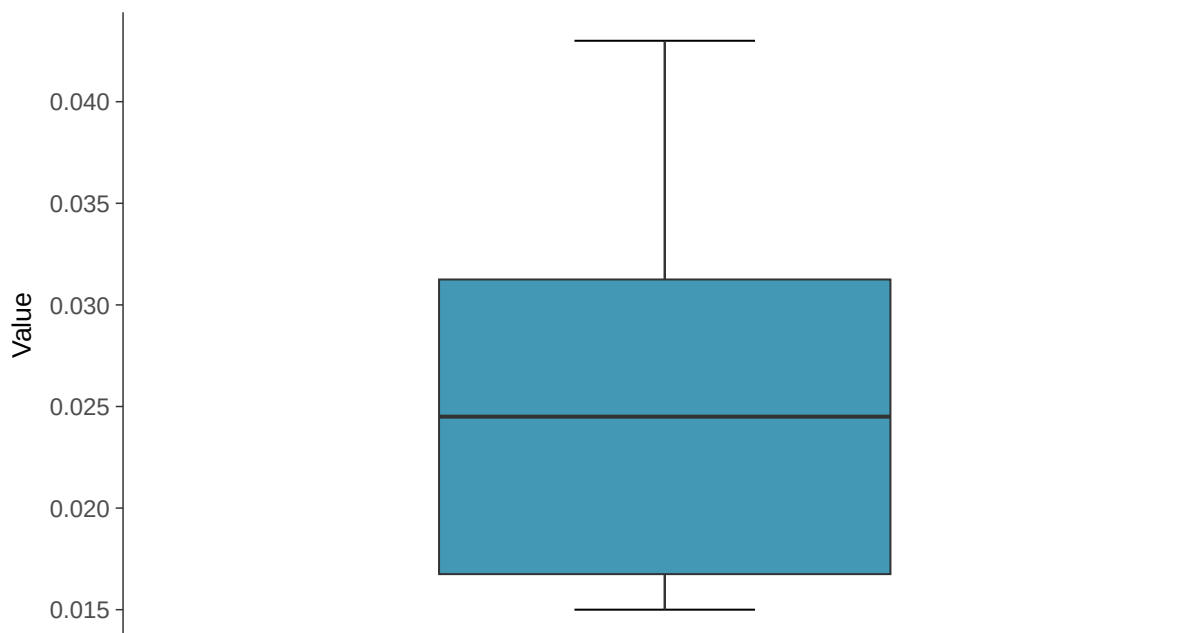
**Histogram**

Selenium, W-12 (mg/l)



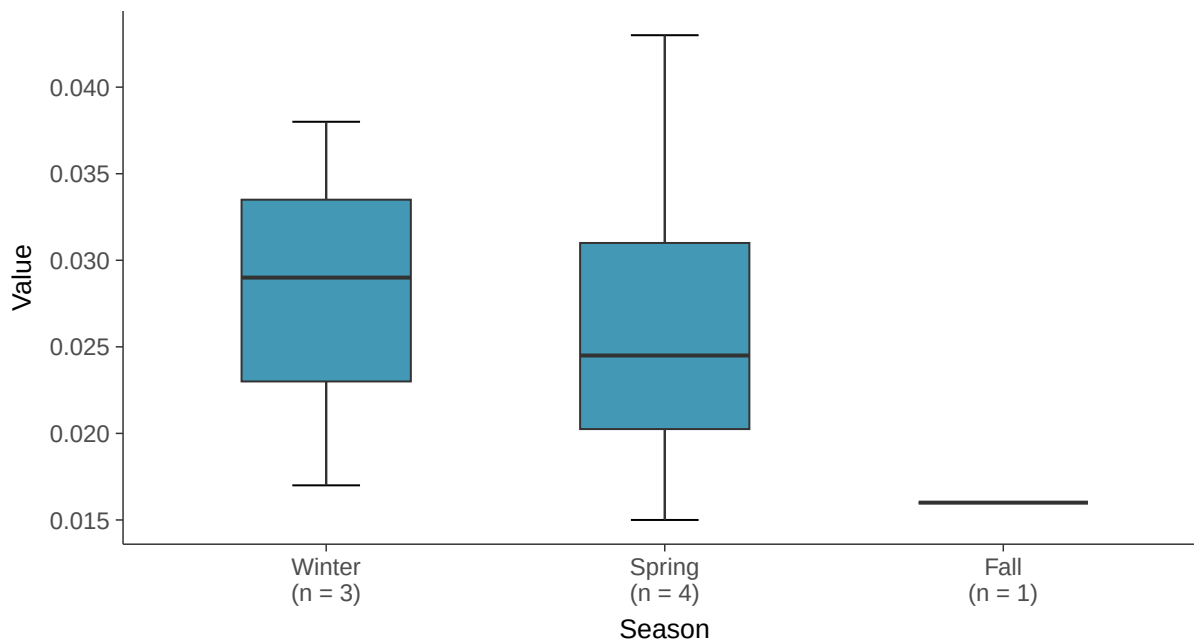
Boxplot

Selenium, W-12 (mg/l)



Boxplot by Season

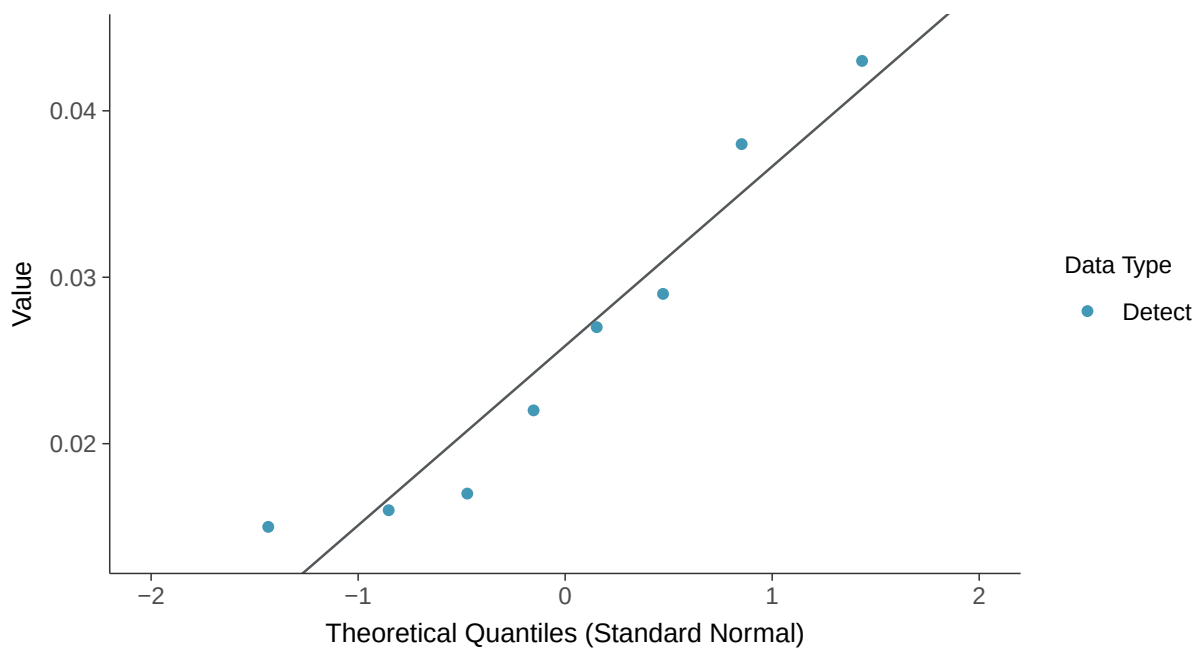
Selenium, W-12 (mg/l)





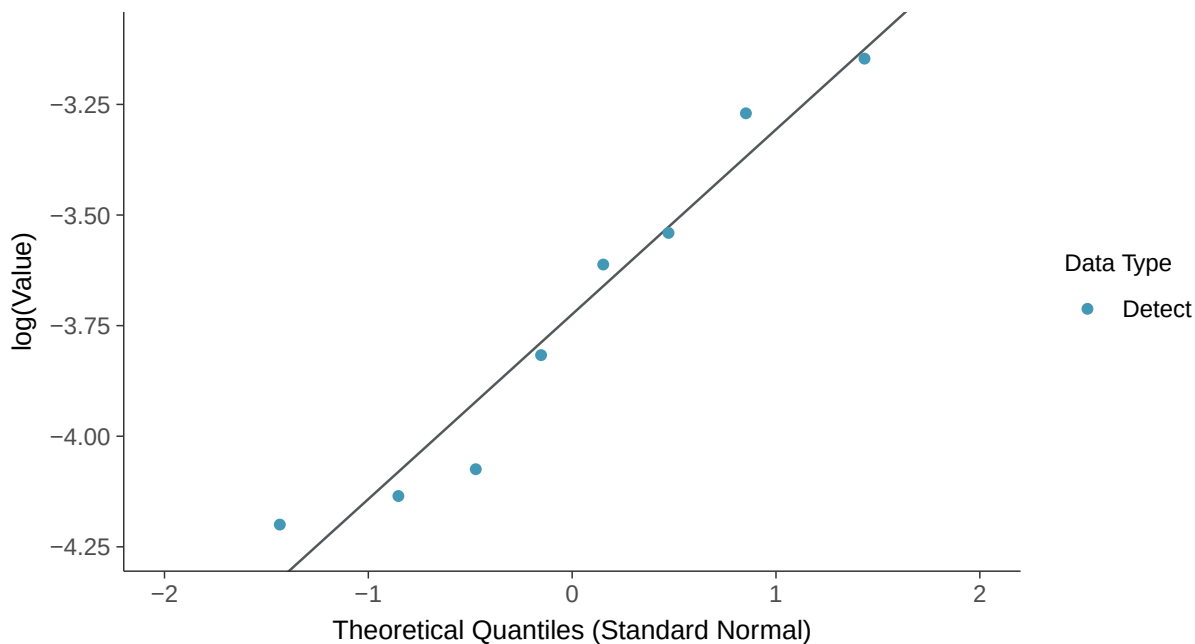
Normal Q-Q plot

Selenium, W-12 (mg/l)



Lognormal Q-Q plot

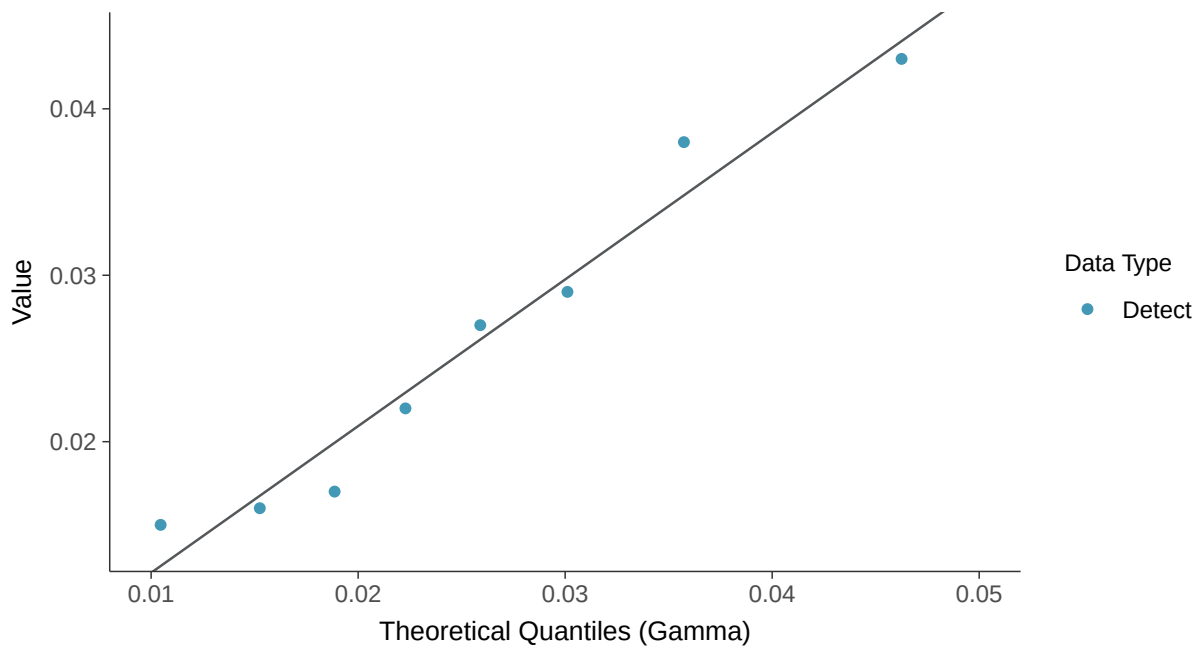
Selenium, W-12 (mg/l)





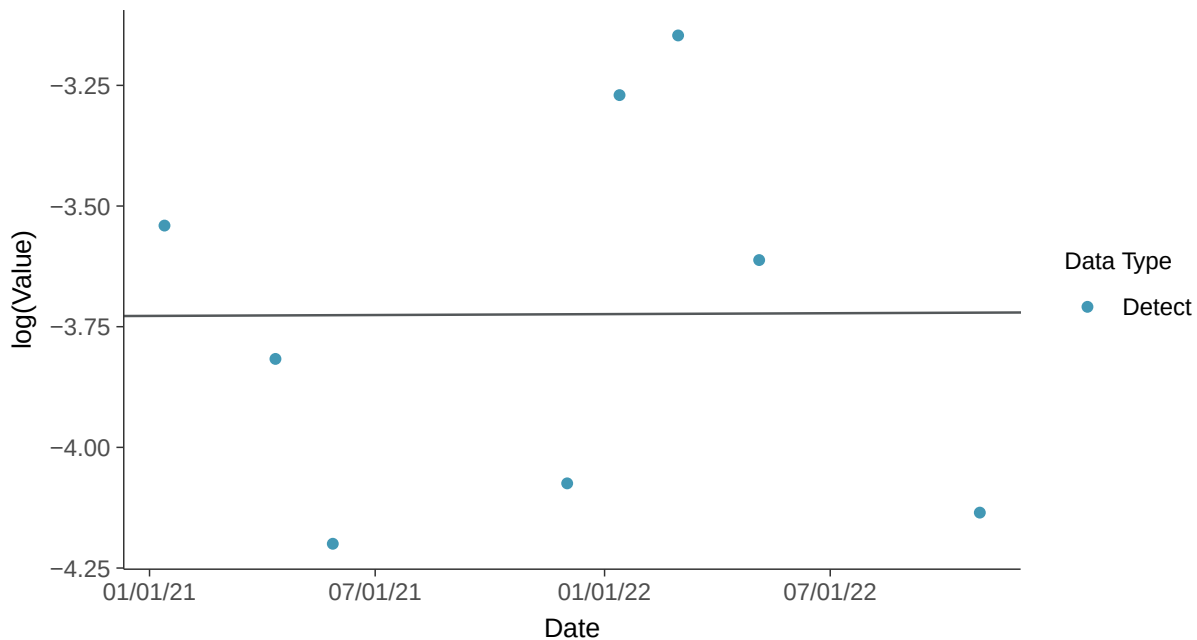
Gamma Q-Q plot

Selenium, W-12 (mg/l)



Trend Regression: Lognormal MLE

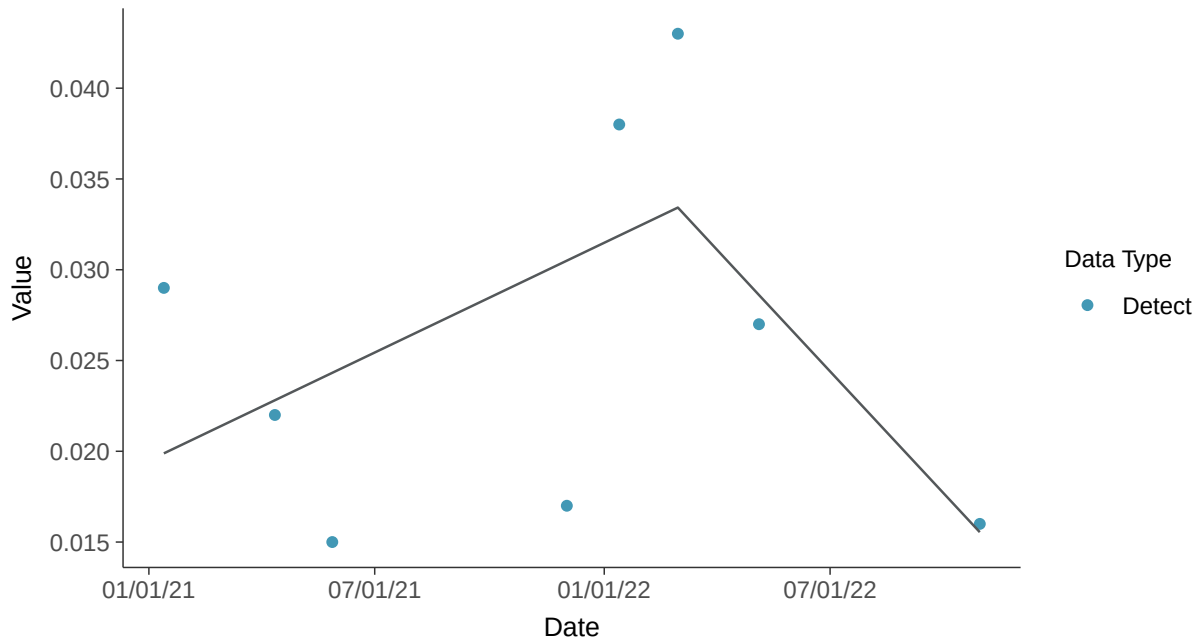
Selenium, W-12 (mg/l)





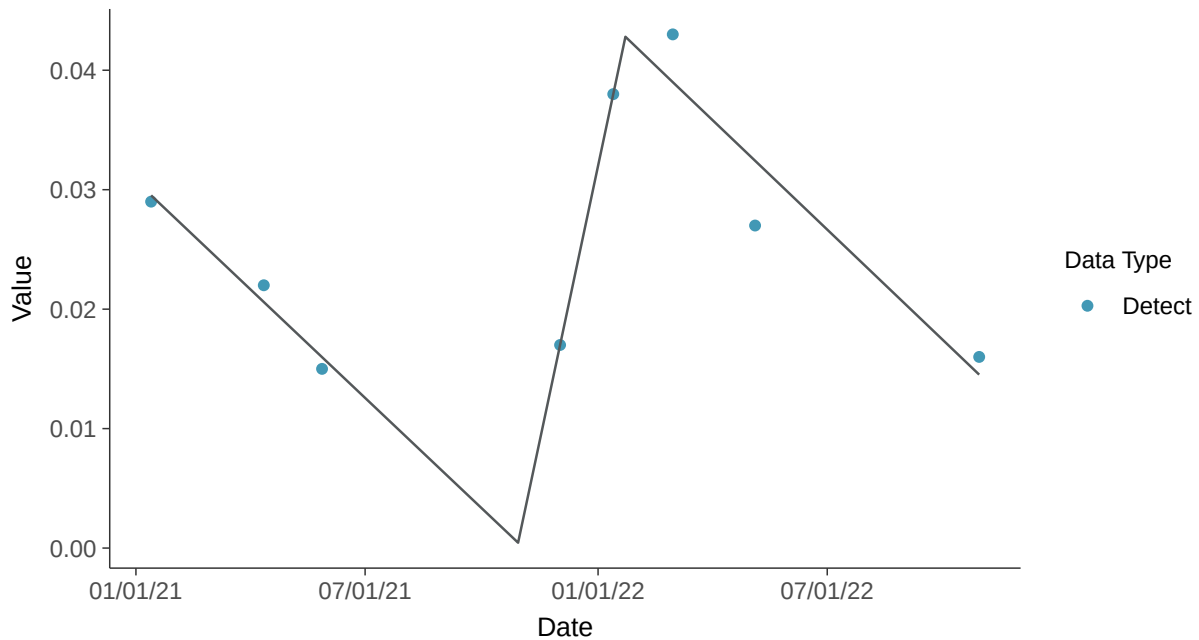
Trend Regression: Piecewise Linear-Linear

Selenium, W-12 (mg/l)



Trend Regression: Piecewise Linear-Linear-Linear

Selenium, W-12 (mg/l)

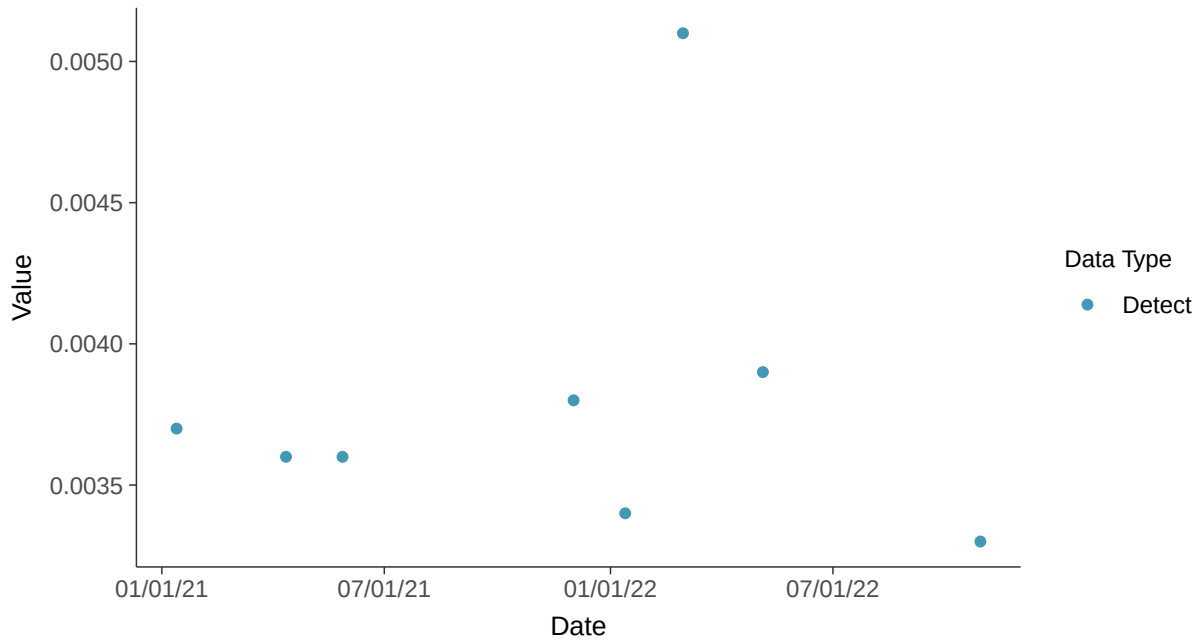


Appendix IV: Thallium, W-12

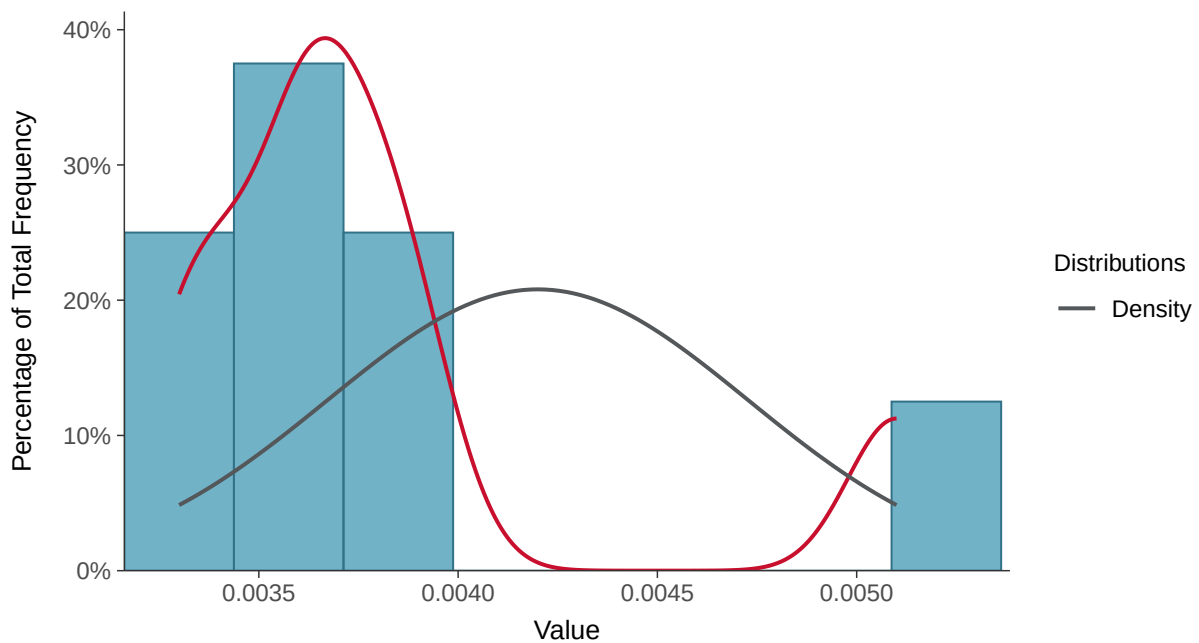
ID: 3_2_126

Scatter Plot

Thallium, W-12 (mg/l)

**Histogram**

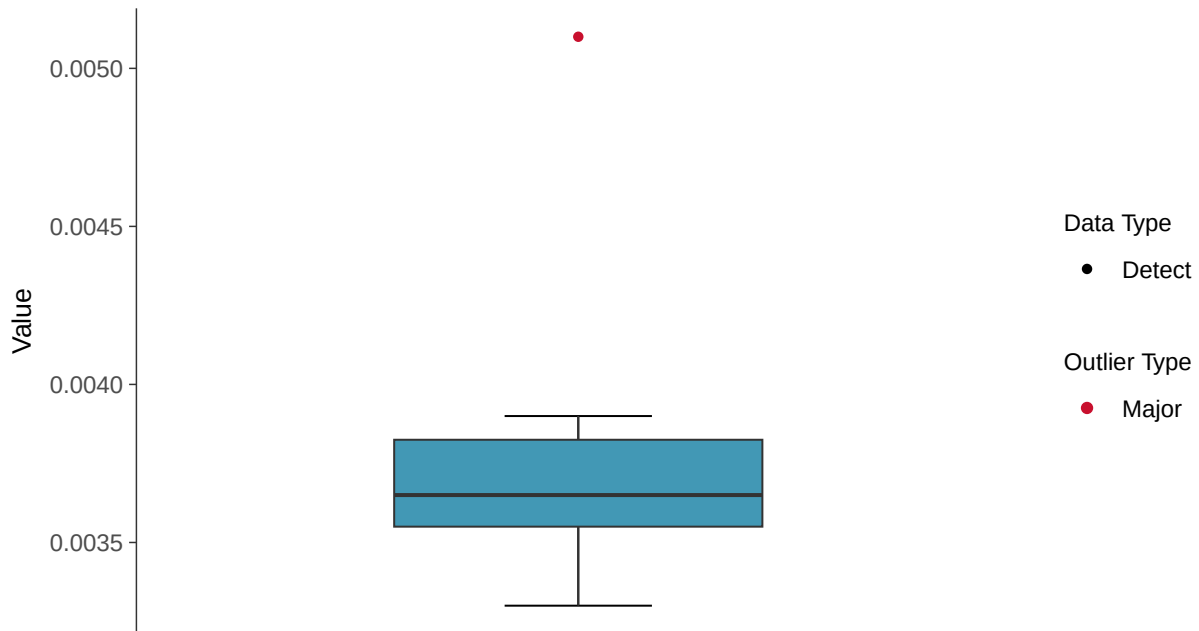
Thallium, W-12 (mg/l)



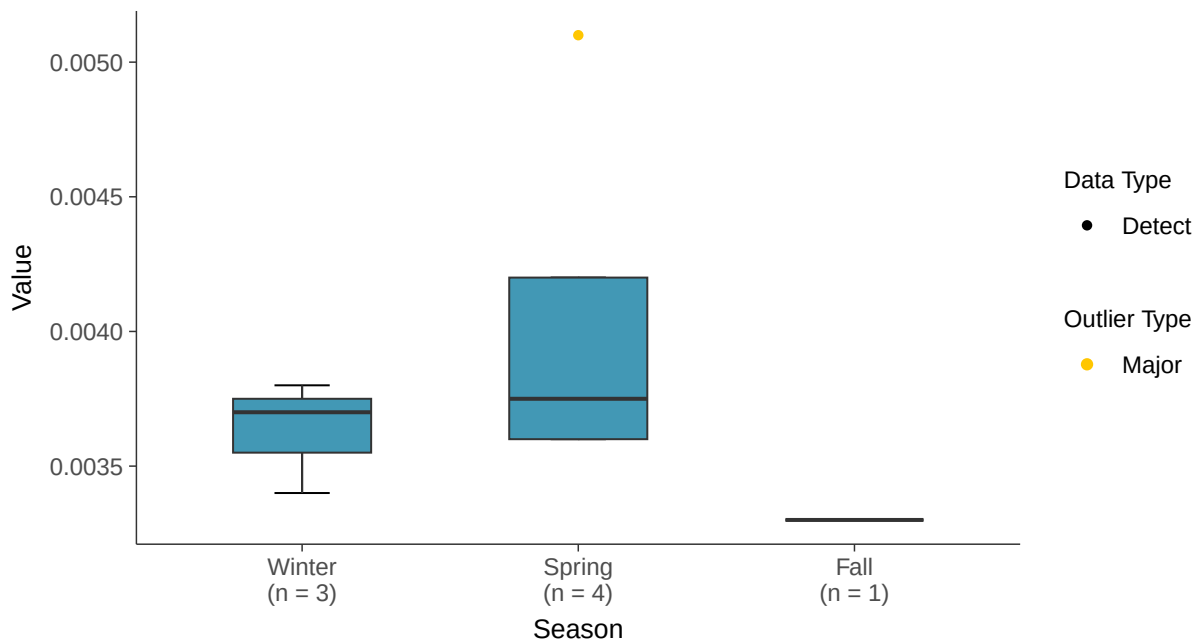
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Thallium, W-12 (mg/l)

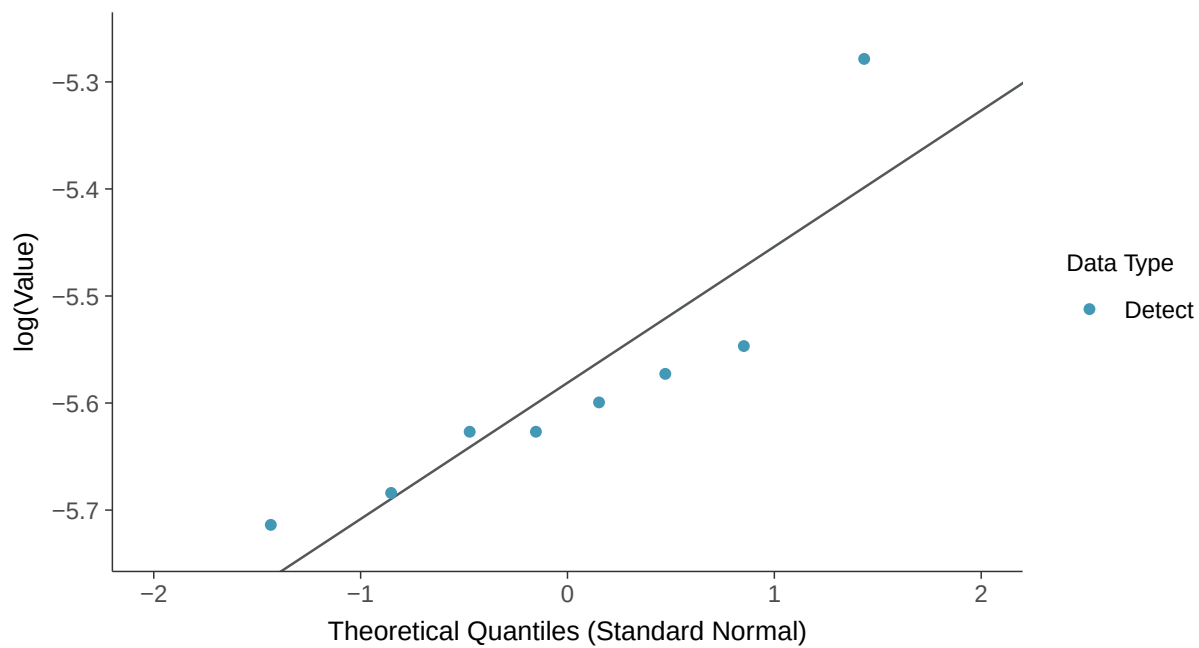
**Boxplot by Season**

Thallium, W-12 (mg/l)



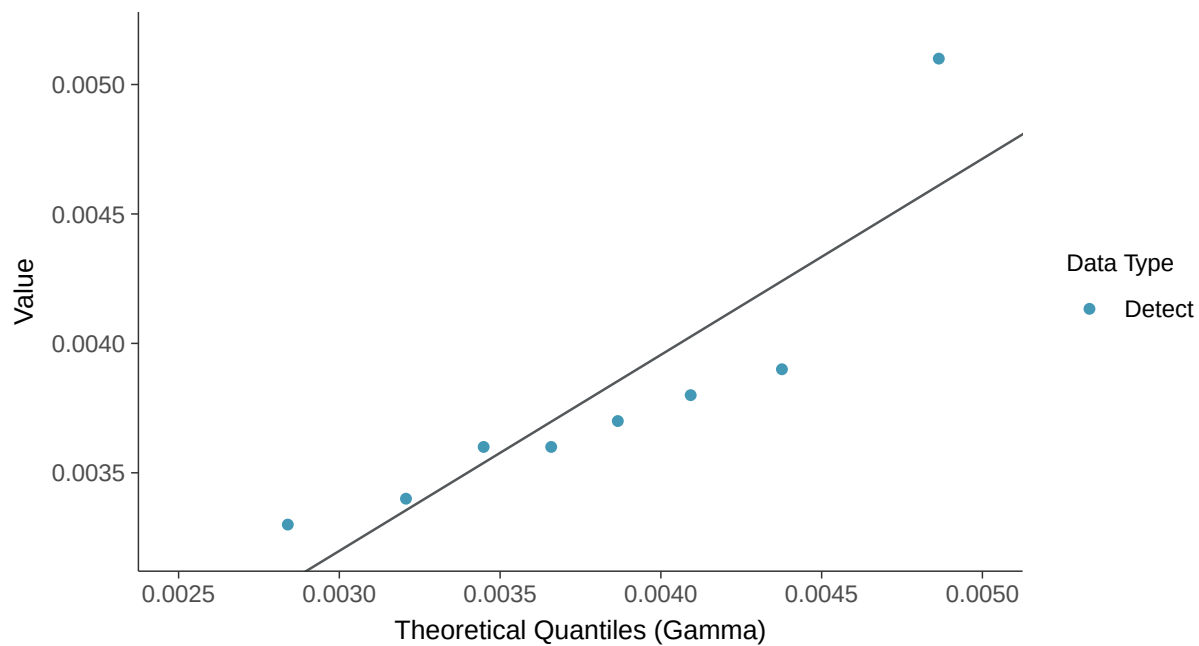
Lognormal Q-Q plot

Thallium, W-12 (mg/l)



Gamma Q-Q plot

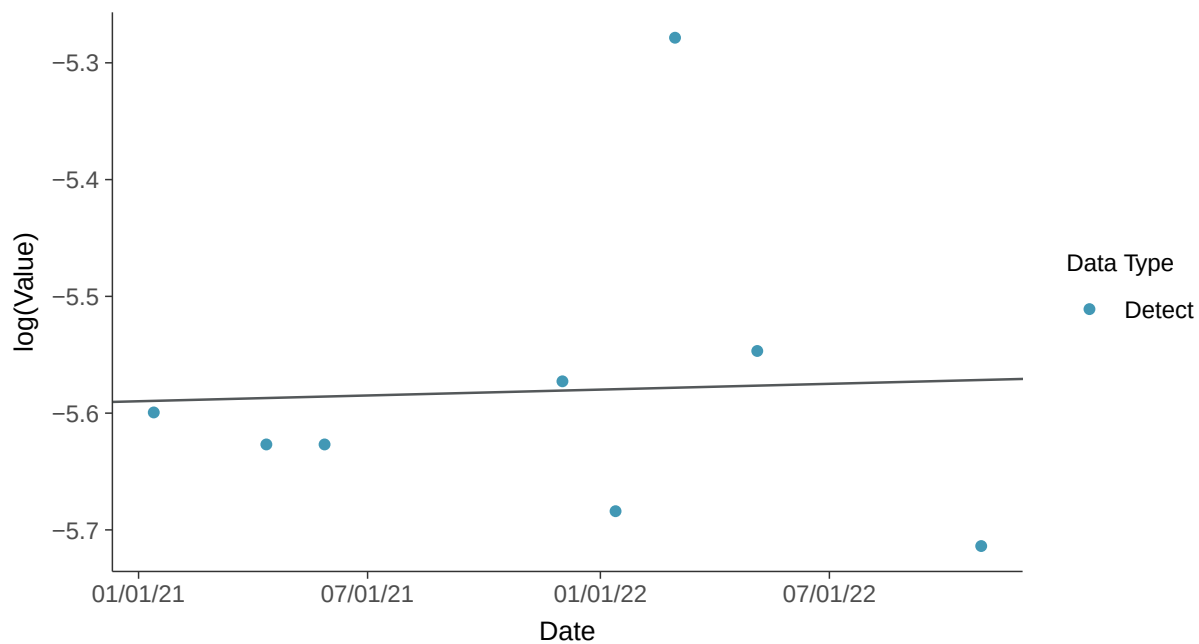
Thallium, W-12 (mg/l)





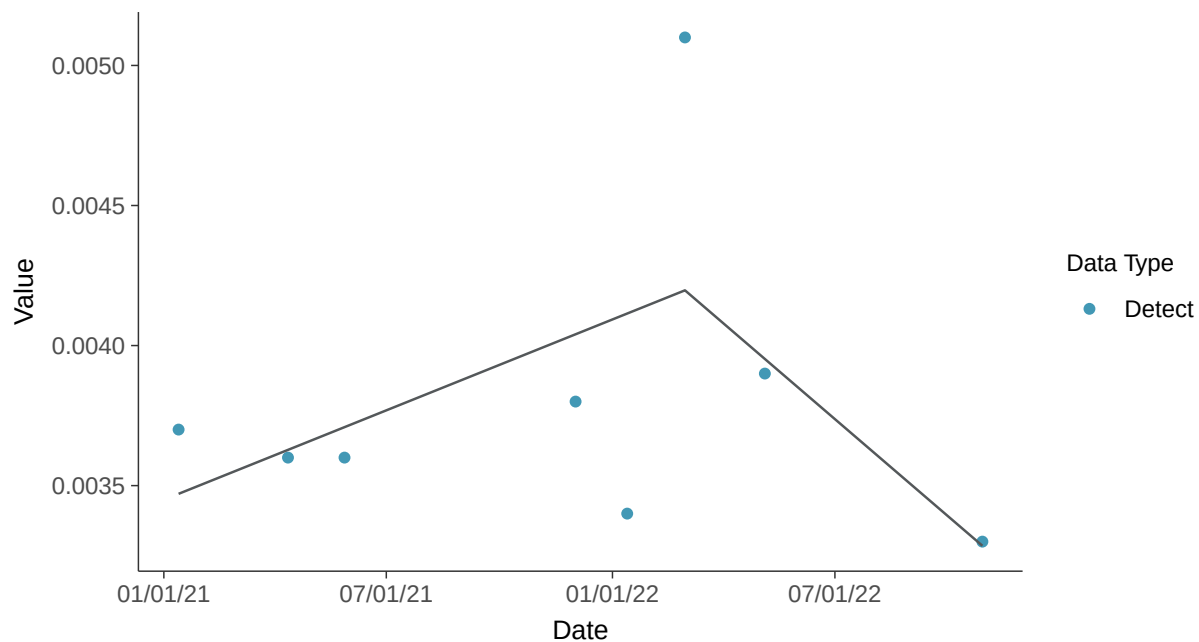
Trend Regression: Lognormal MLE

Thallium, W-12 (mg/l)



Trend Regression: Piecewise Linear-Linear

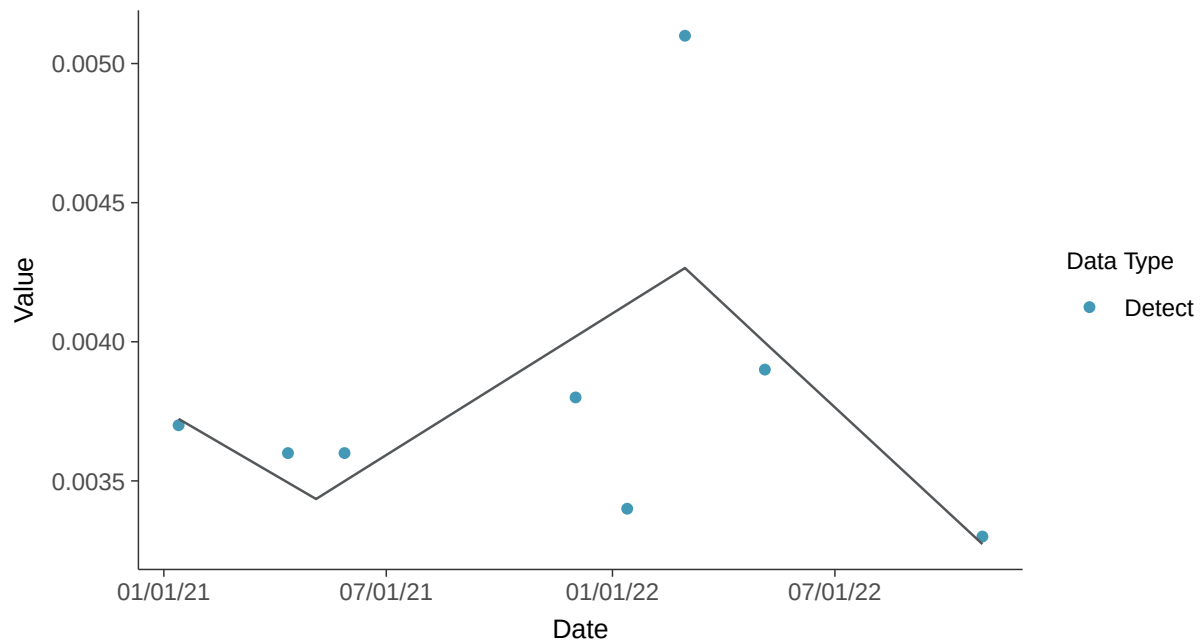
Thallium, W-12 (mg/l)





Trend Regression: Piecewise Linear-Linear-Linear

Thallium, W-12 (mg/l)

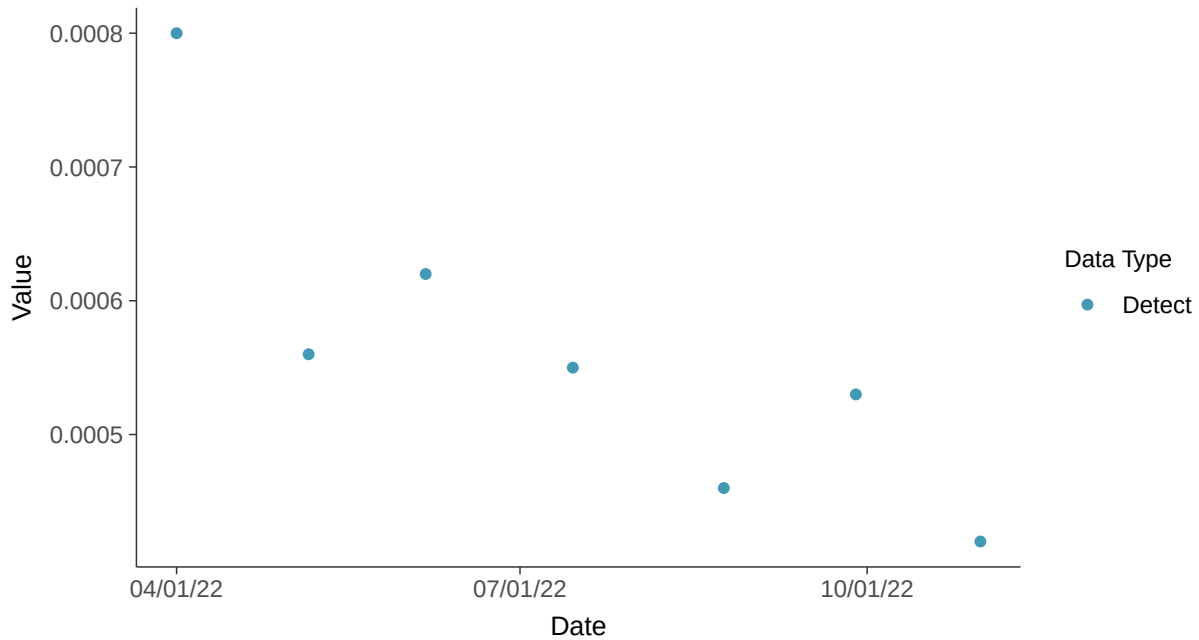


Appendix IV: Antimony, W-14

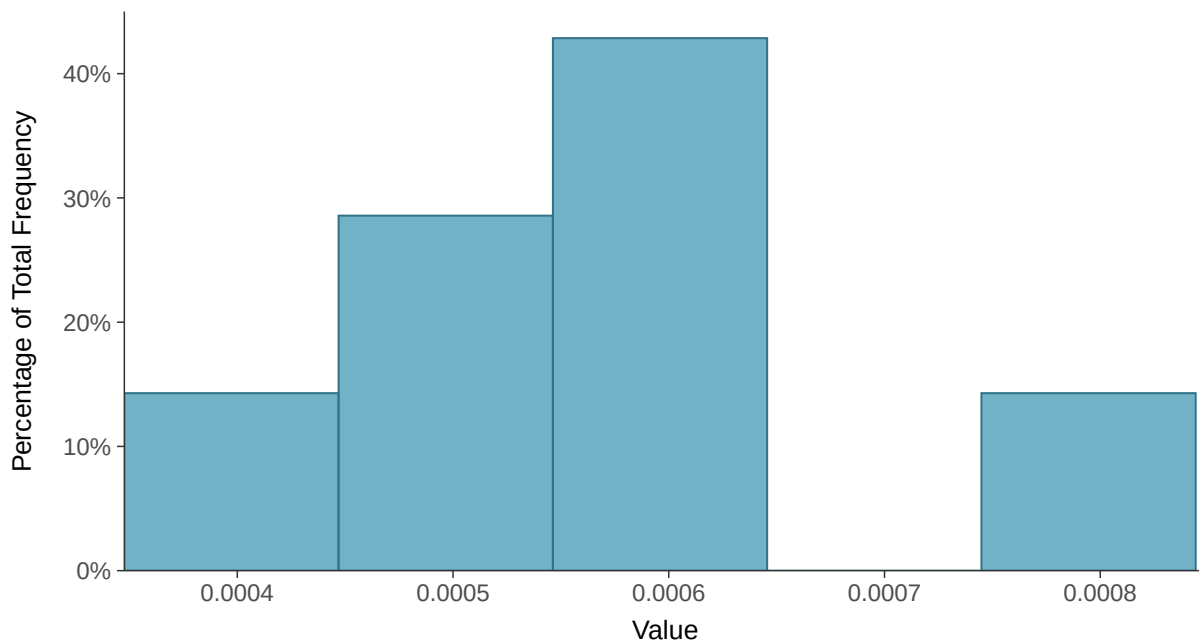
ID: 4_2_101

Scatter Plot

Antimony, W-14 (mg/l)

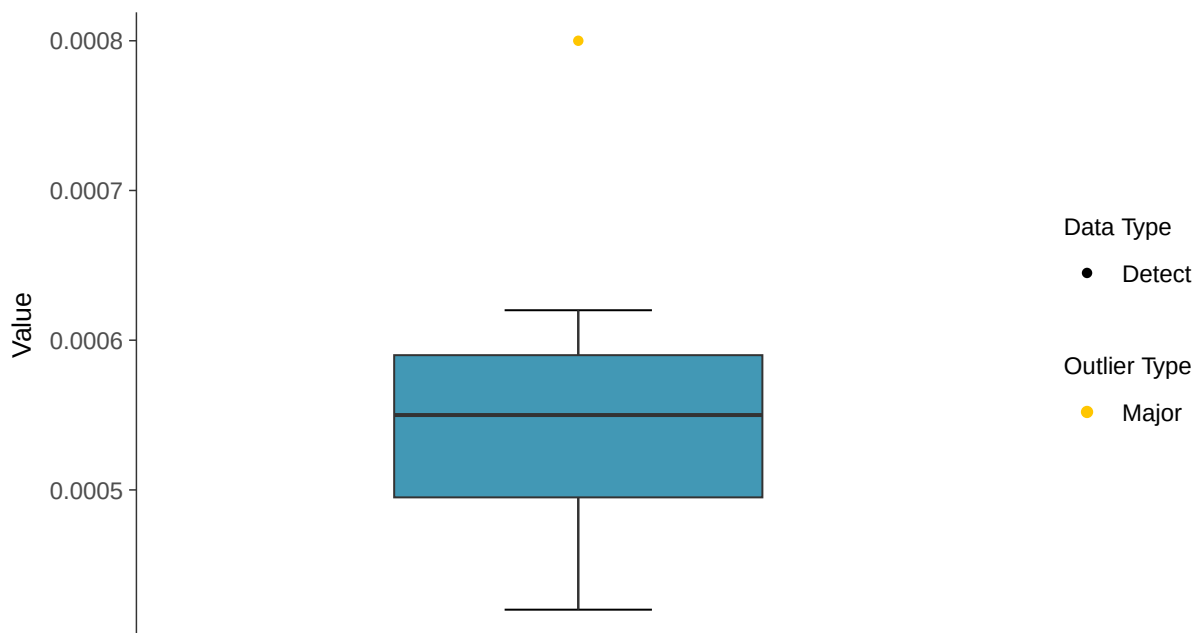
**Histogram**

Antimony, W-14 (mg/l)



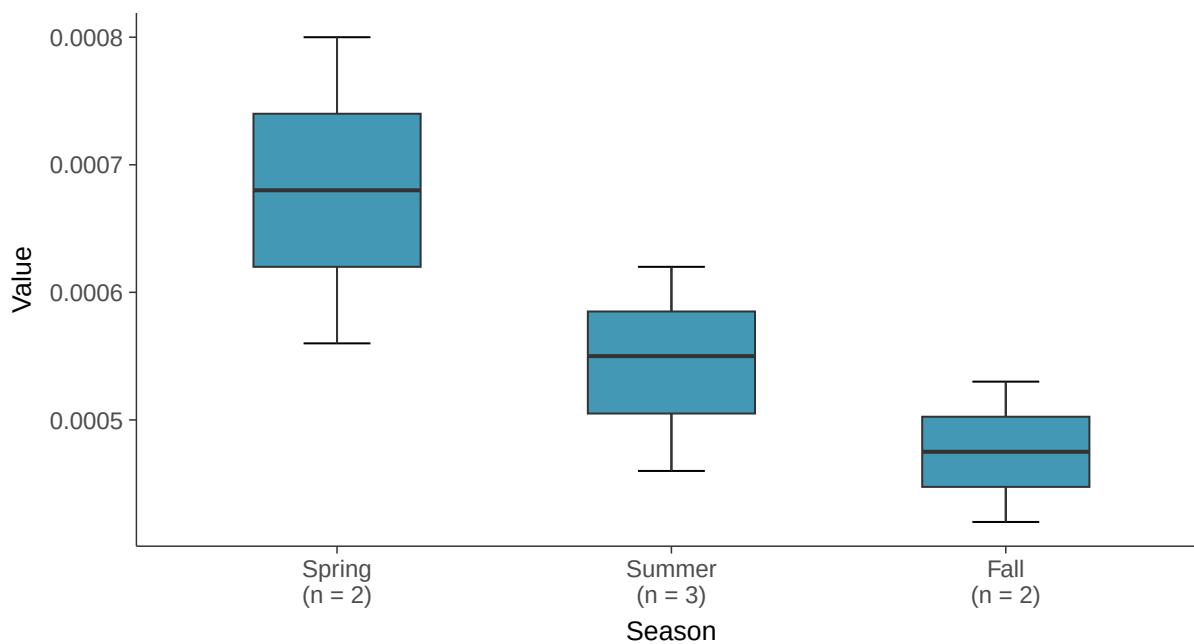
Boxplot

Antimony, W-14 (mg/l)



Boxplot by Season

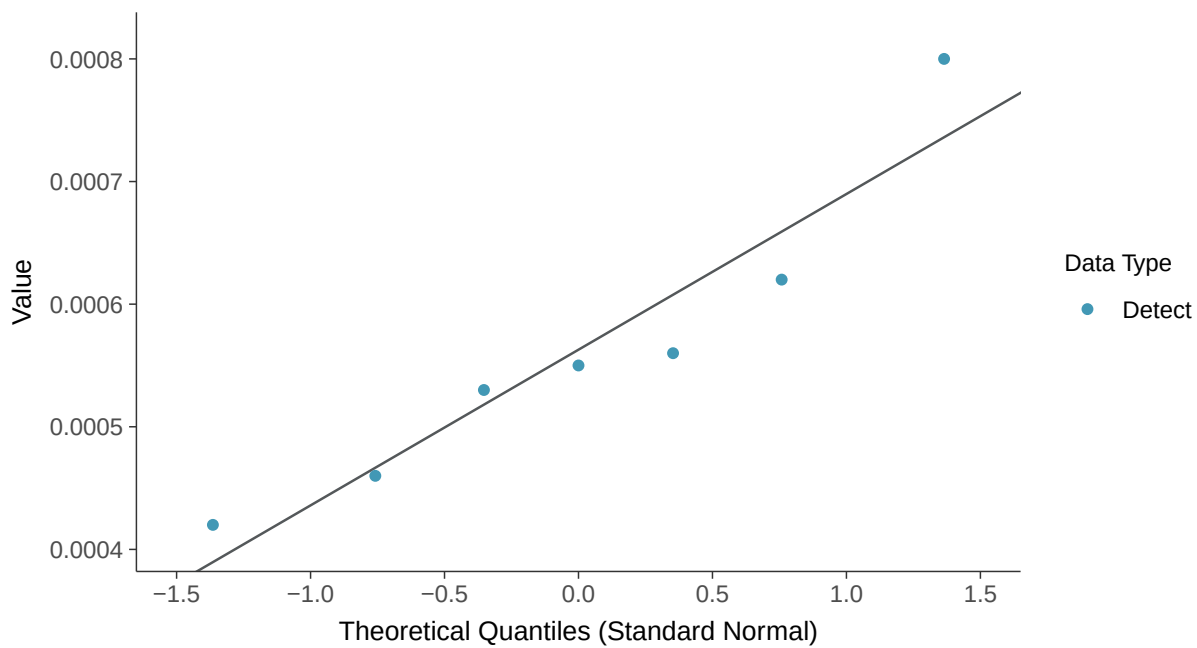
Antimony, W-14 (mg/l)





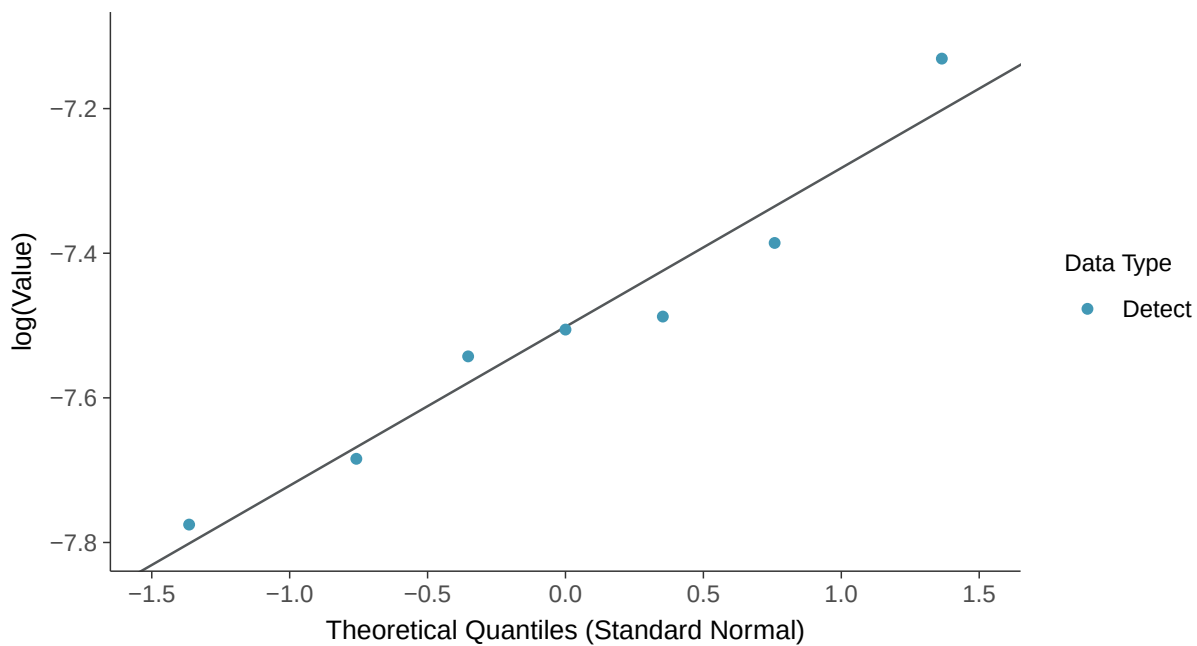
Normal Q-Q plot

Antimony, W-14 (mg/l)



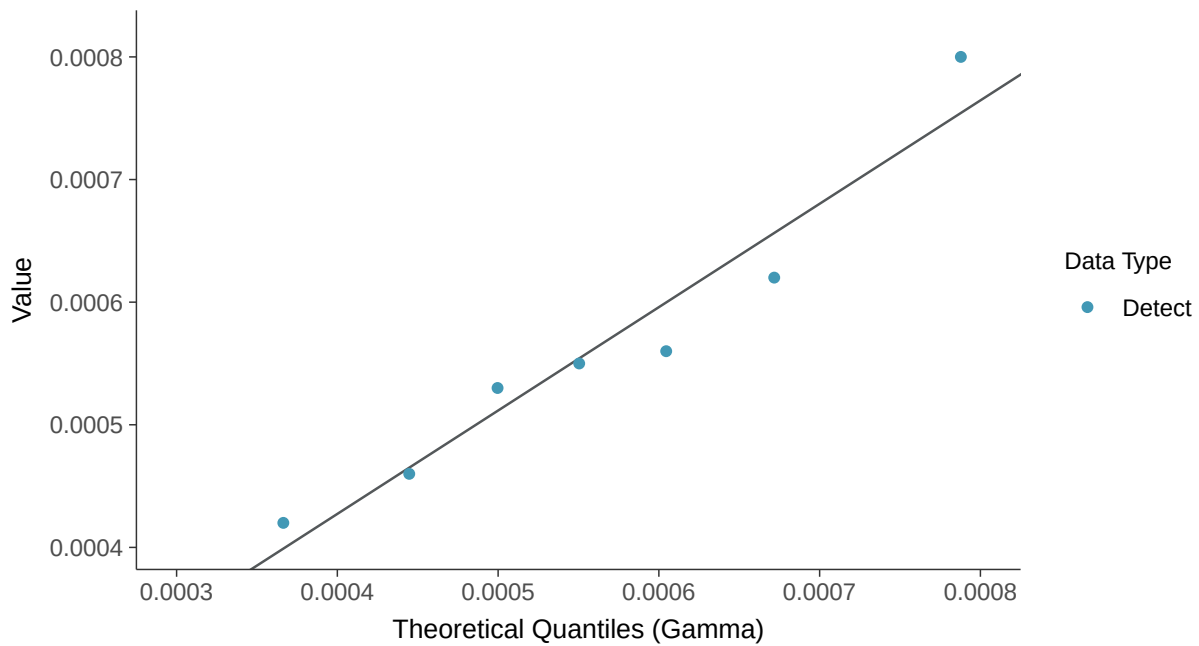
Lognormal Q-Q plot

Antimony, W-14 (mg/l)

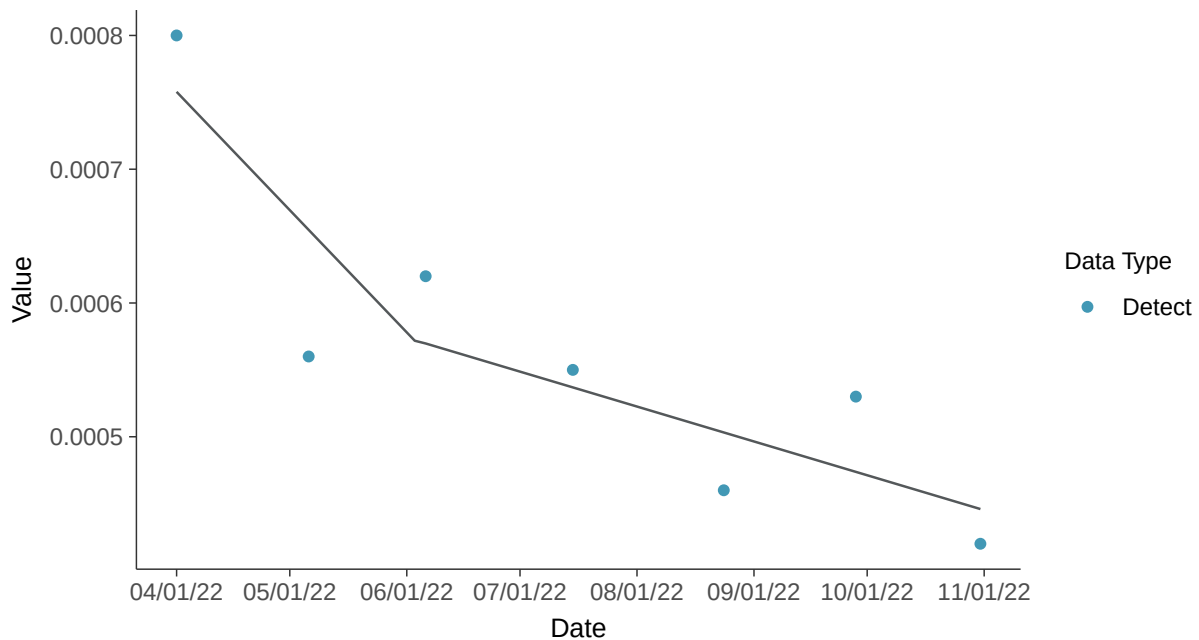




Gamma Q-Q plot
Antimony, W-14 (mg/l)

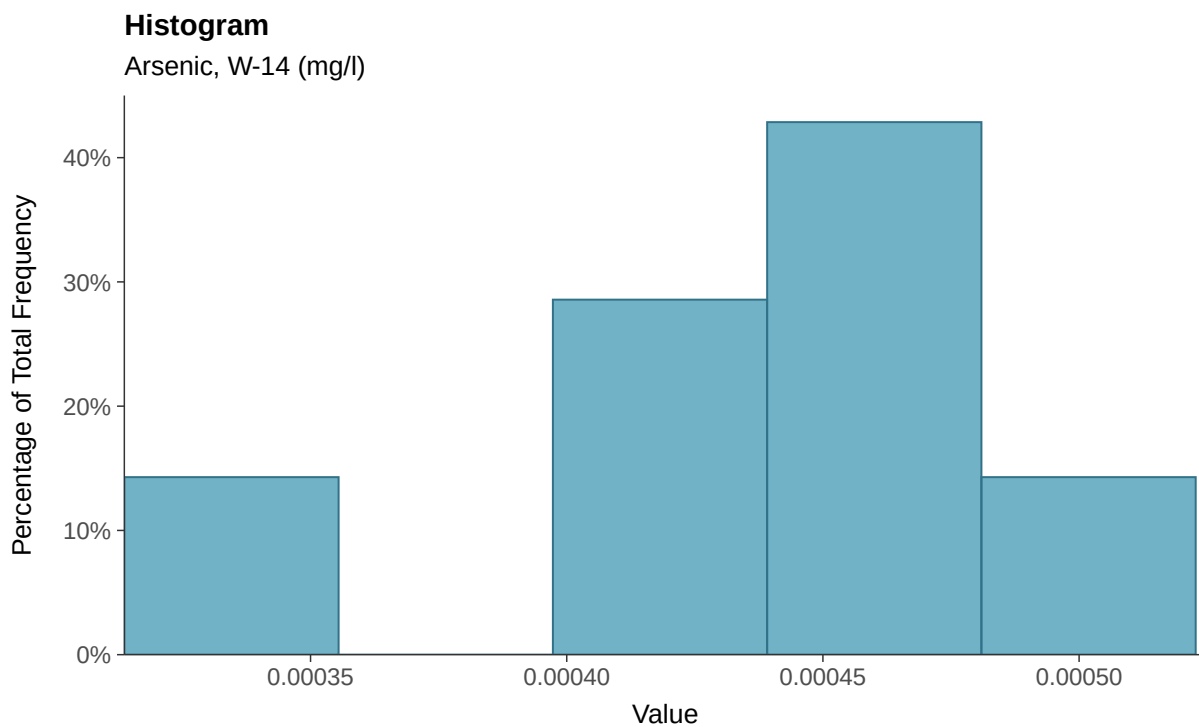
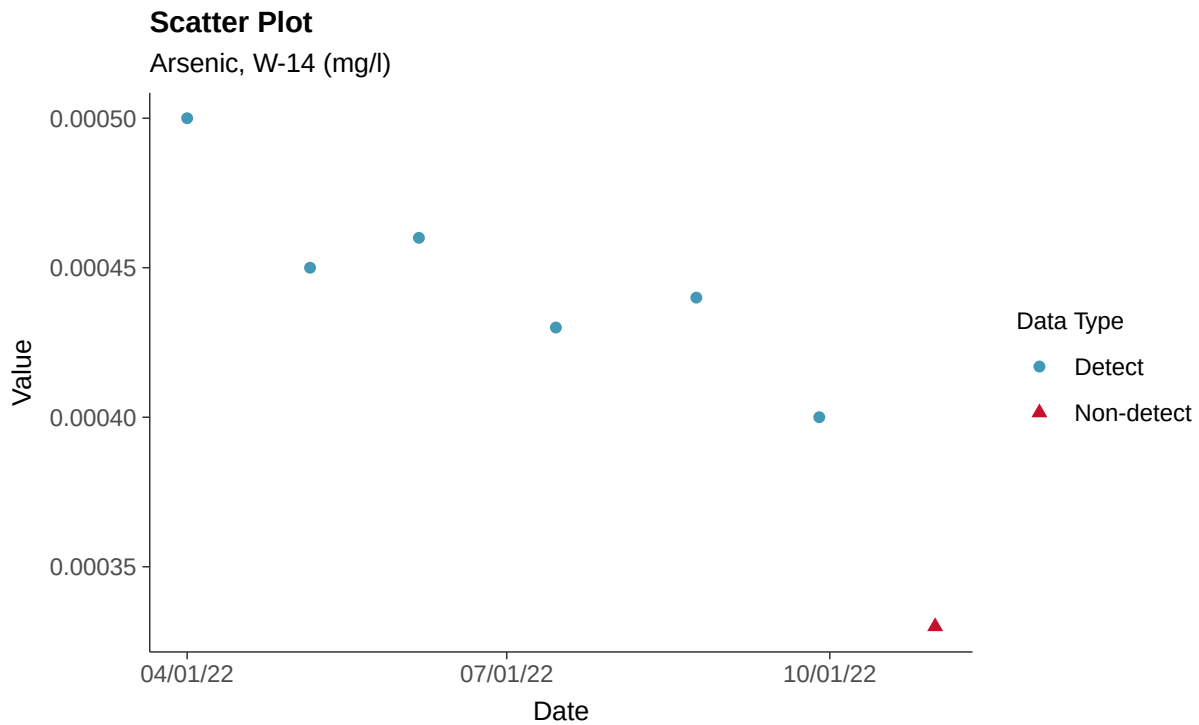


Trend Regression: Piecewise Linear-Linear
Antimony, W-14 (mg/l)



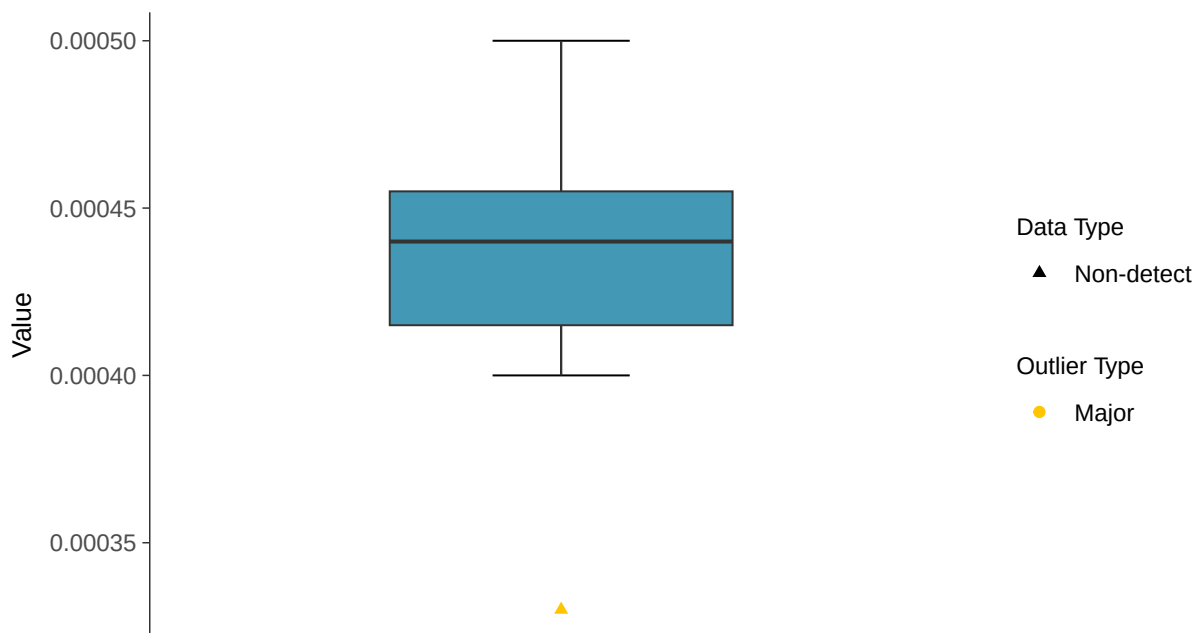
Appendix IV: Arsenic, W-14

ID: 4_2_102



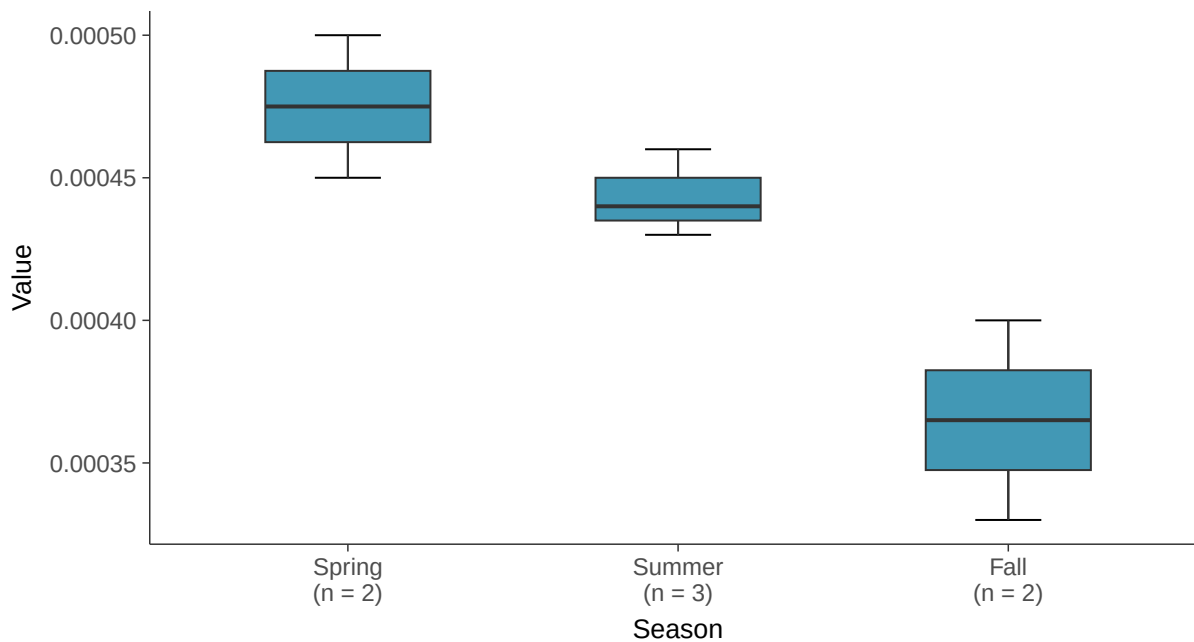
Boxplot

Arsenic, W-14 (mg/l)



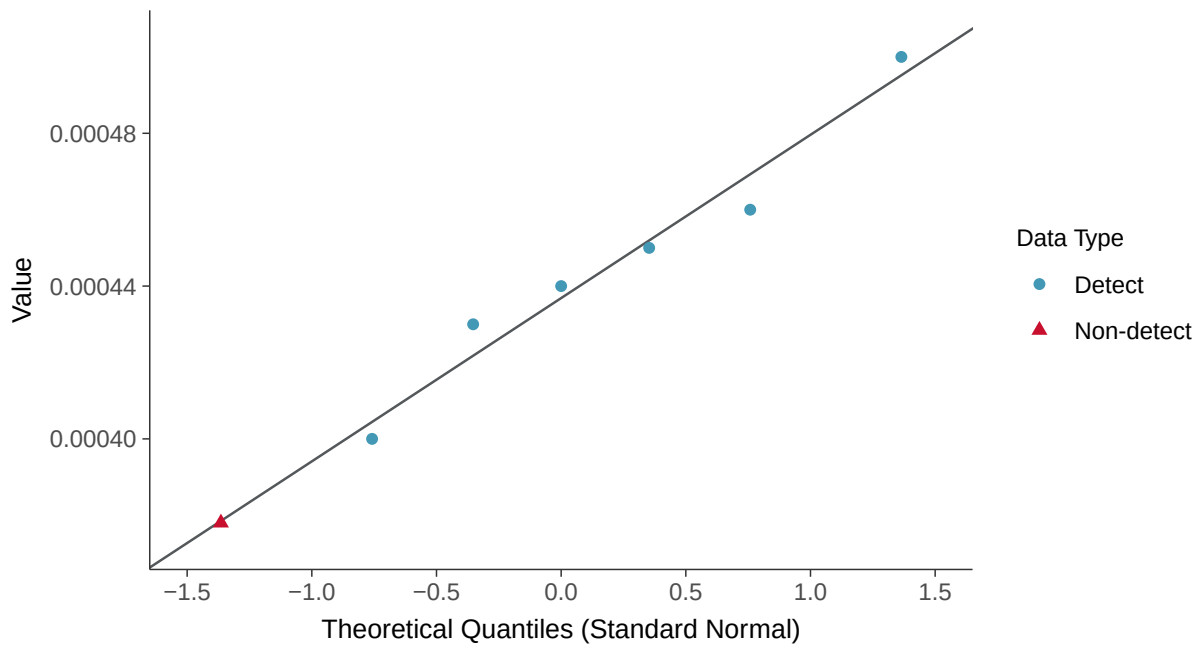
Boxplot by Season

Arsenic, W-14 (mg/l)



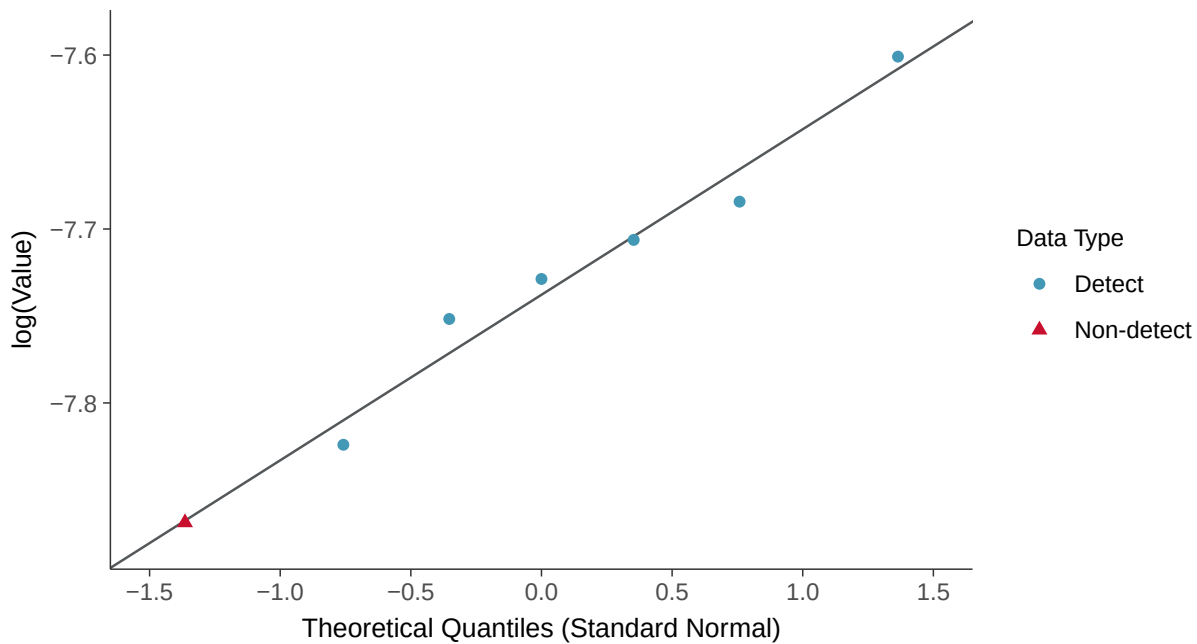
Normal Q-Q plot using ROS Imputed Estimates

Arsenic, W-14 (mg/l)



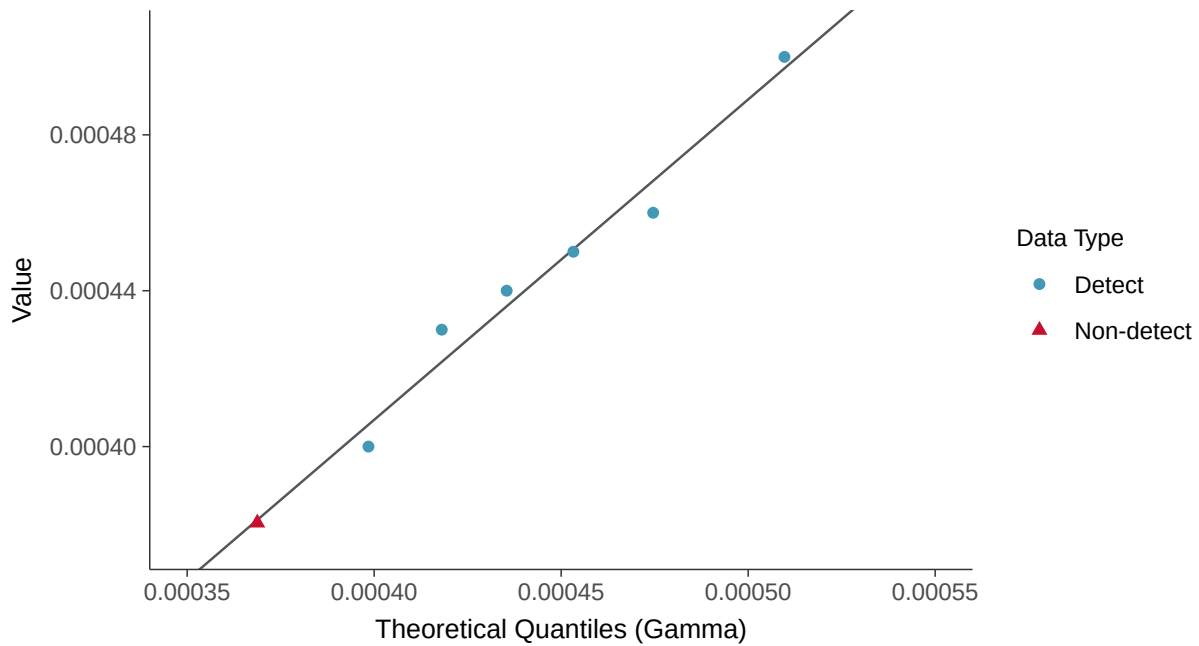
Lognormal Q-Q plot using ROS Imputed Estimates

Arsenic, W-14 (mg/l)

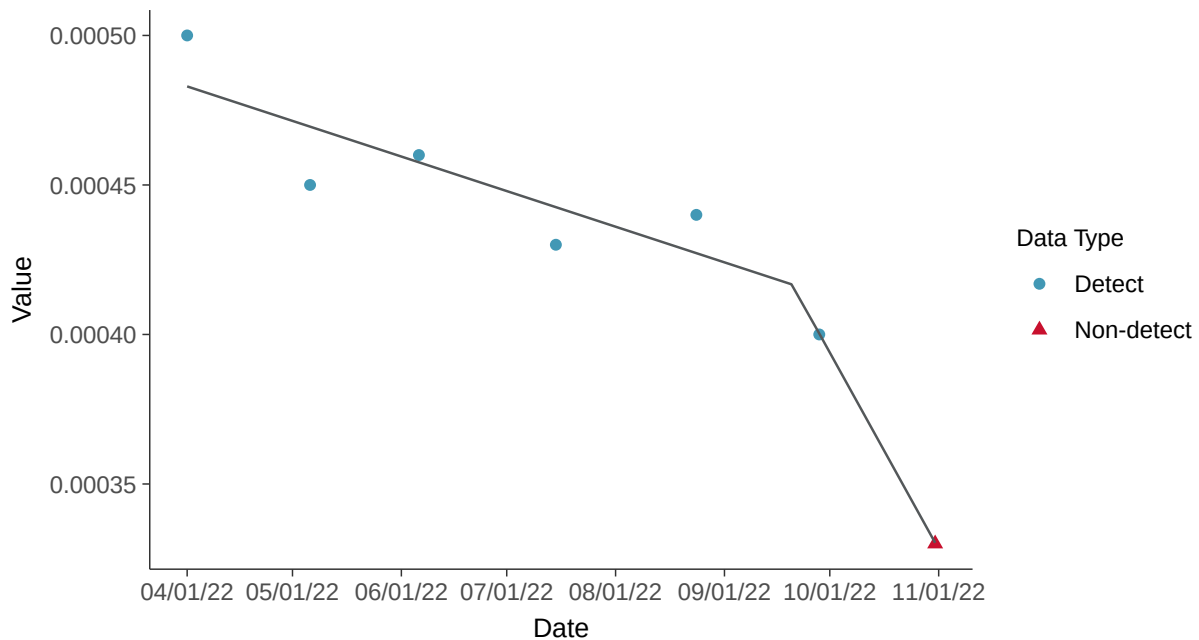


Gamma Q-Q plot using ROS Imputed Estimates

Arsenic, W-14 (mg/l)

**Trend Regression: Piecewise Linear-Linear**

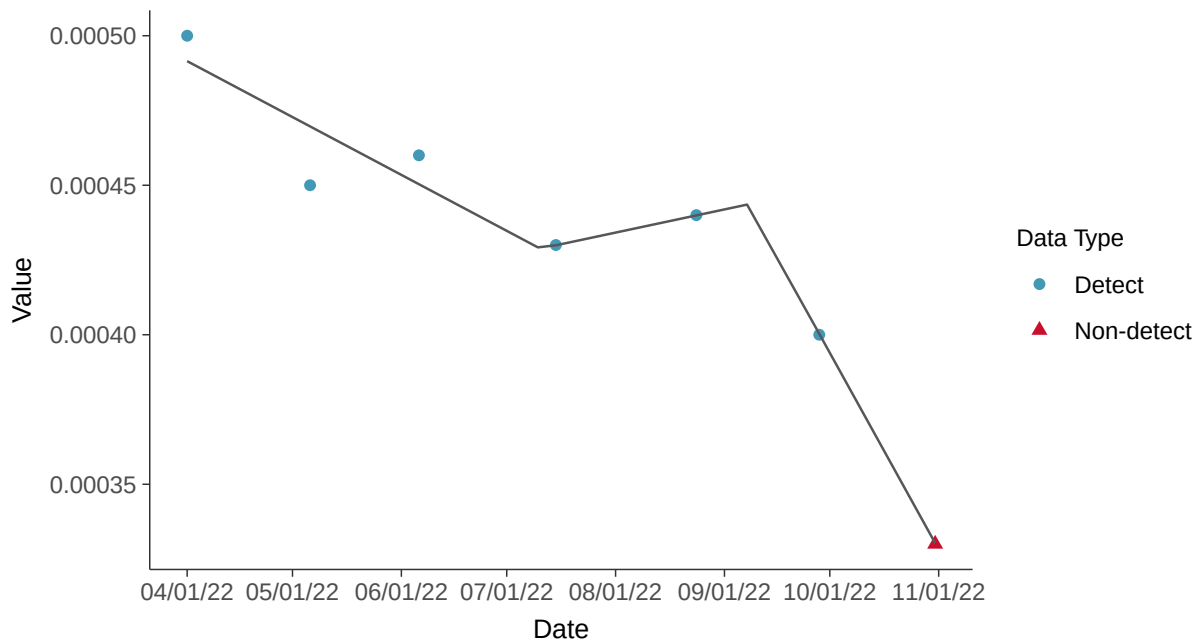
Arsenic, W-14 (mg/l)



Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

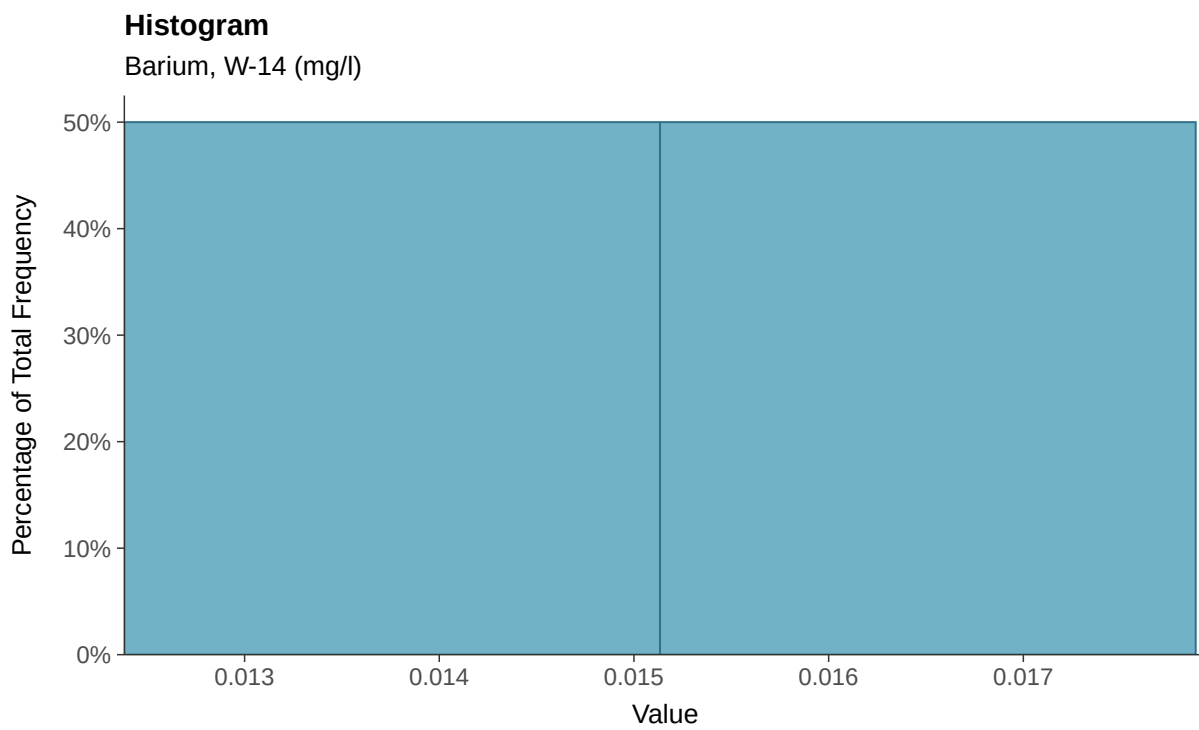
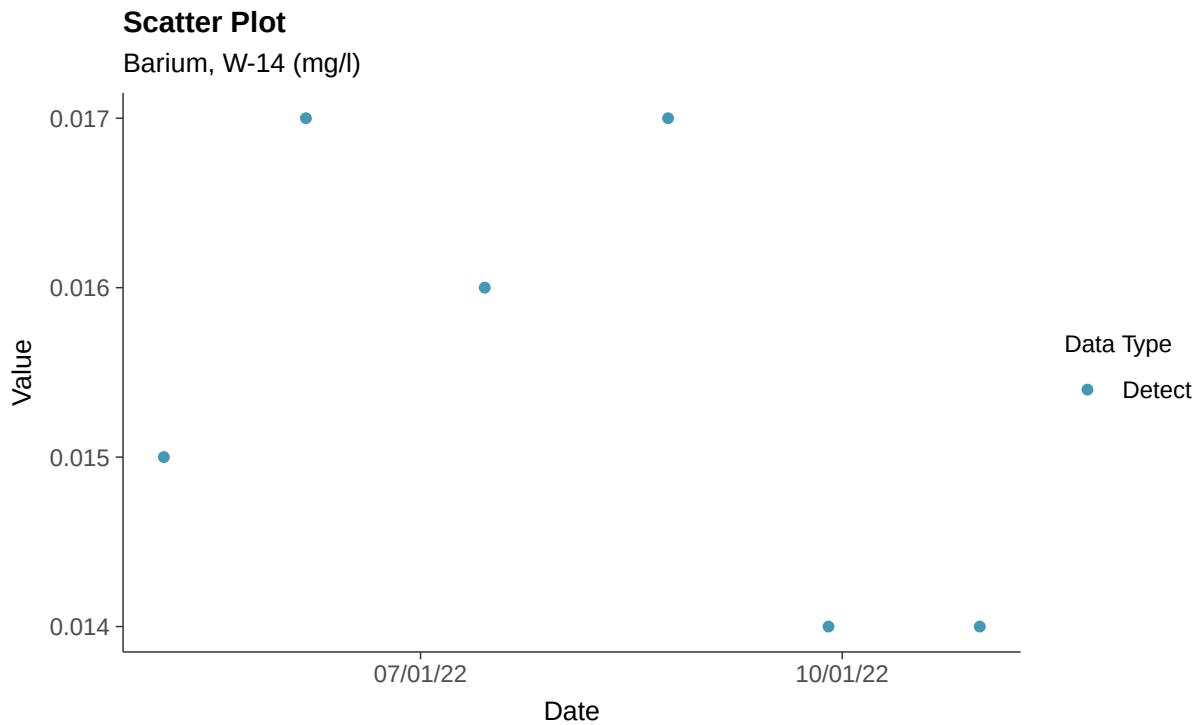
Trend Regression: Piecewise Linear-Linear-Linear

Arsenic, W-14 (mg/l)



Appendix IV: Barium, W-14

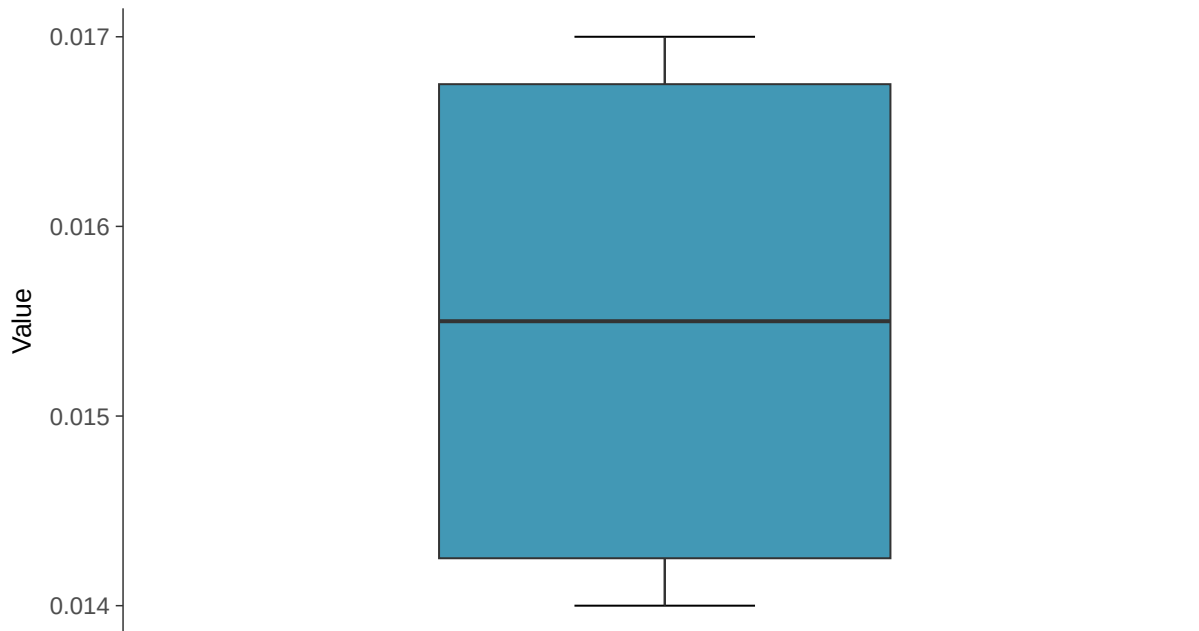
ID: 4_2_103





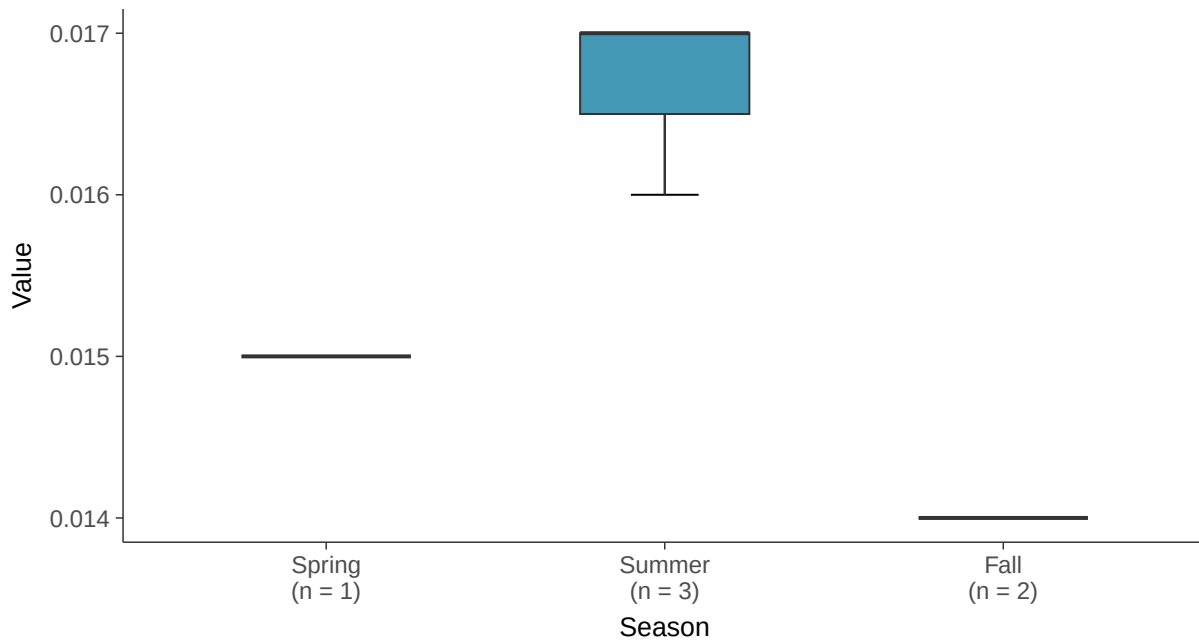
Boxplot

Barium, W-14 (mg/l)



Boxplot by Season

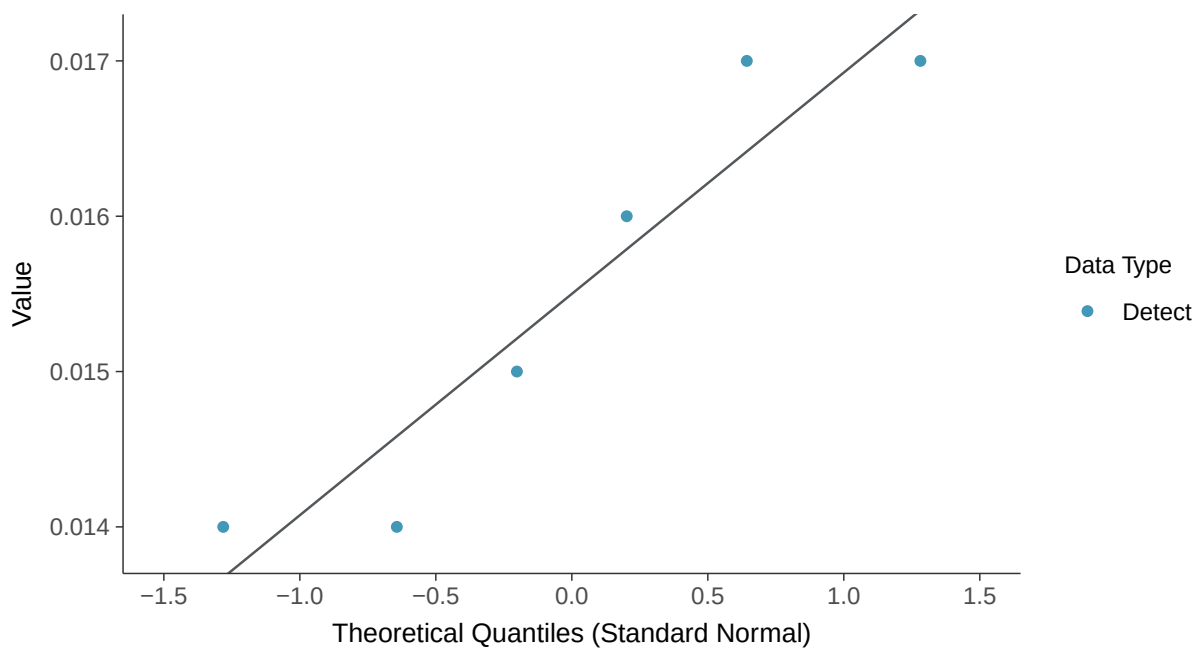
Barium, W-14 (mg/l)





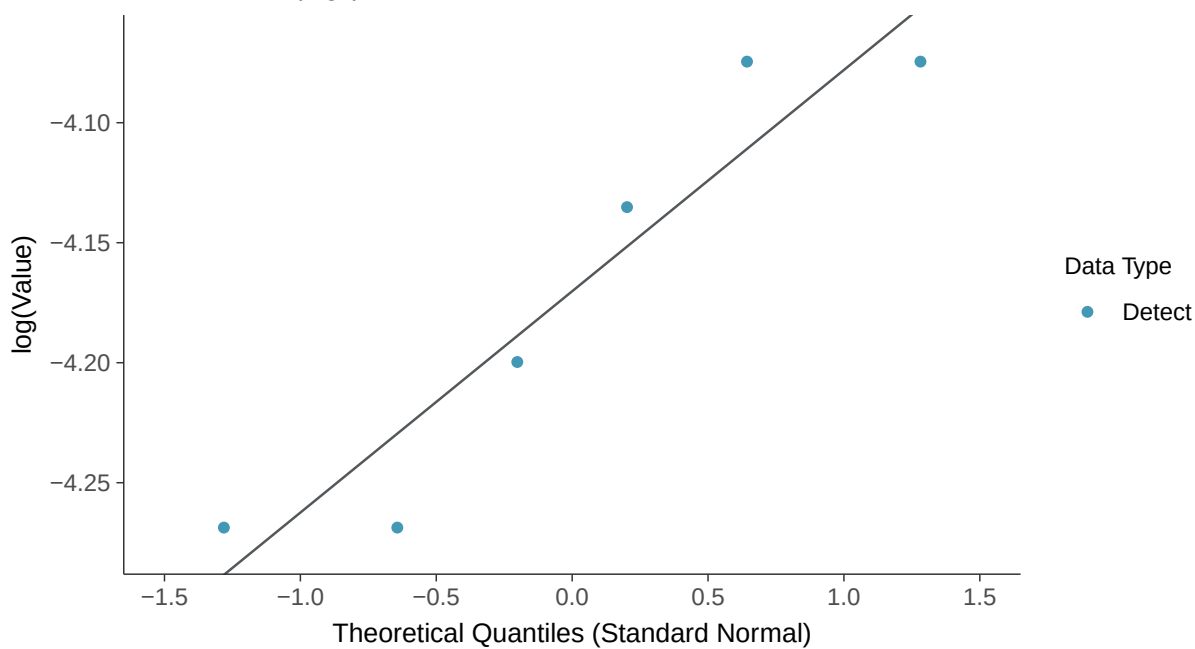
Normal Q-Q plot

Barium, W-14 (mg/l)



Lognormal Q-Q plot

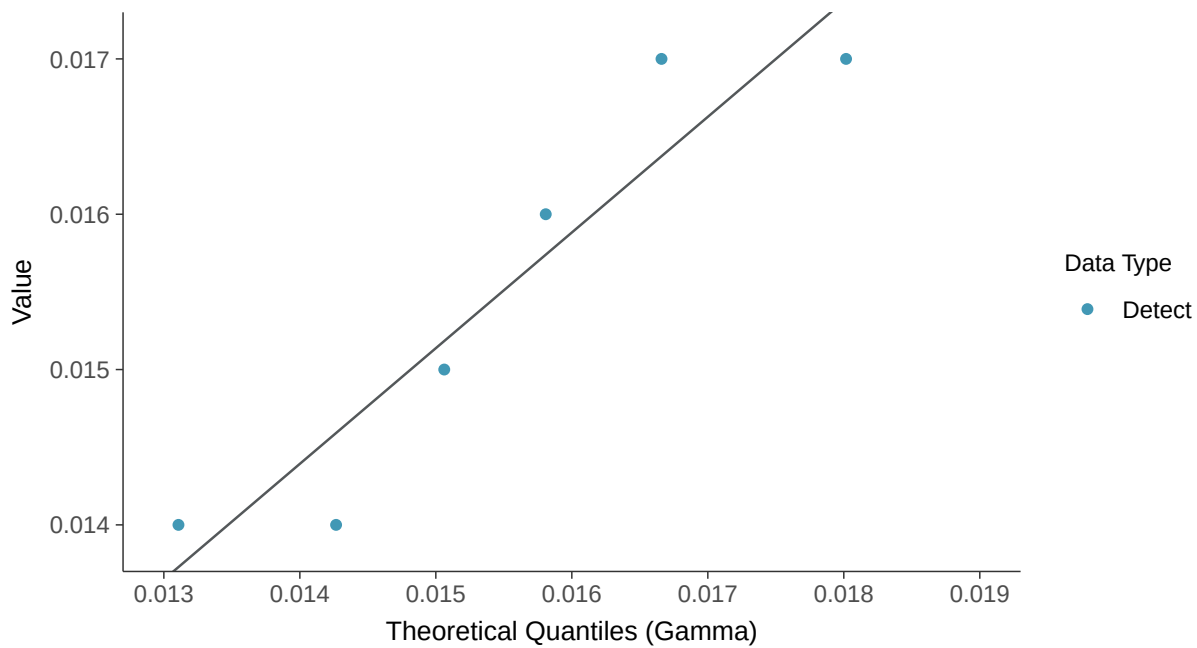
Barium, W-14 (mg/l)





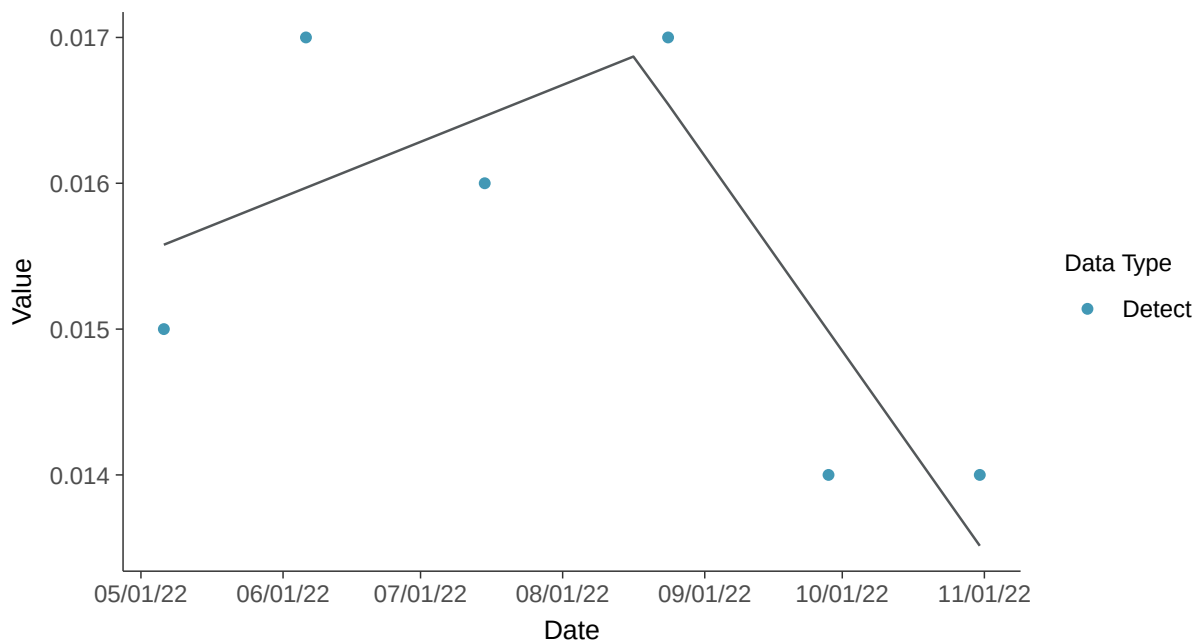
Gamma Q-Q plot

Barium, W-14 (mg/l)



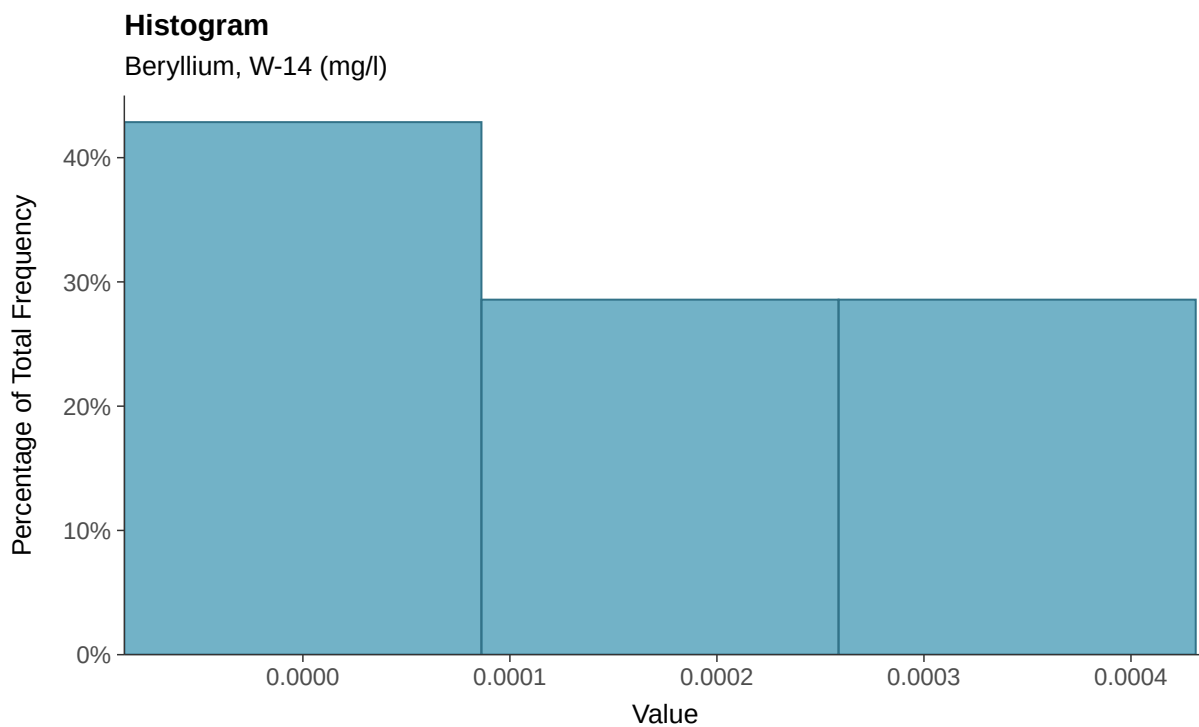
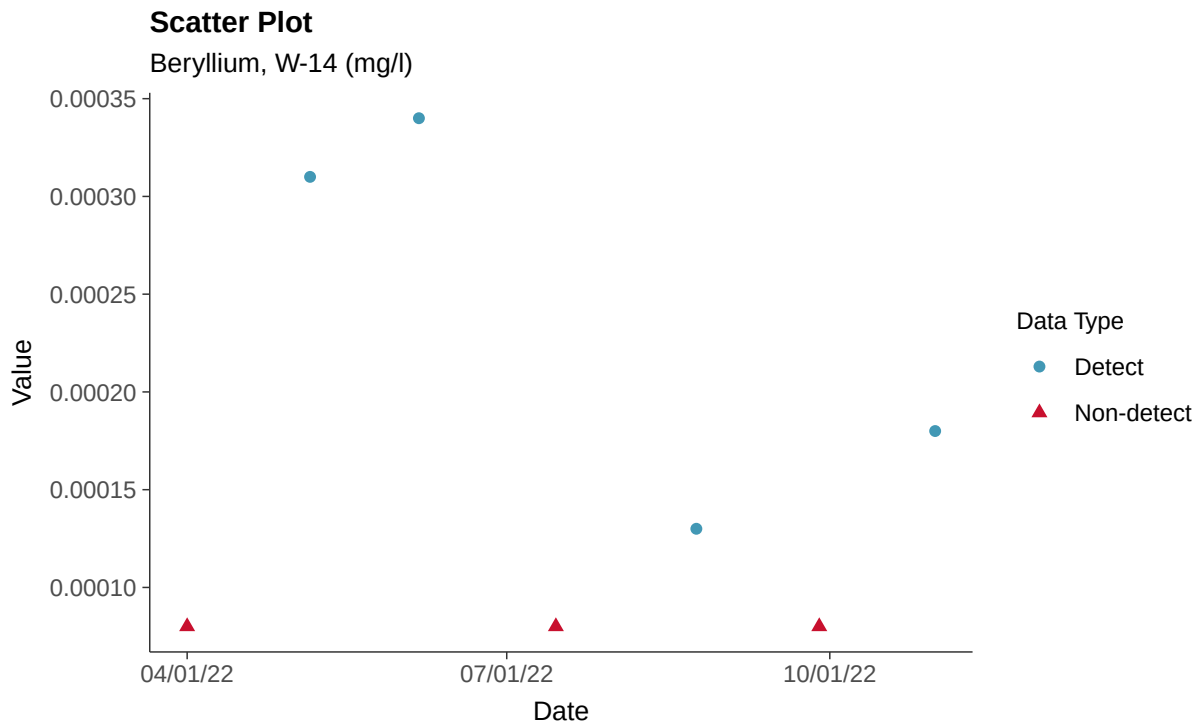
Trend Regression: Piecewise Linear-Linear

Barium, W-14 (mg/l)



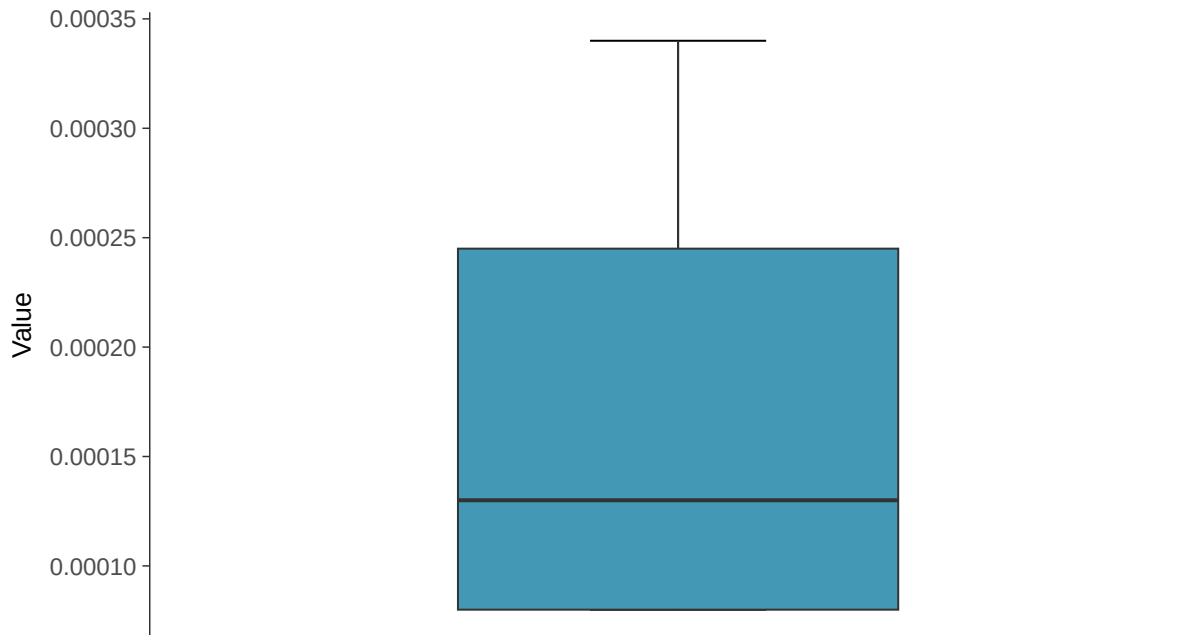
Appendix IV: Beryllium, W-14

ID: 4_2_104



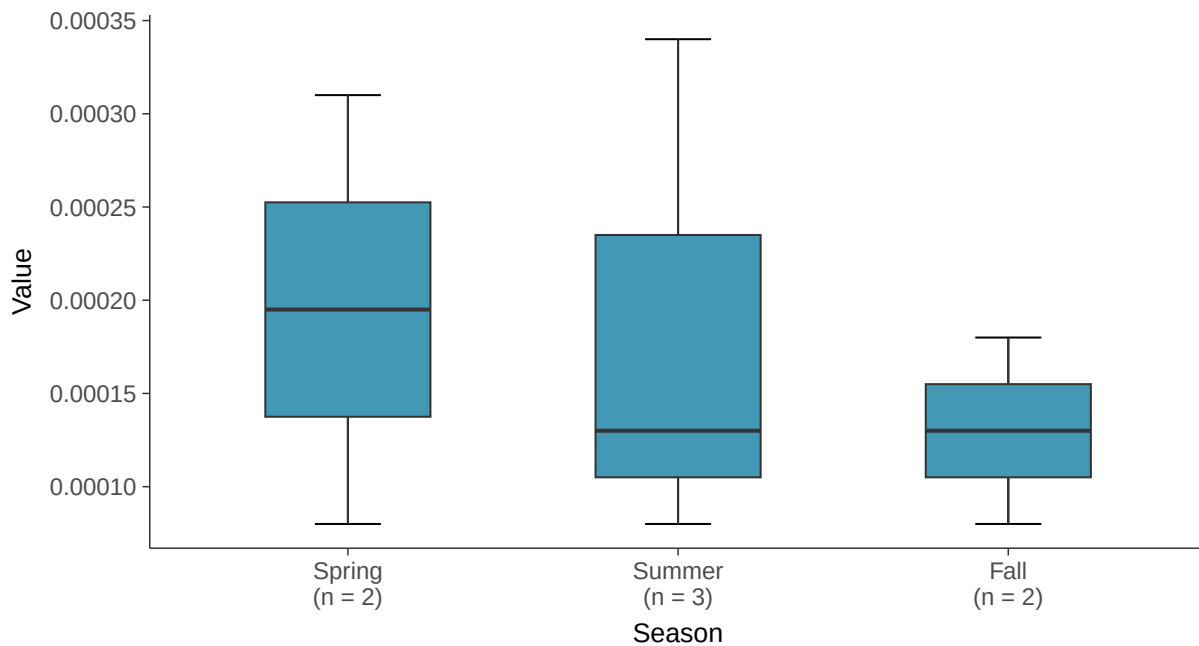
Boxplot

Beryllium, W-14 (mg/l)



Boxplot by Season

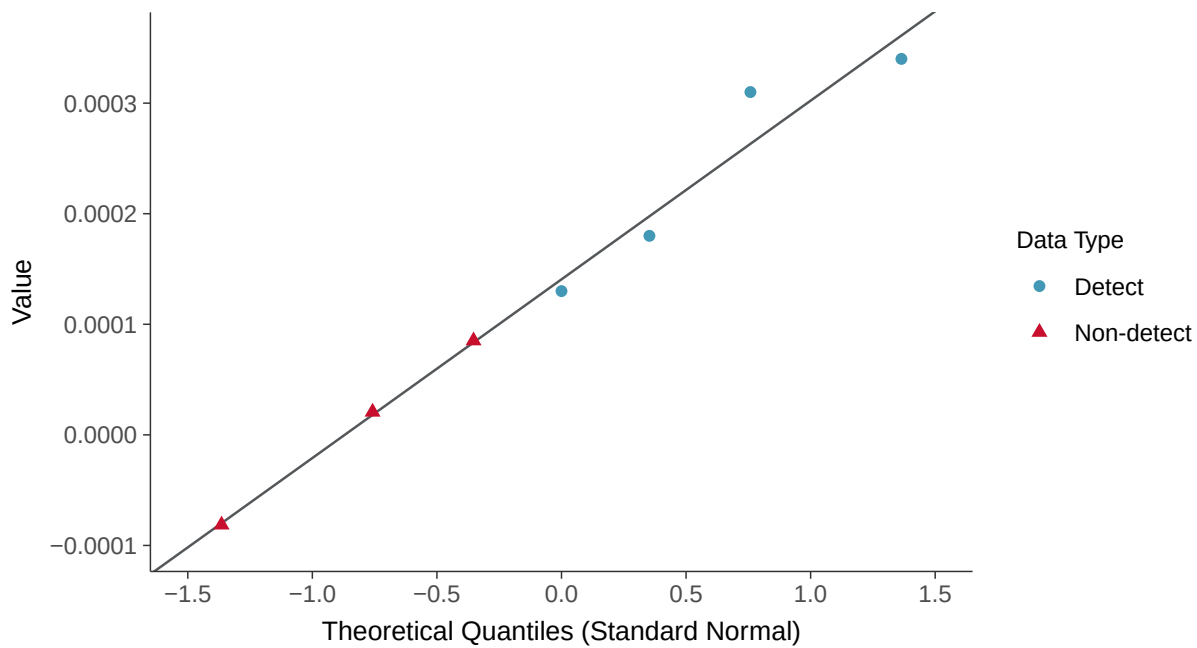
Beryllium, W-14 (mg/l)





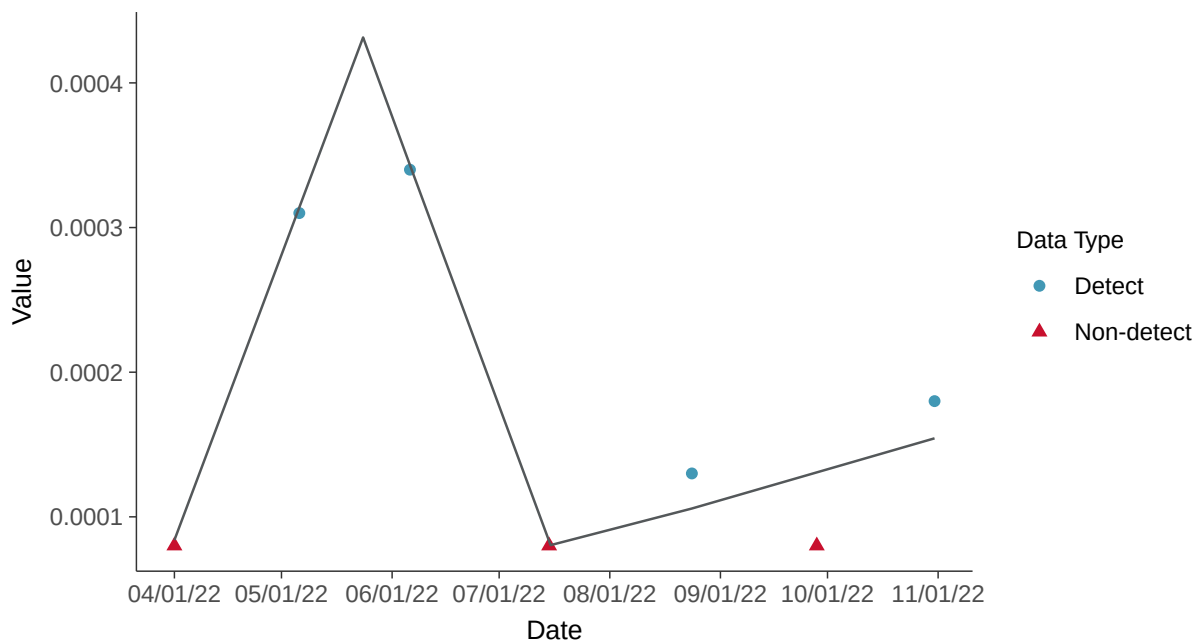
Normal Q-Q plot using ROS Imputed Estimates

Beryllium, W-14 (mg/l)



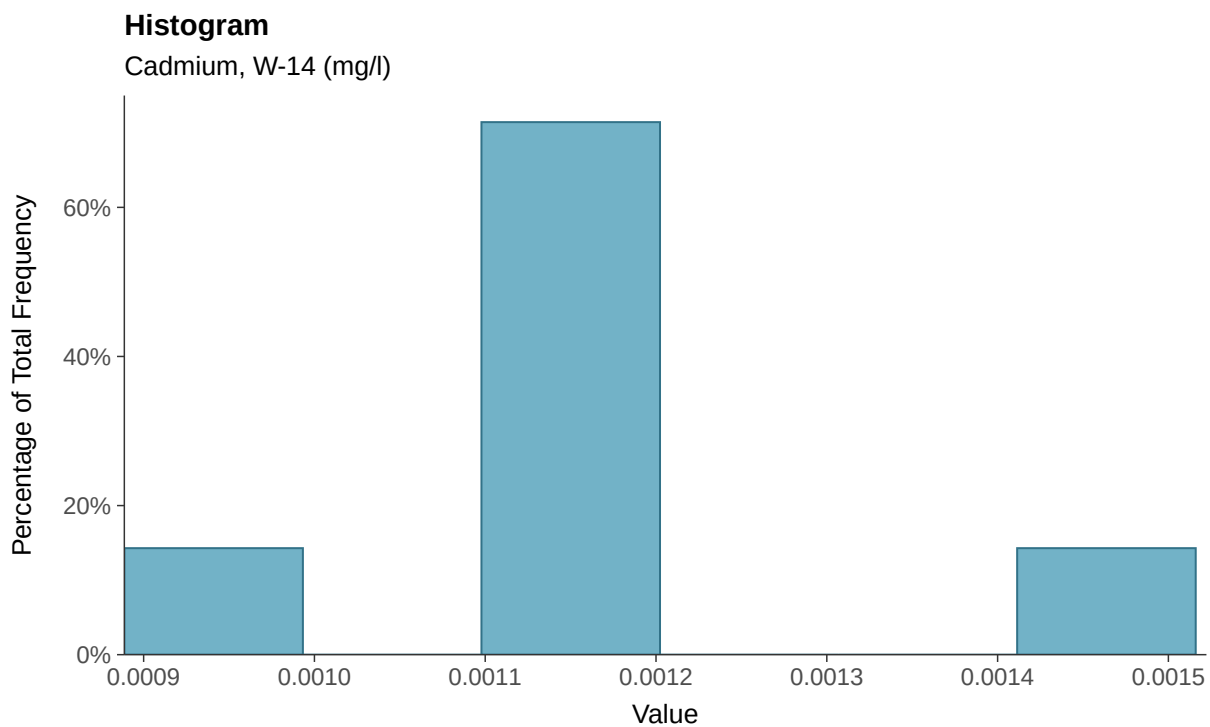
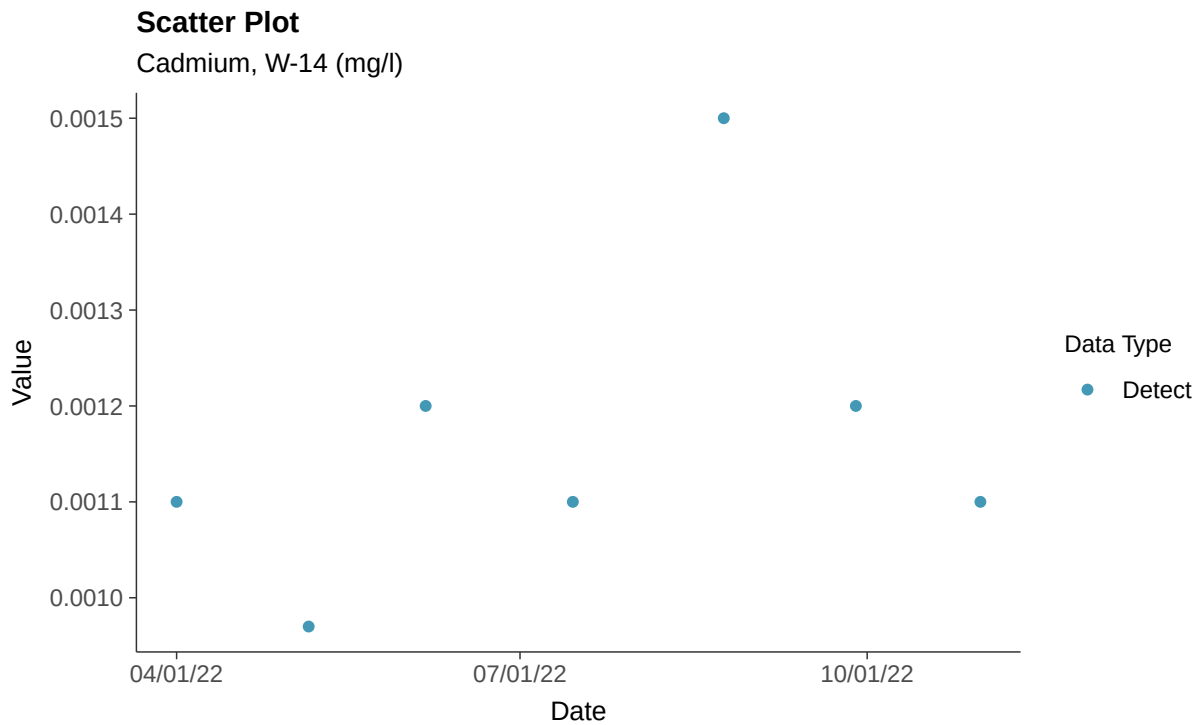
Trend Regression: Piecewise Linear-Linear-Linear

Beryllium, W-14 (mg/l)



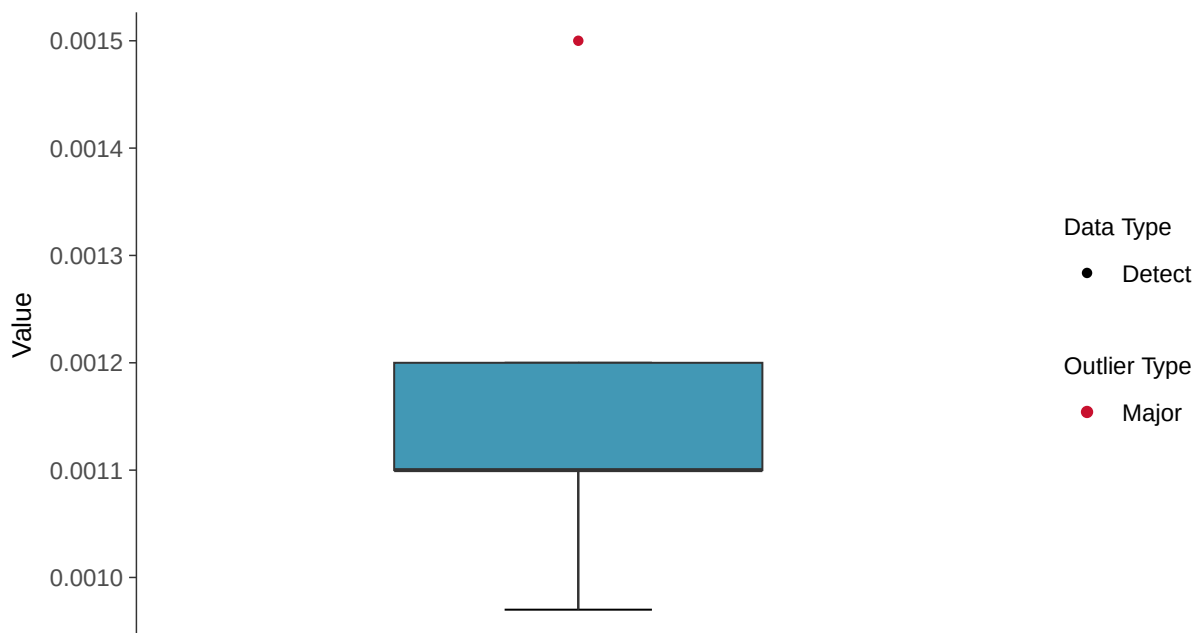
Appendix IV: Cadmium, W-14

ID: 4_2_106



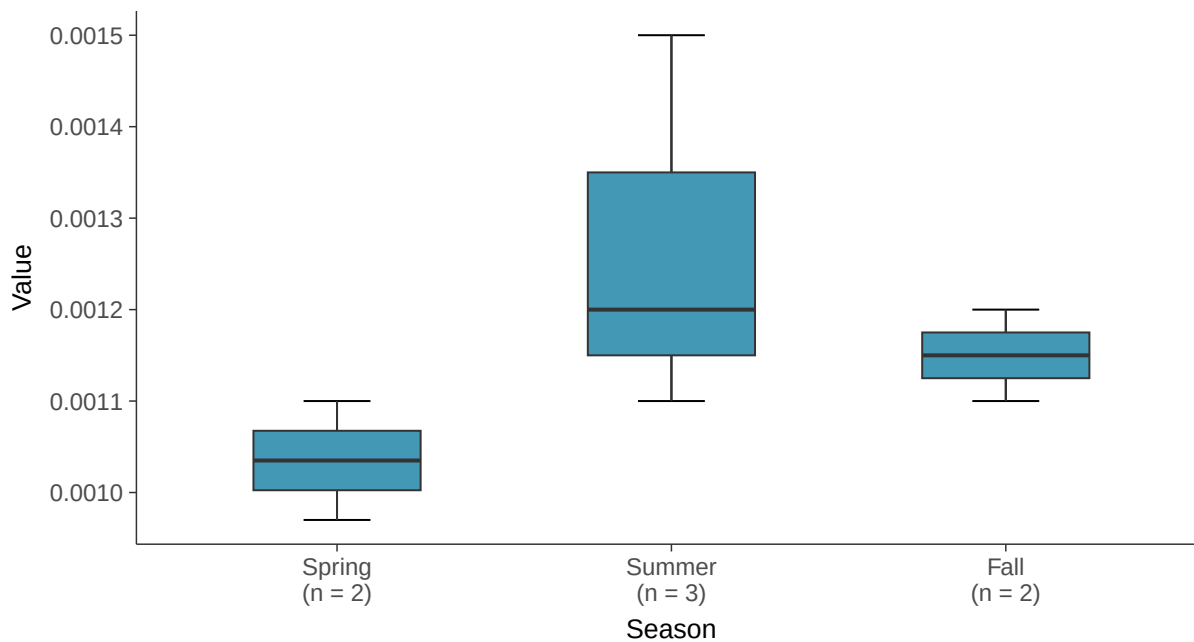
Boxplot

Cadmium, W-14 (mg/l)



Boxplot by Season

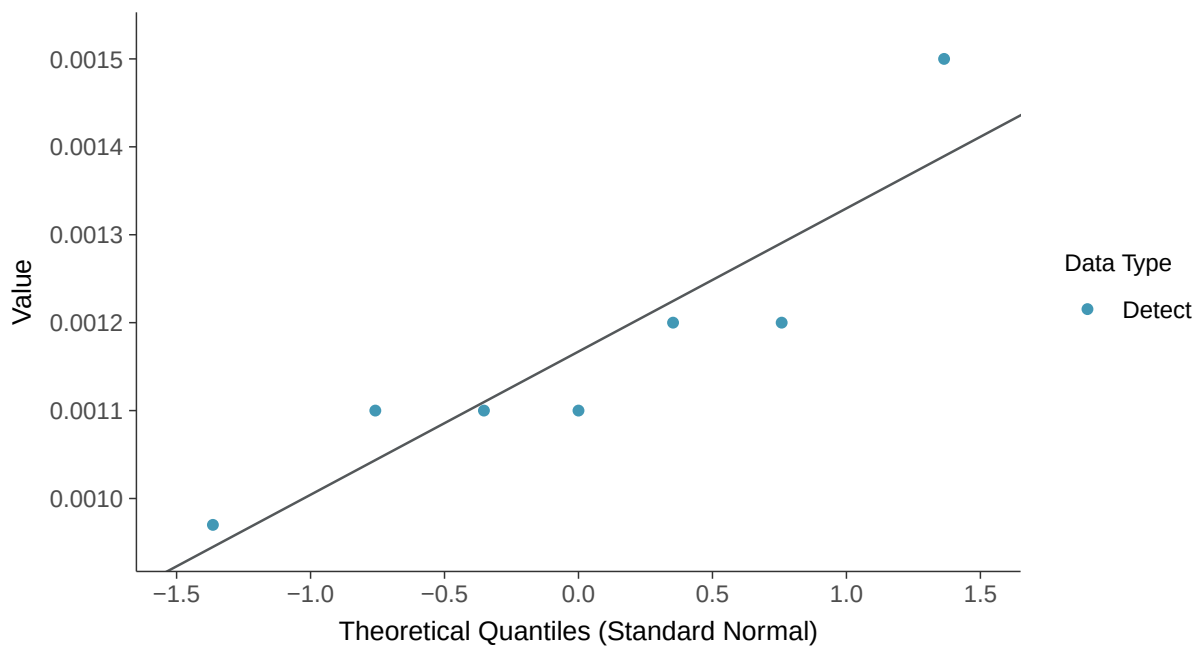
Cadmium, W-14 (mg/l)





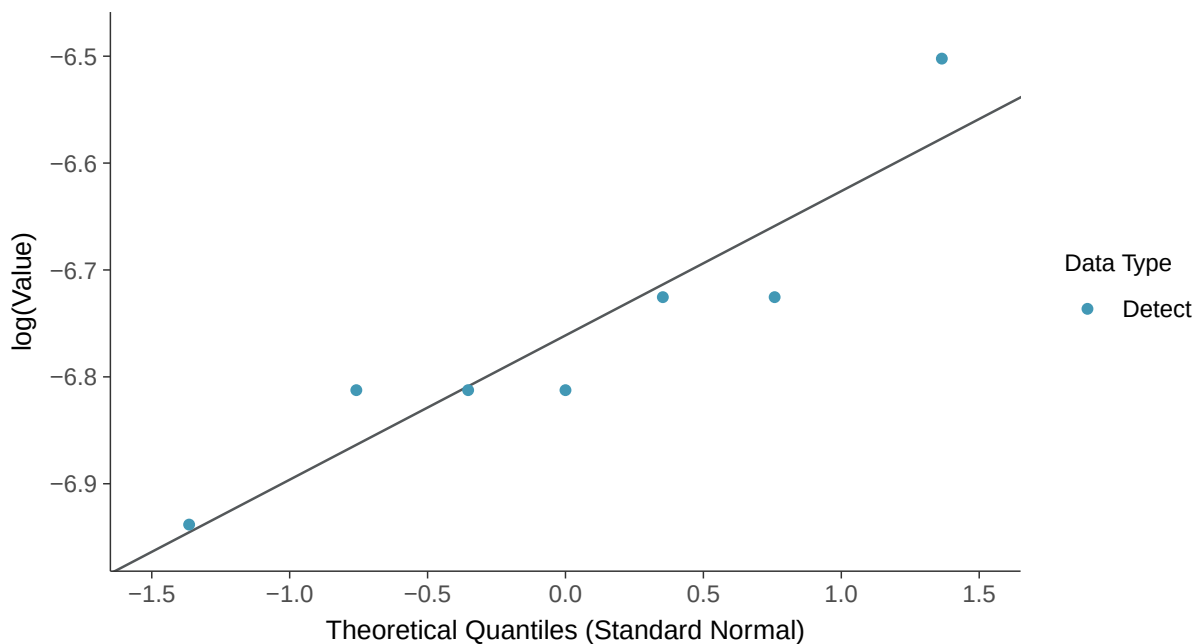
Normal Q-Q plot

Cadmium, W-14 (mg/l)



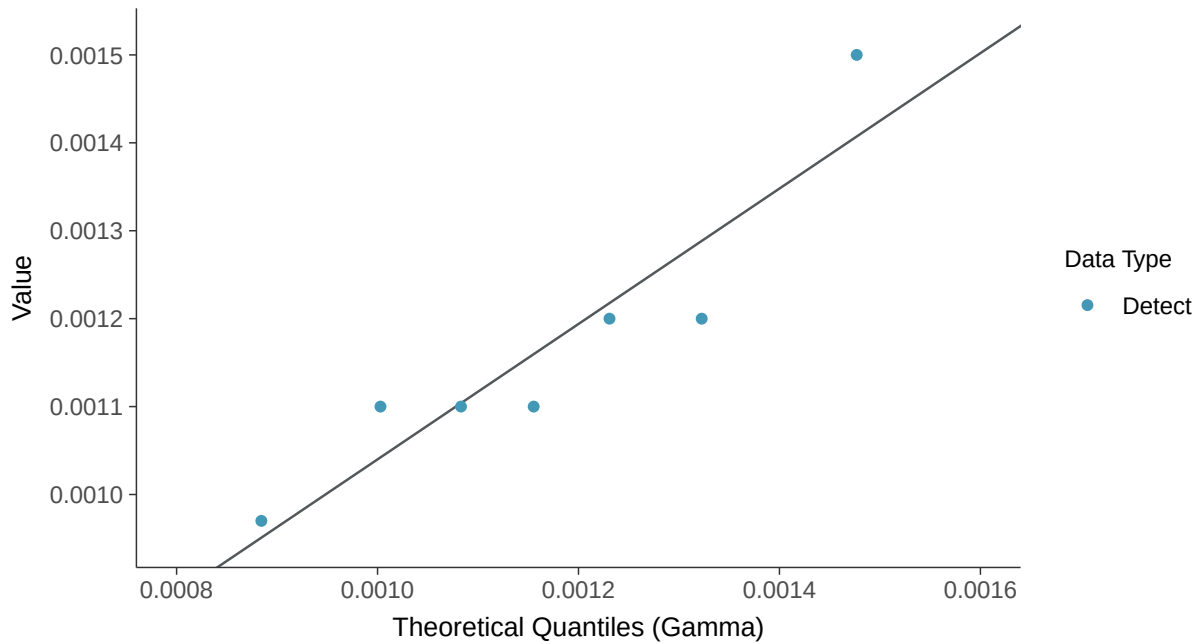
Lognormal Q-Q plot

Cadmium, W-14 (mg/l)

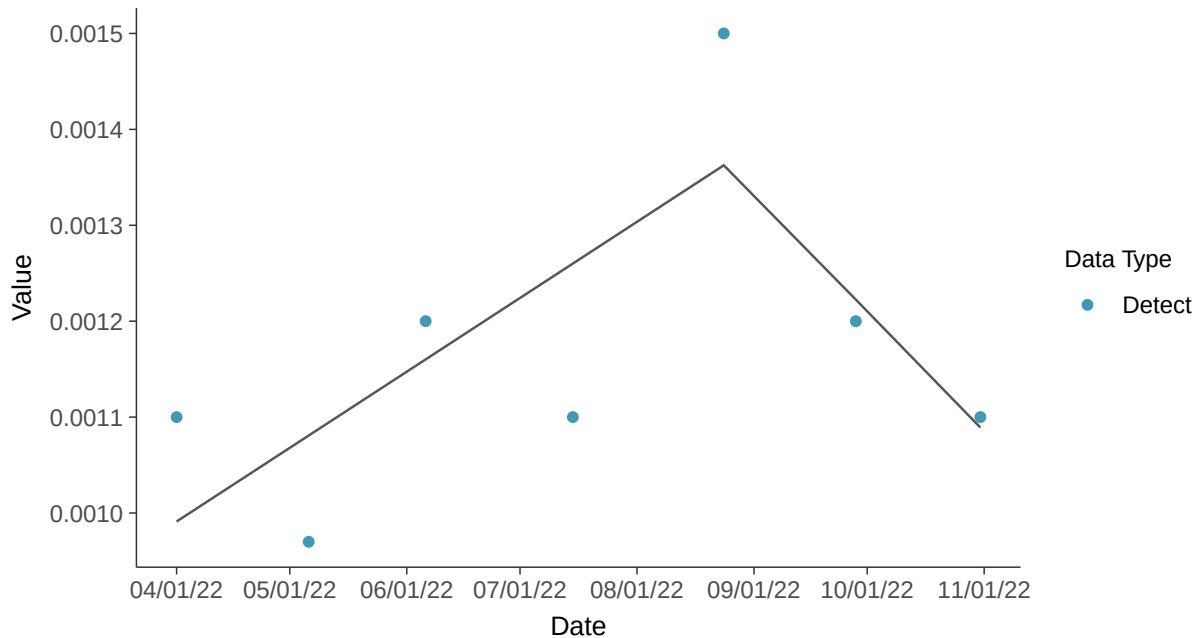




Gamma Q-Q plot
Cadmium, W-14 (mg/l)



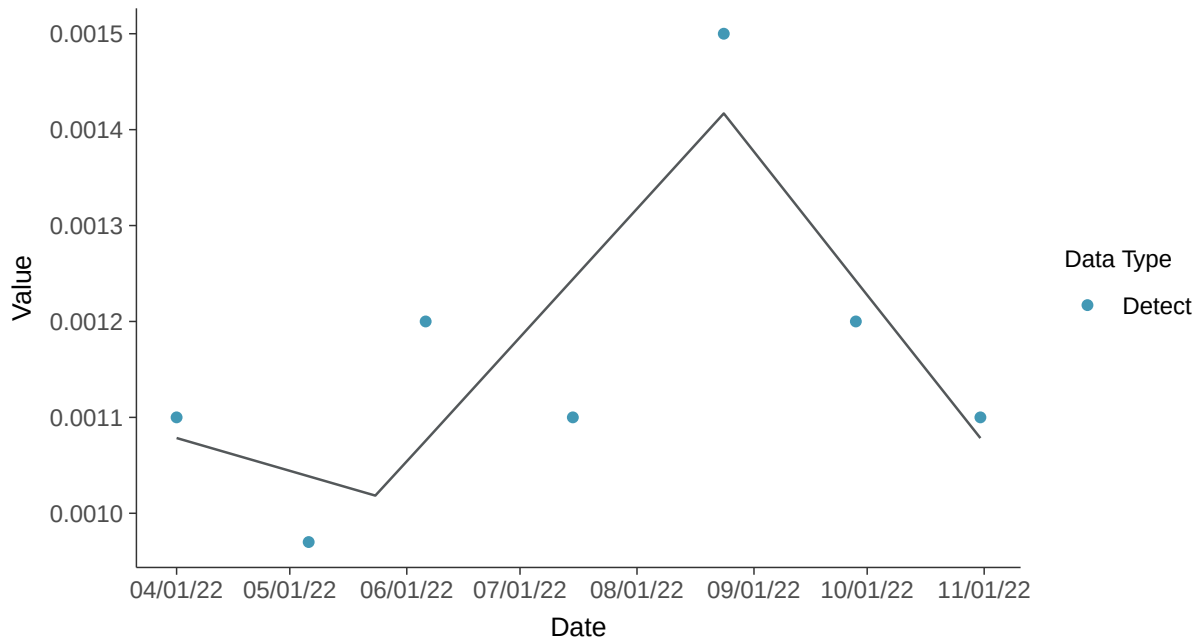
Trend Regression: Piecewise Linear-Linear
Cadmium, W-14 (mg/l)



Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Trend Regression: Piecewise Linear-Linear-Linear

Cadmium, W-14 (mg/l)

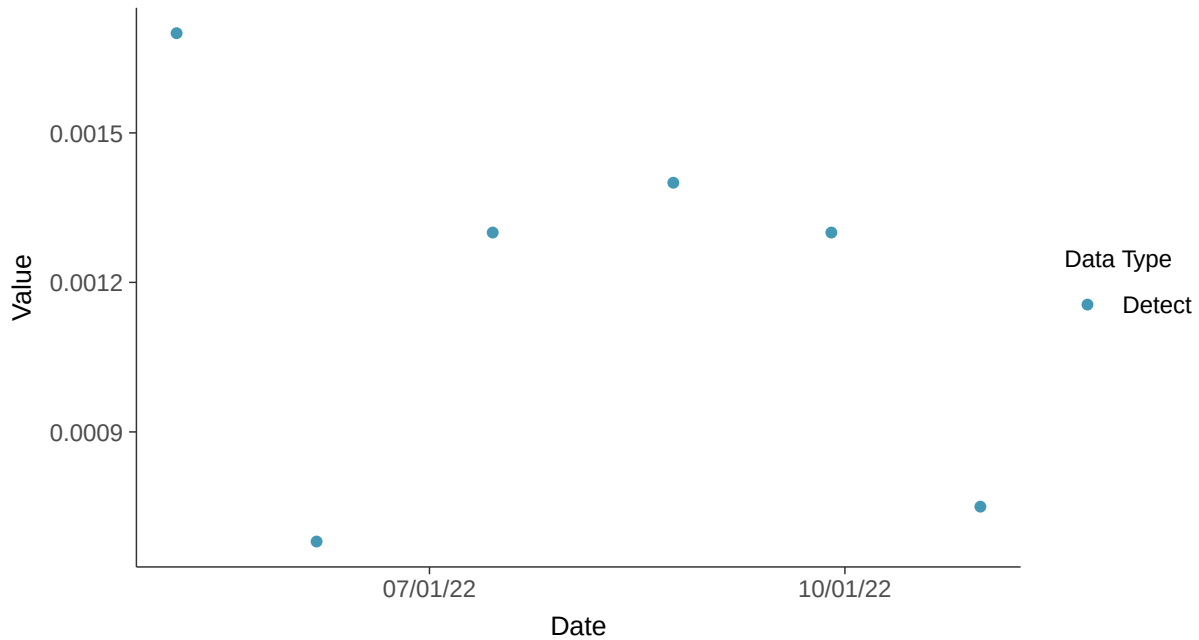


Appendix IV: Chromium, Total, W-14

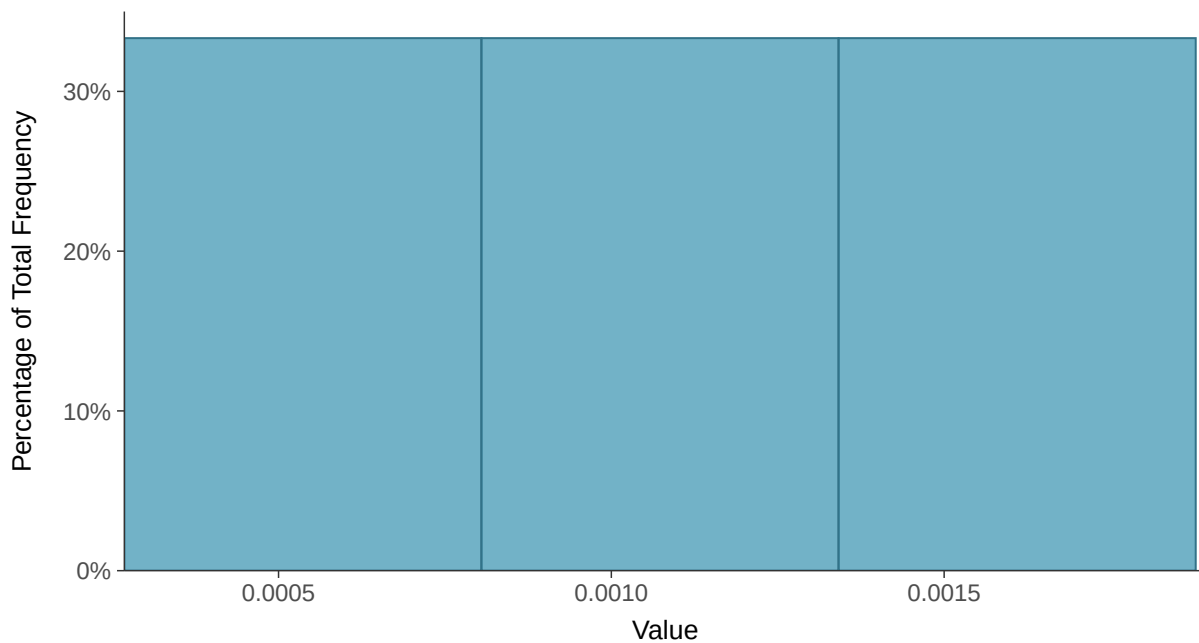
ID: 4_2_109

Scatter Plot

Chromium, Total, W-14 (mg/l)

**Histogram**

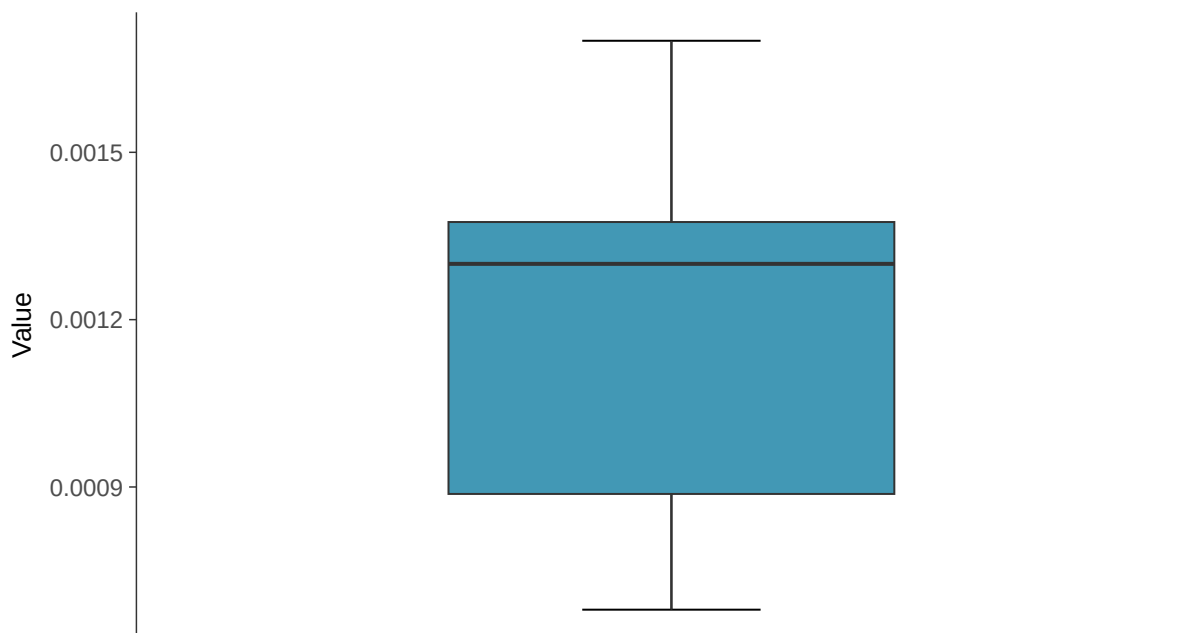
Chromium, Total, W-14 (mg/l)





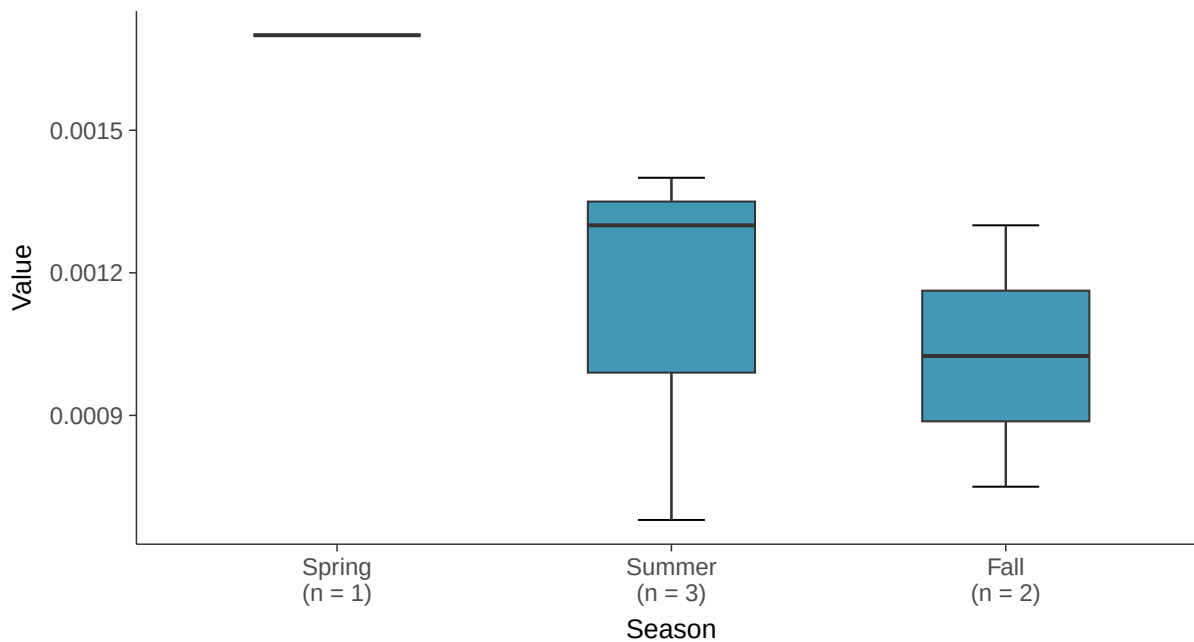
Boxplot

Chromium, Total, W-14 (mg/l)



Boxplot by Season

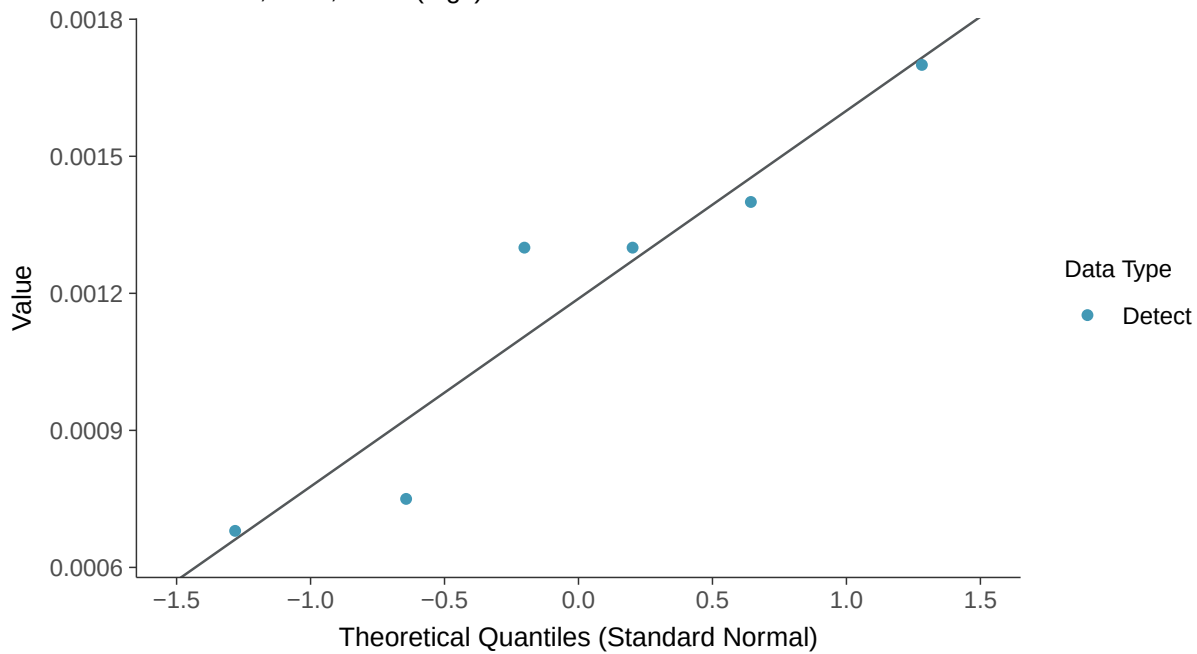
Chromium, Total, W-14 (mg/l)





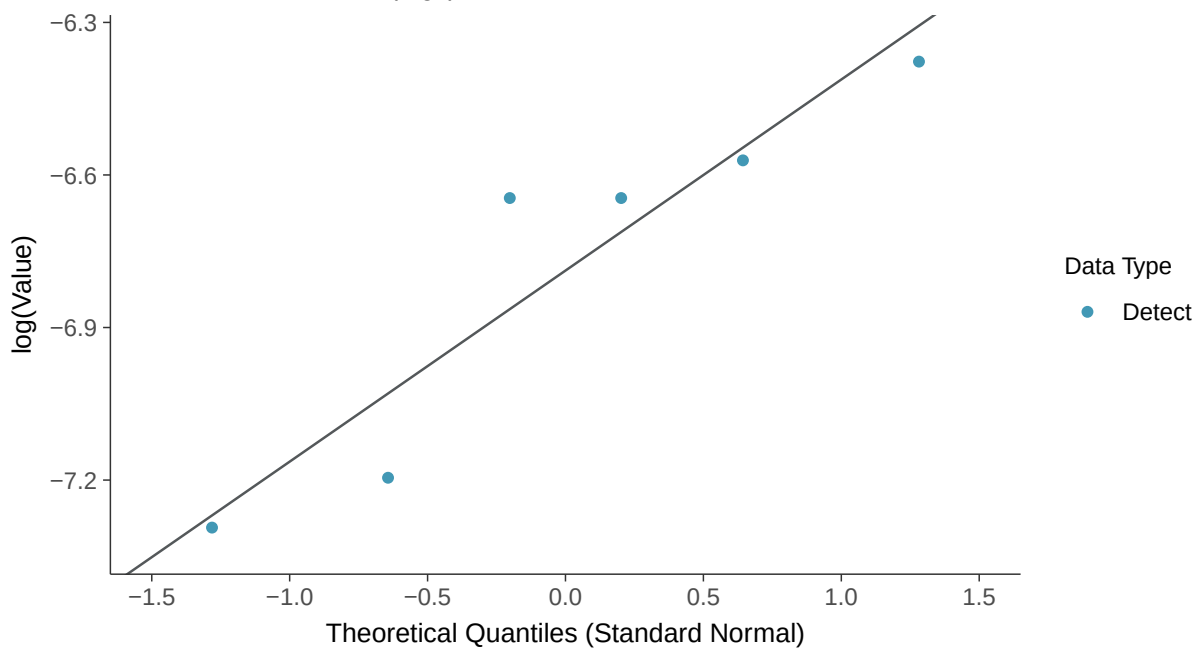
Normal Q-Q plot

Chromium, Total, W-14 (mg/l)



Lognormal Q-Q plot

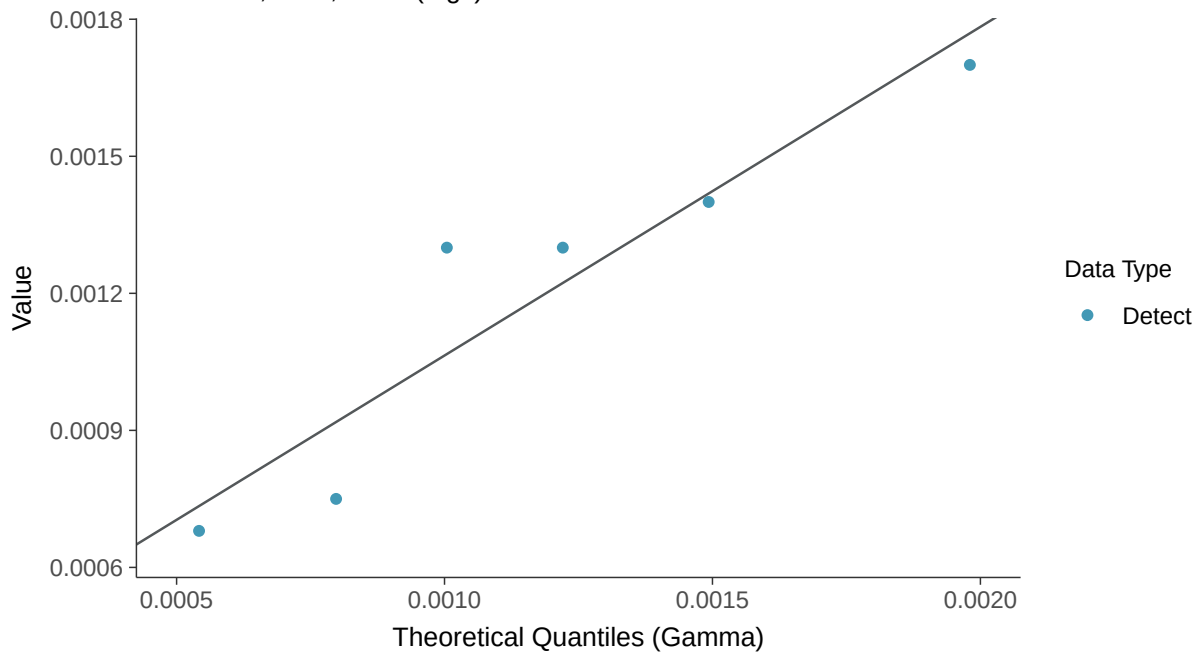
Chromium, Total, W-14 (mg/l)





Gamma Q-Q plot

Chromium, Total, W-14 (mg/l)

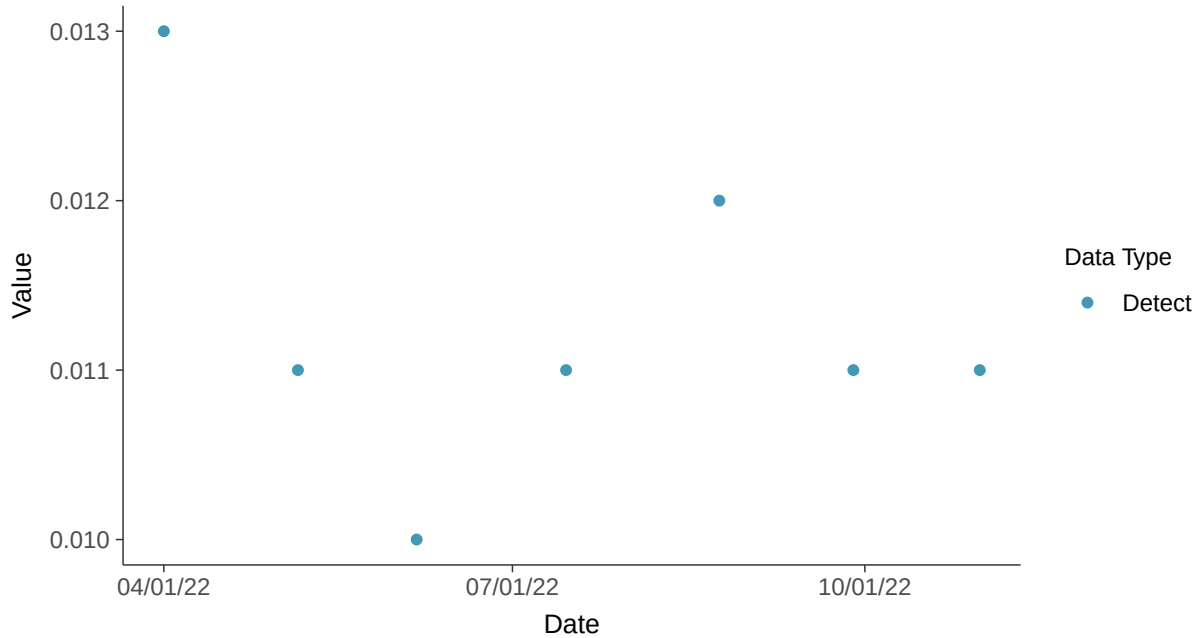


Appendix IV: Cobalt, W-14

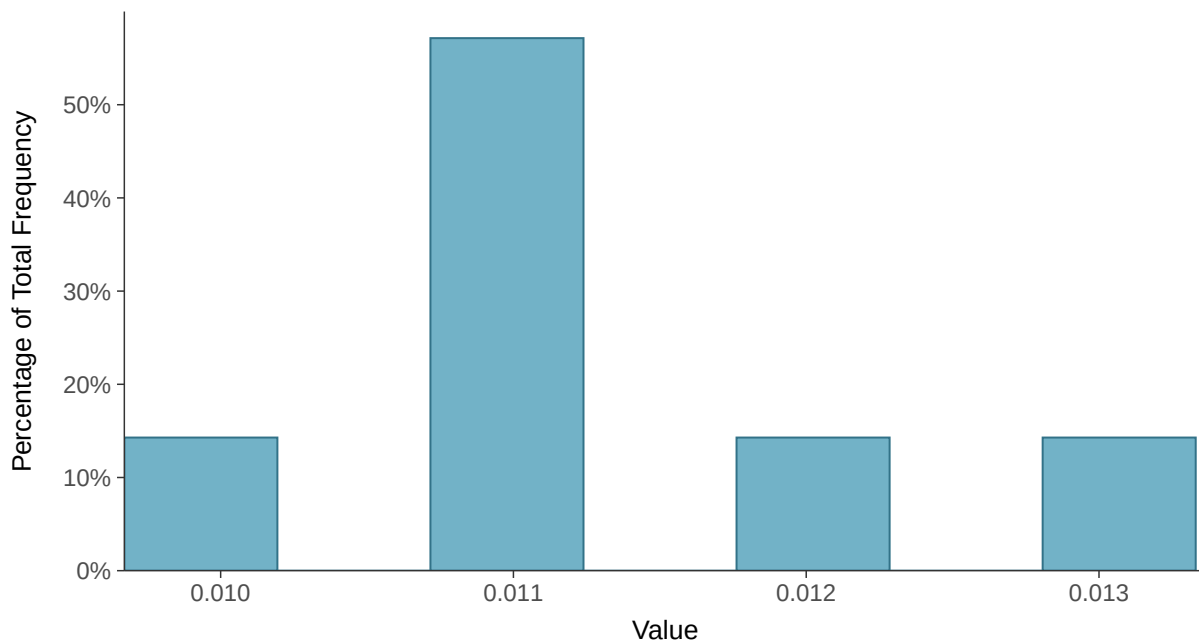
ID: 4_2_110

Scatter Plot

Cobalt, W-14 (mg/l)

**Histogram**

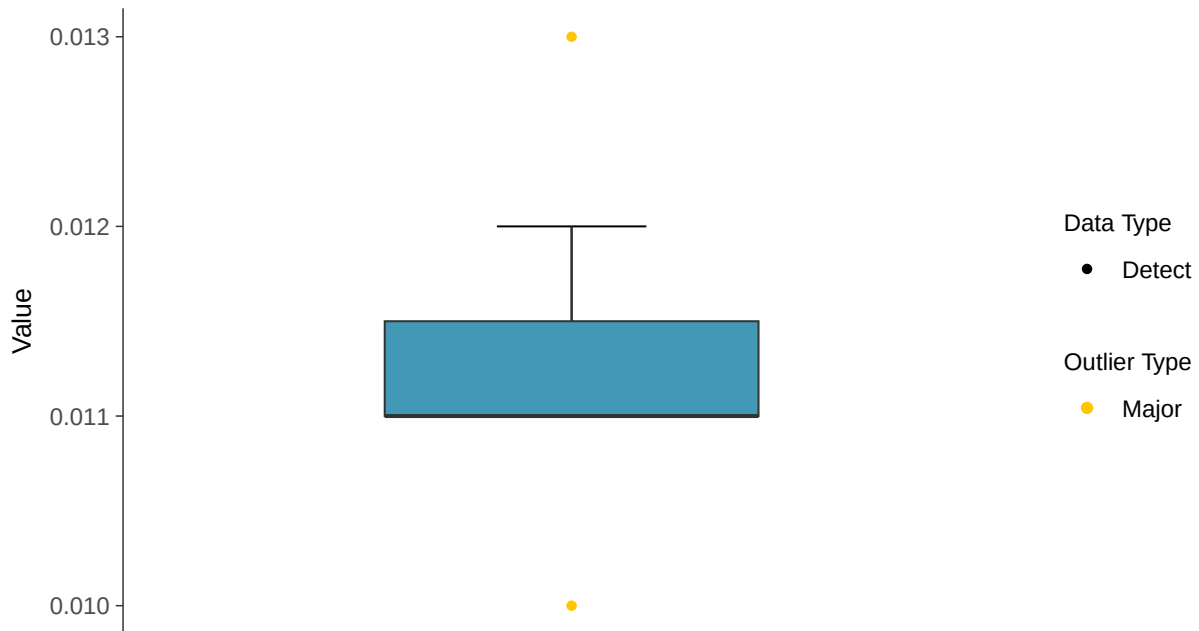
Cobalt, W-14 (mg/l)



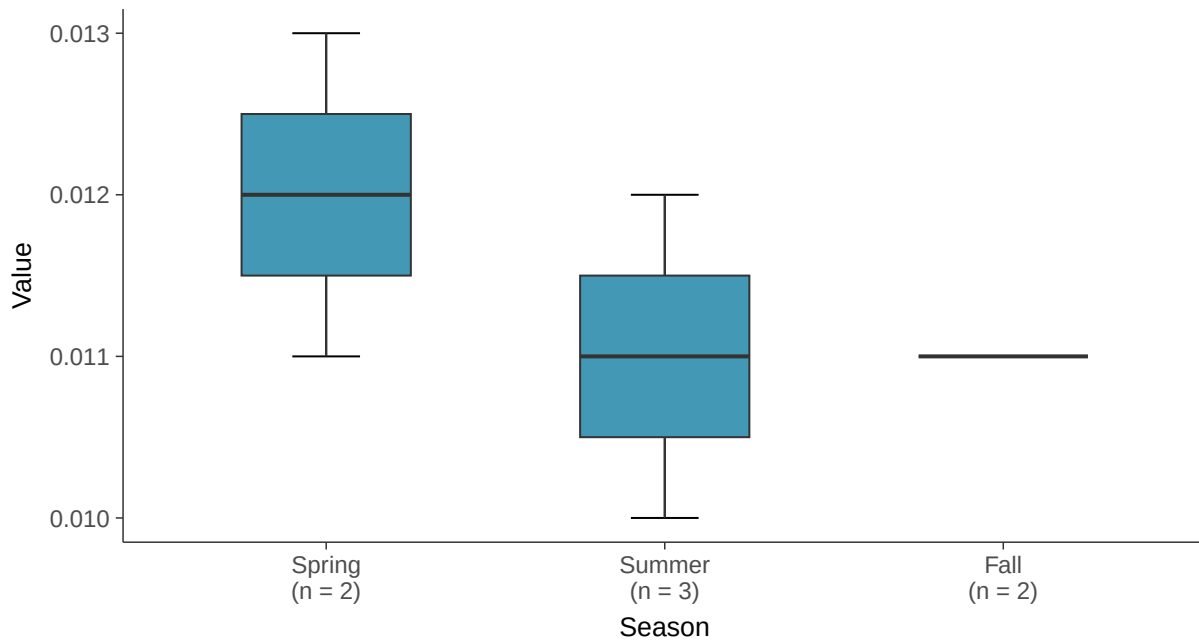
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Cobalt, W-14 (mg/l)

**Boxplot by Season**

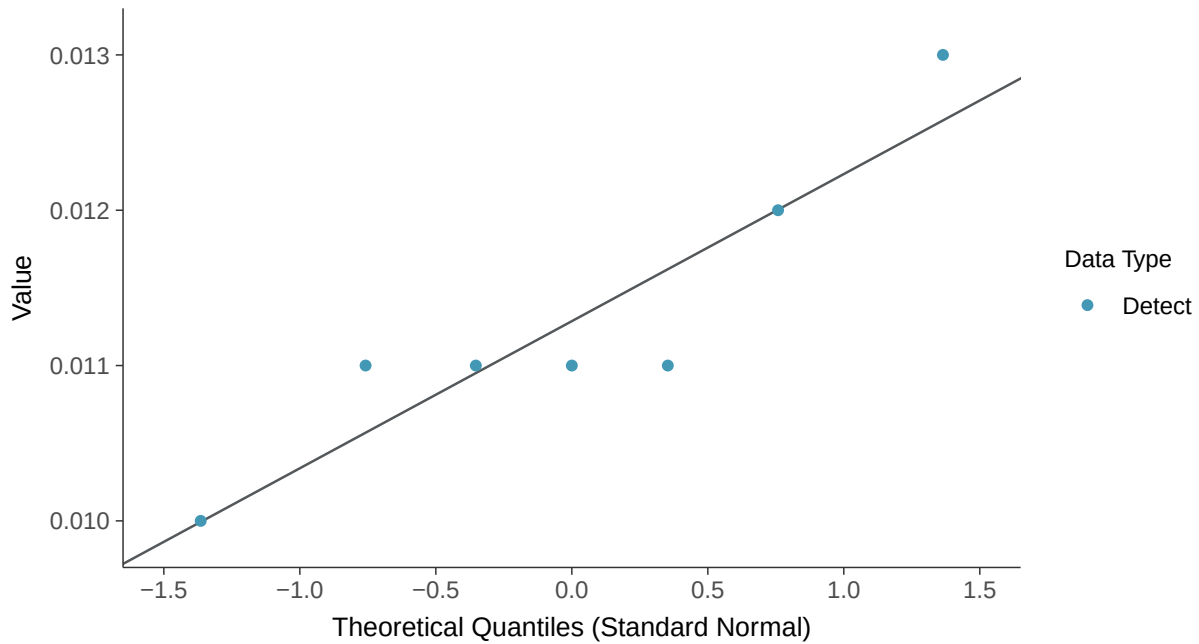
Cobalt, W-14 (mg/l)



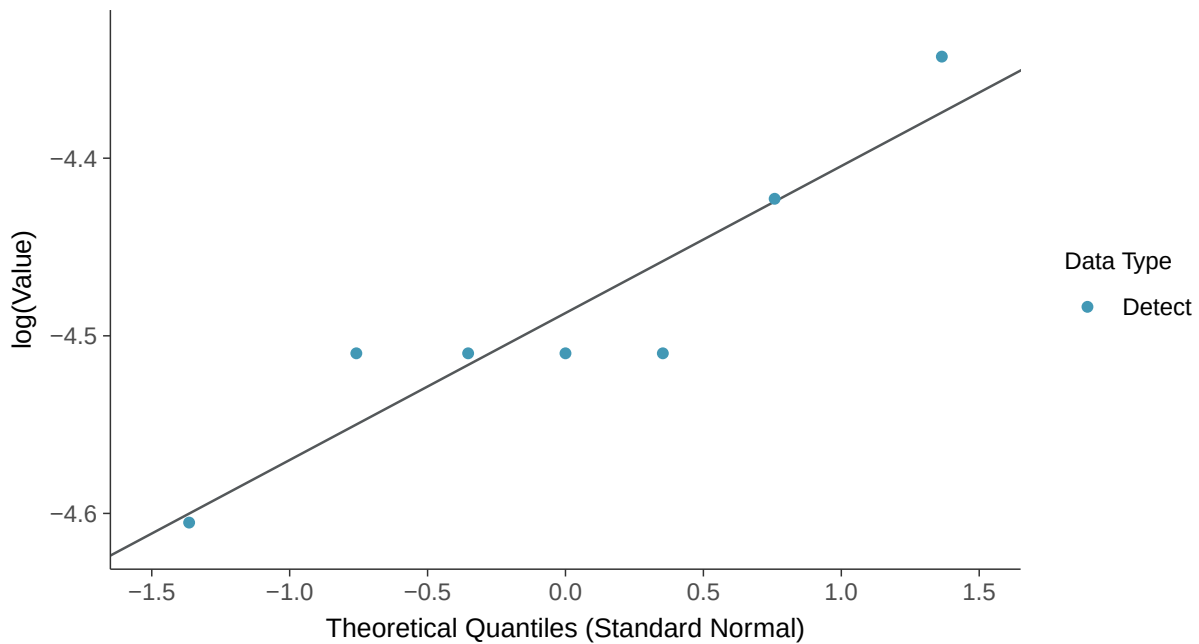
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Normal Q-Q plot

Cobalt, W-14 (mg/l)

**Lognormal Q-Q plot**

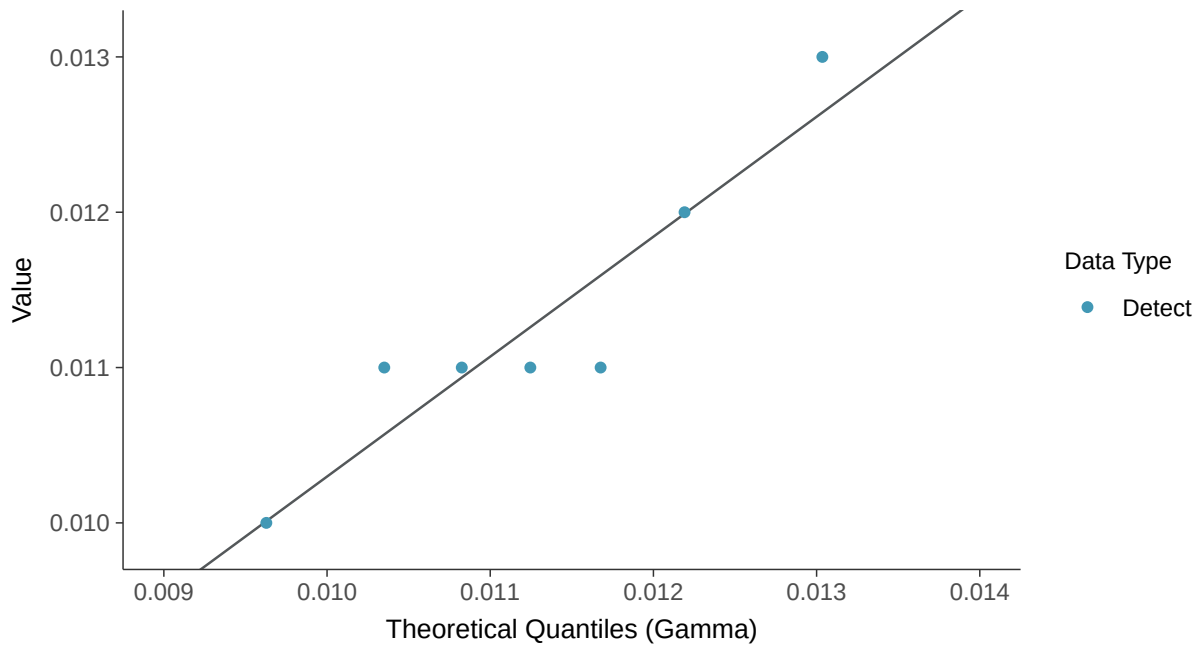
Cobalt, W-14 (mg/l)





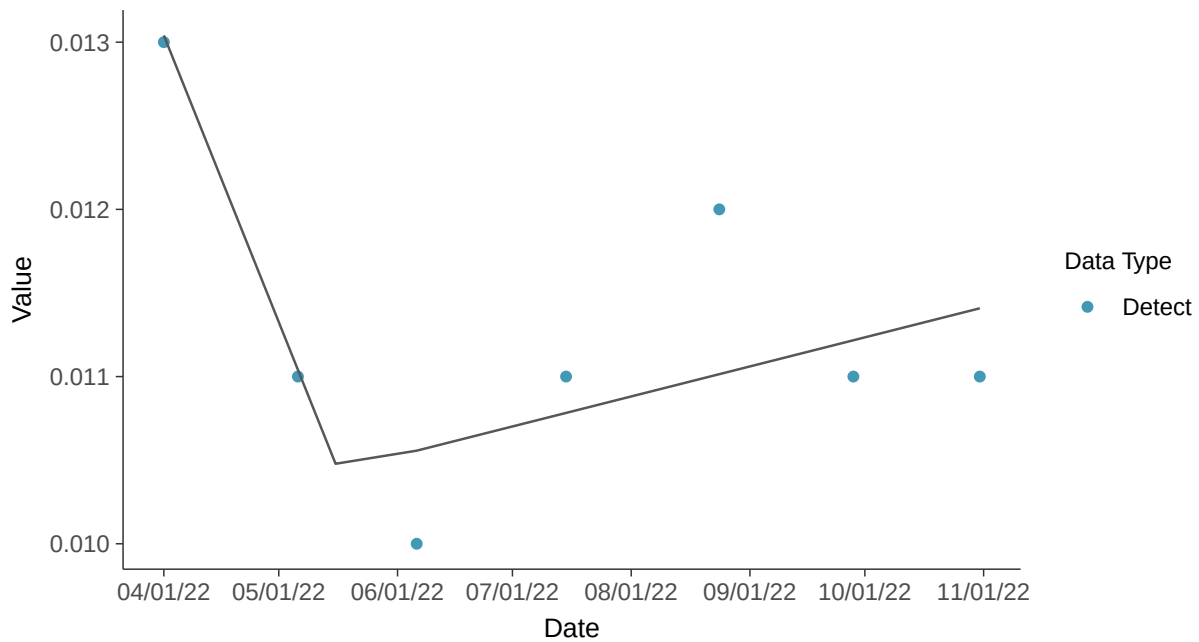
Gamma Q-Q plot

Cobalt, W-14 (mg/l)



Trend Regression: Piecewise Linear-Linear

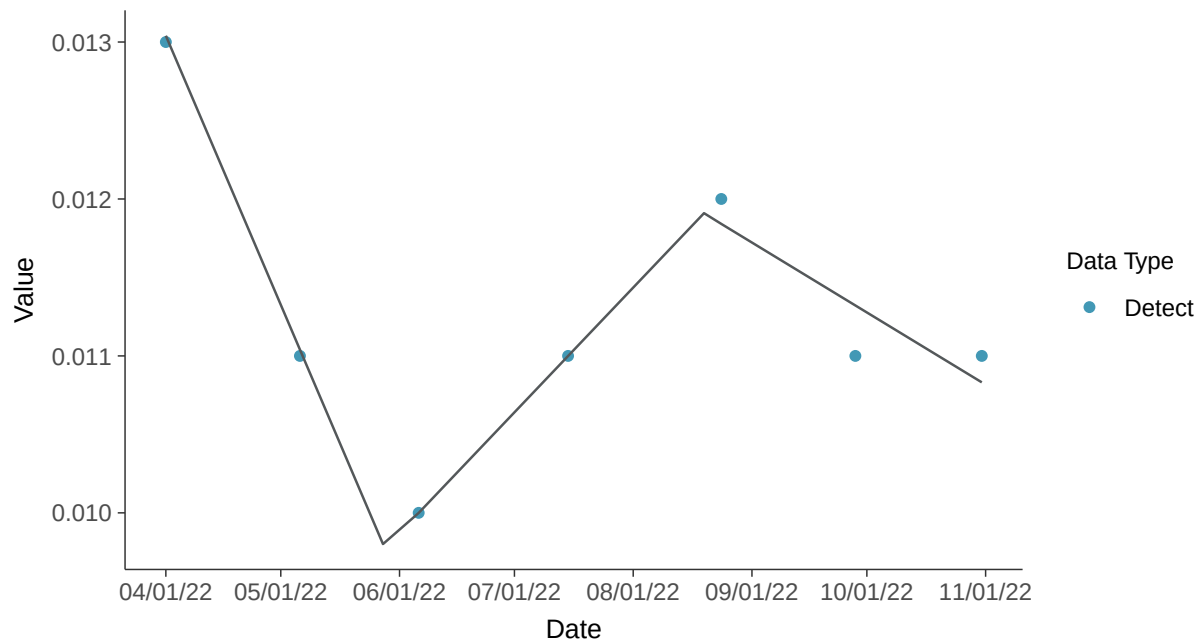
Cobalt, W-14 (mg/l)





Trend Regression: Piecewise Linear-Linear-Linear

Cobalt, W-14 (mg/l)

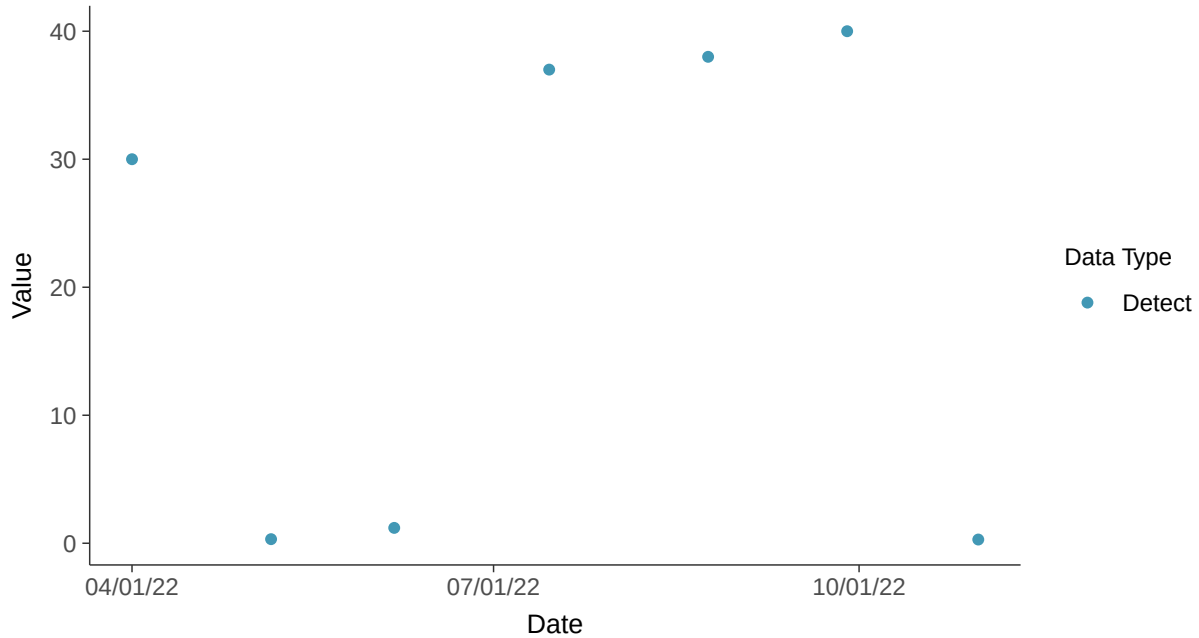


Appendix IV: Fluoride (App IV), W-14

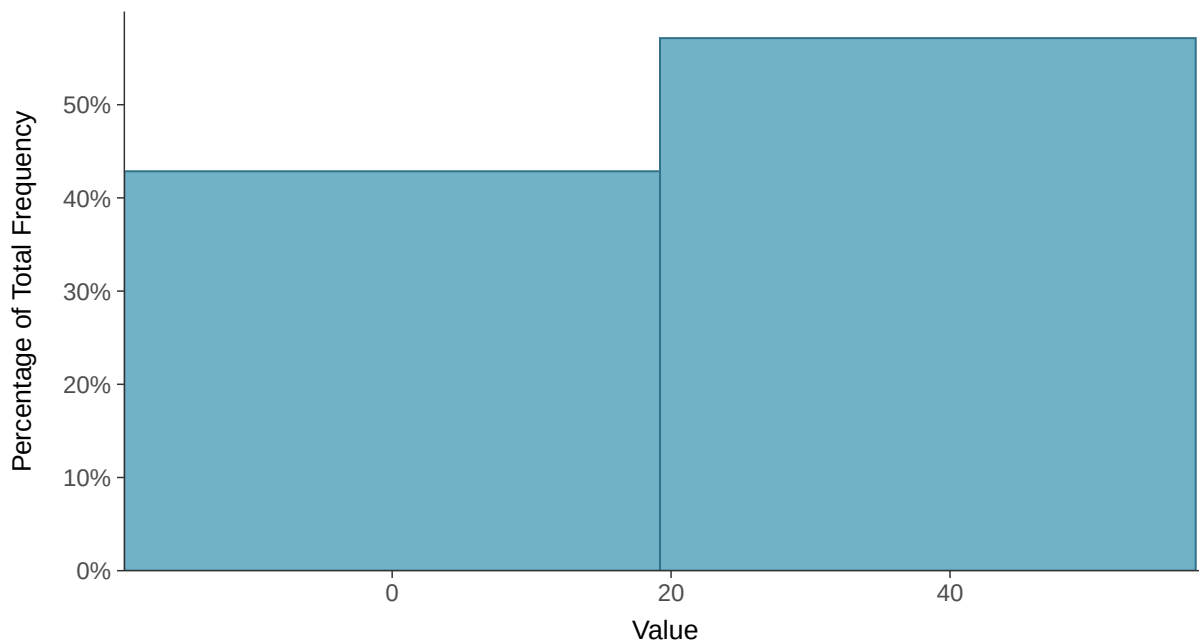
ID: 4_2_112

Scatter Plot

Fluoride (App IV), W-14 (mg/l)

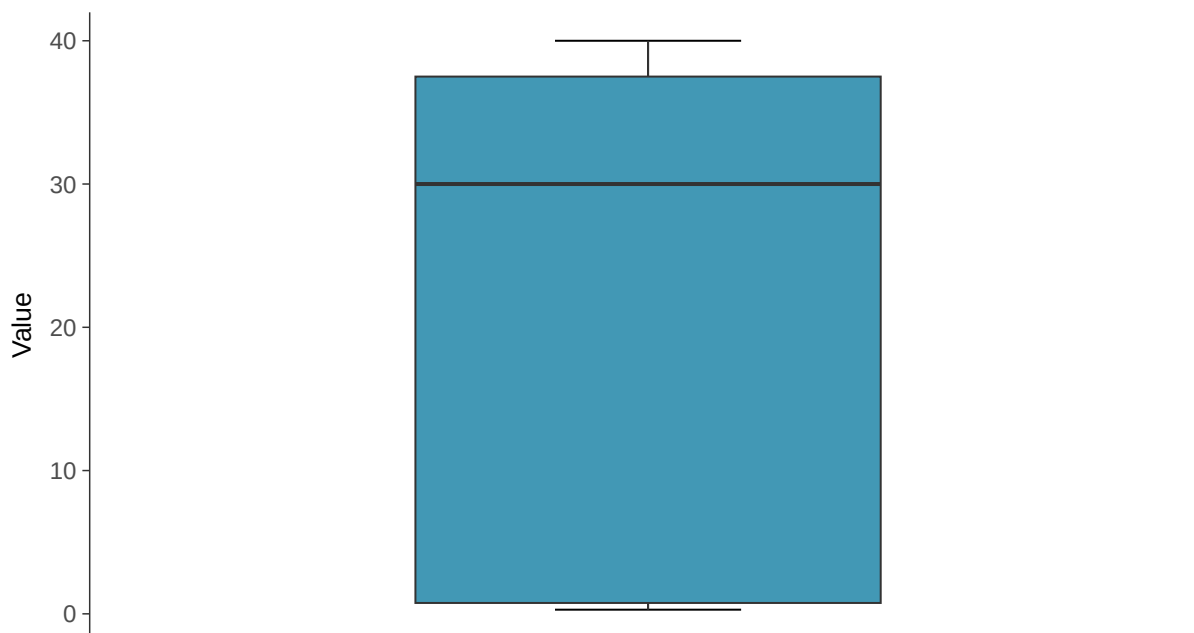
**Histogram**

Fluoride (App IV), W-14 (mg/l)



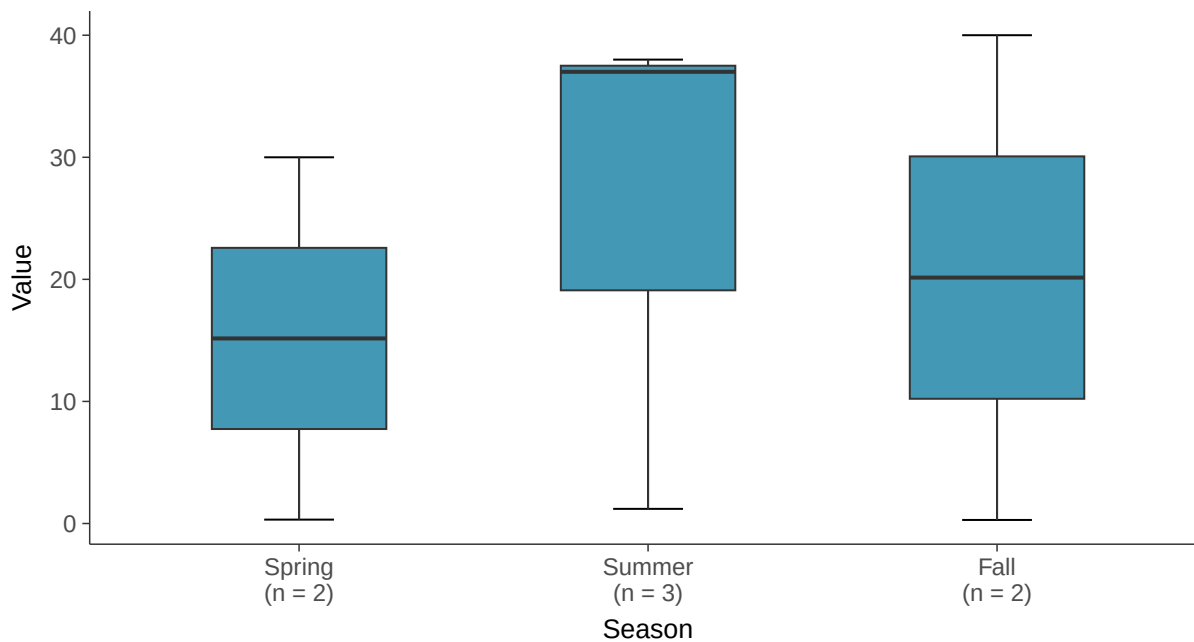
Boxplot

Fluoride (App IV), W-14 (mg/l)



Boxplot by Season

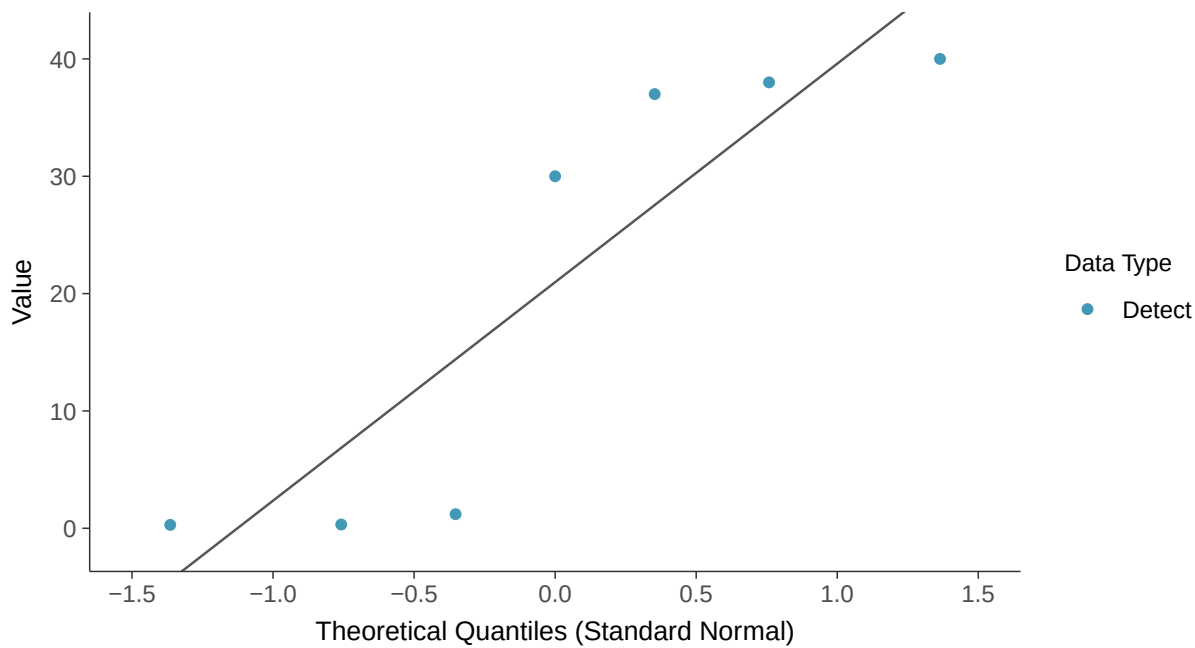
Fluoride (App IV), W-14 (mg/l)





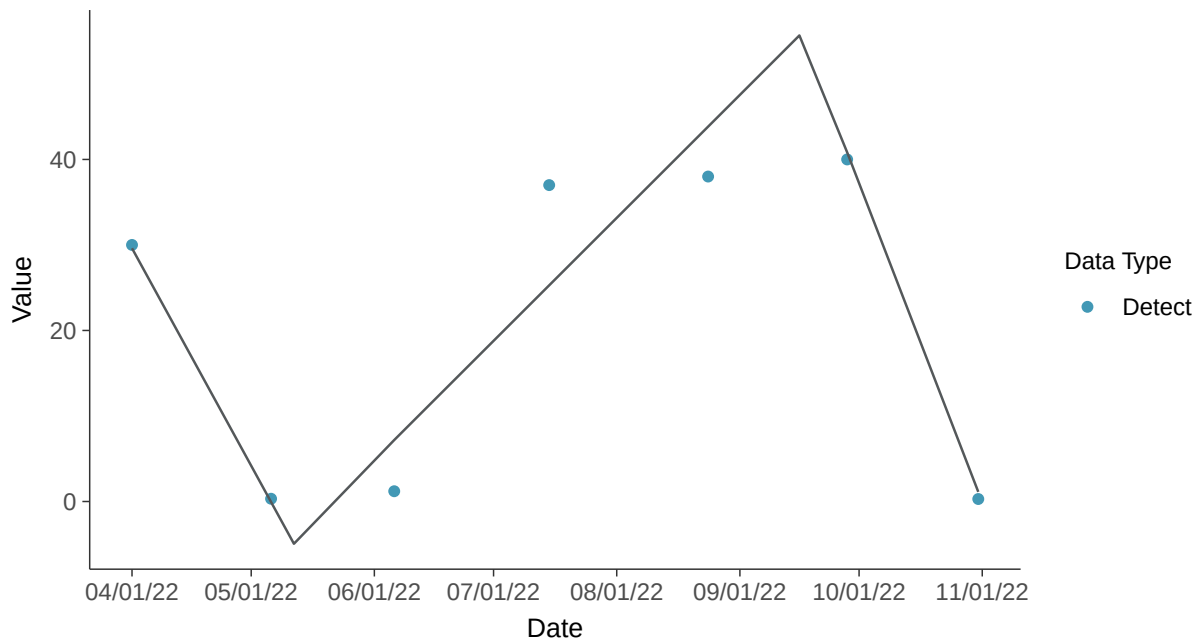
Normal Q-Q plot

Fluoride (App IV), W-14 (mg/l)



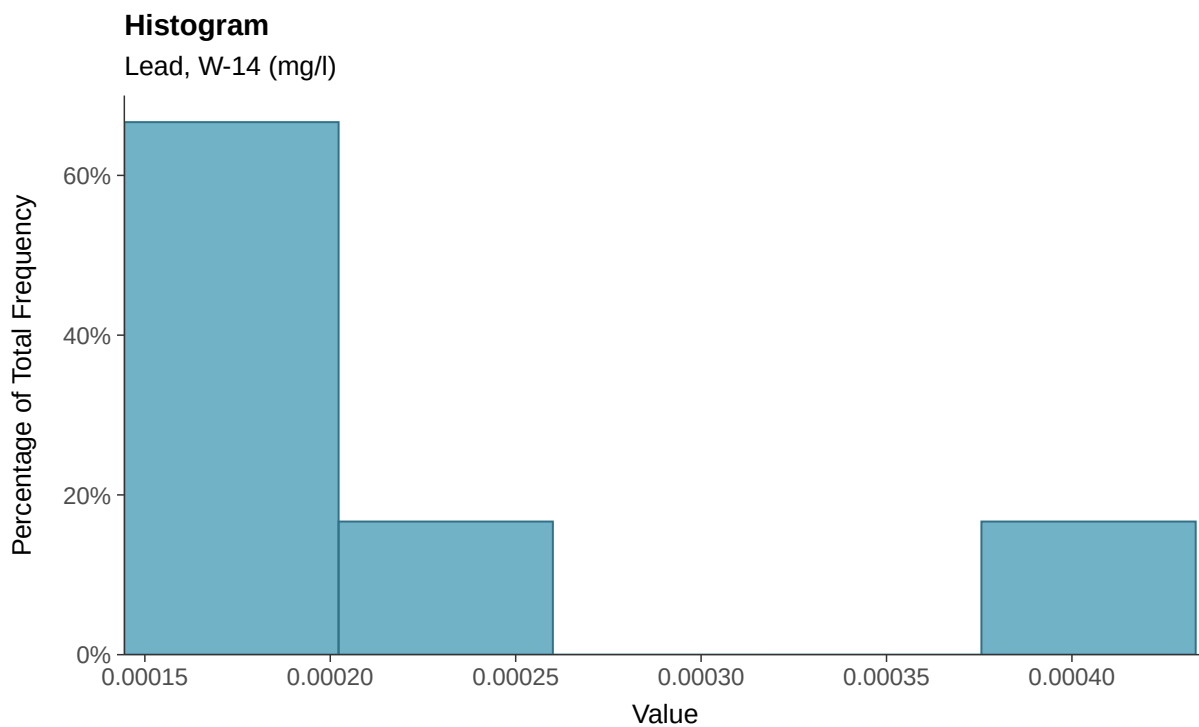
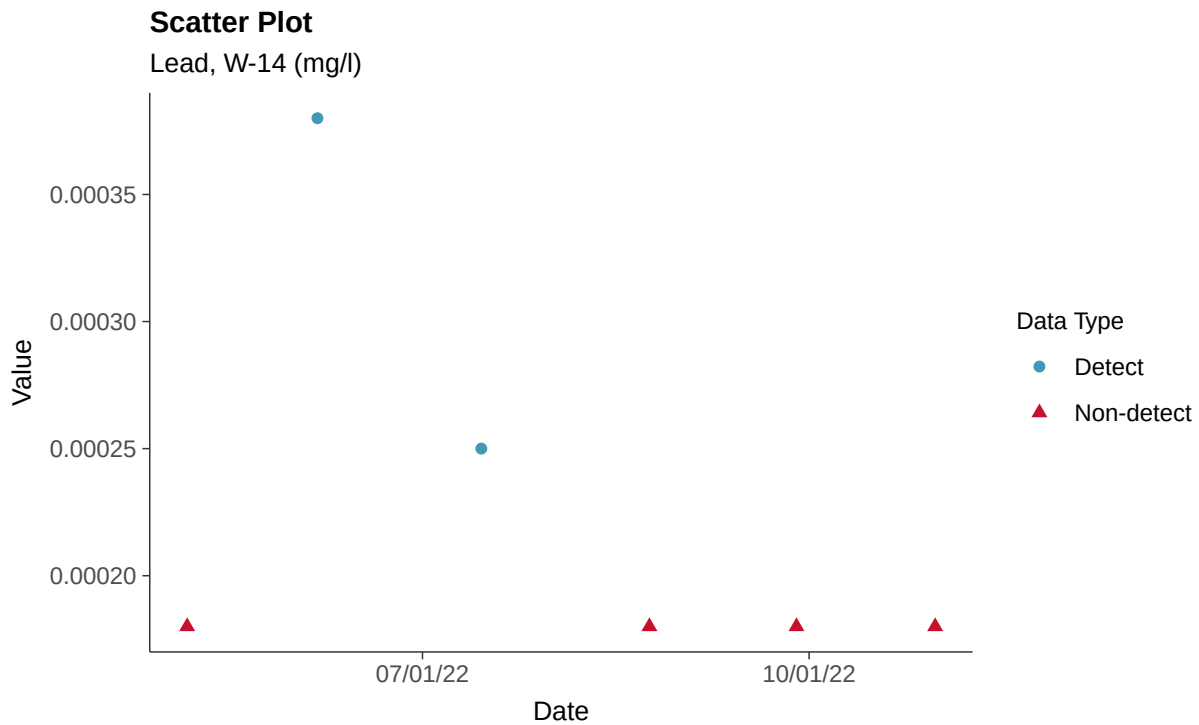
Trend Regression: Piecewise Linear-Linear-Linear

Fluoride (App IV), W-14 (mg/l)



Appendix IV: Lead, W-14

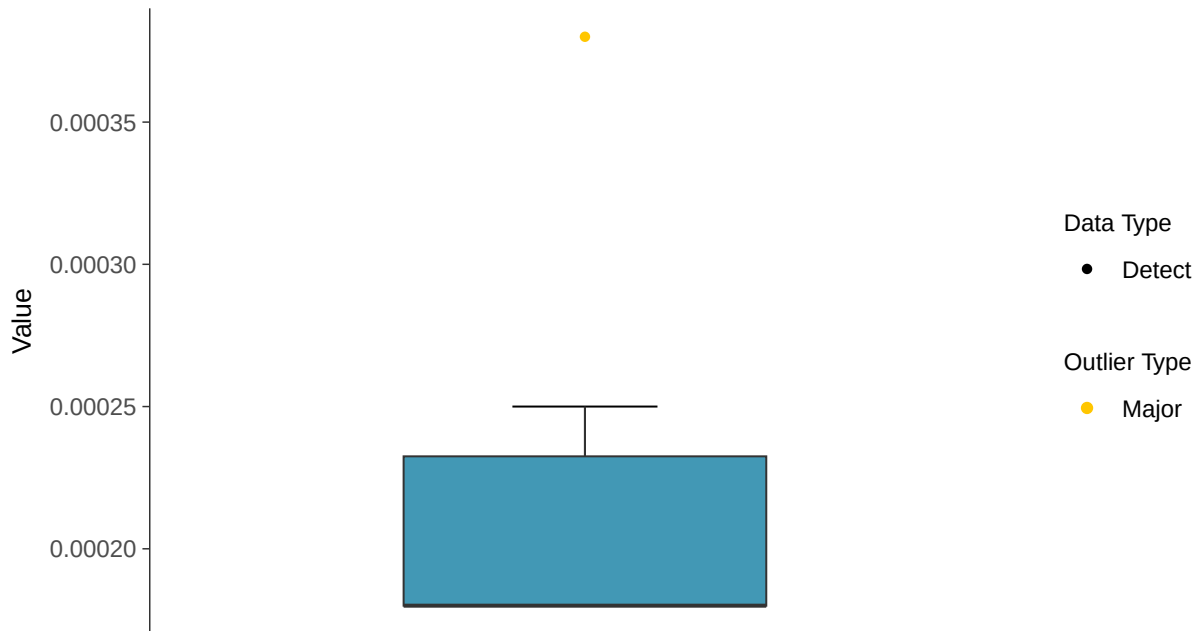
ID: 4_2_113



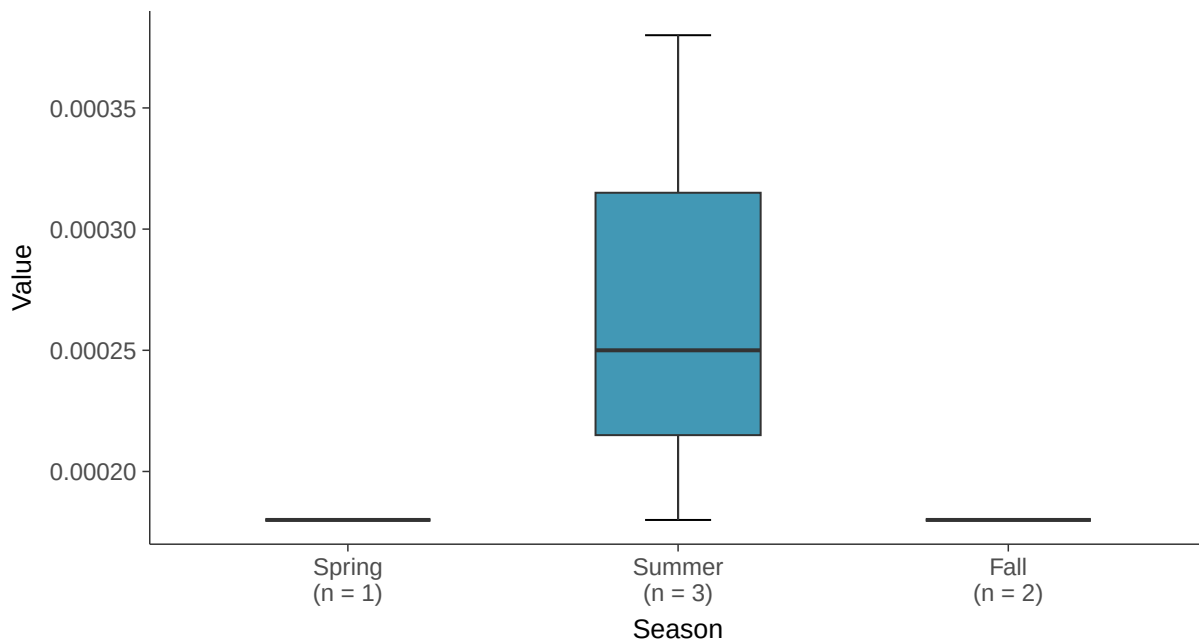
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Lead, W-14 (mg/l)

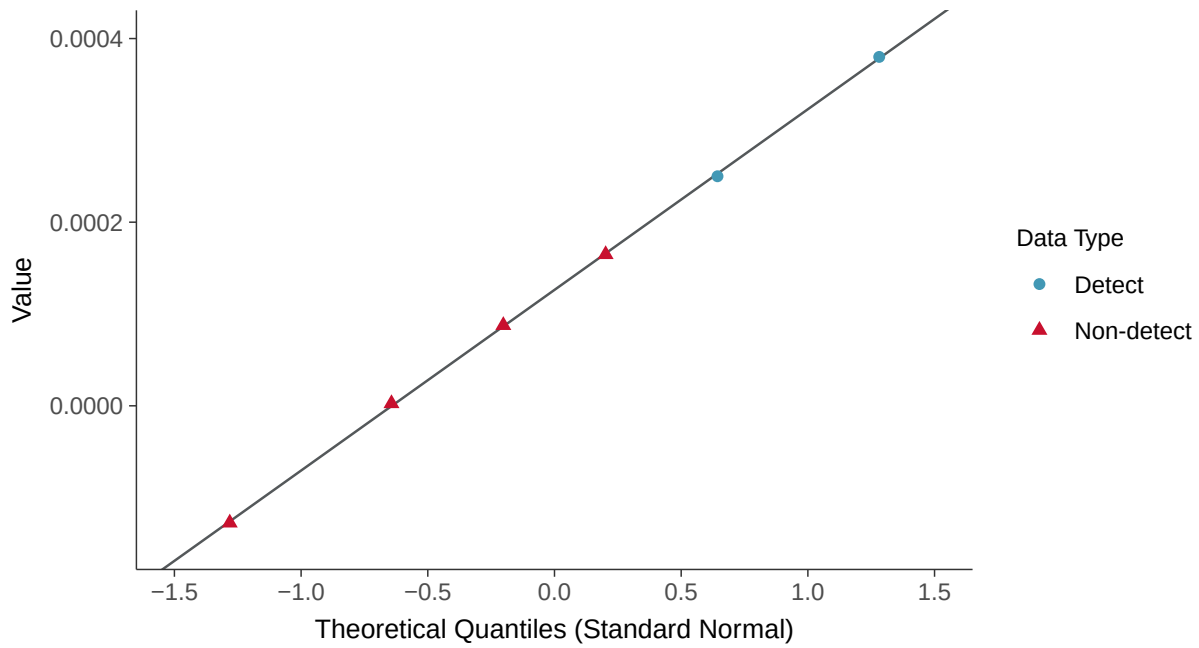
**Boxplot by Season**

Lead, W-14 (mg/l)



Normal Q-Q plot using ROS Imputed Estimates

Lead, W-14 (mg/l)

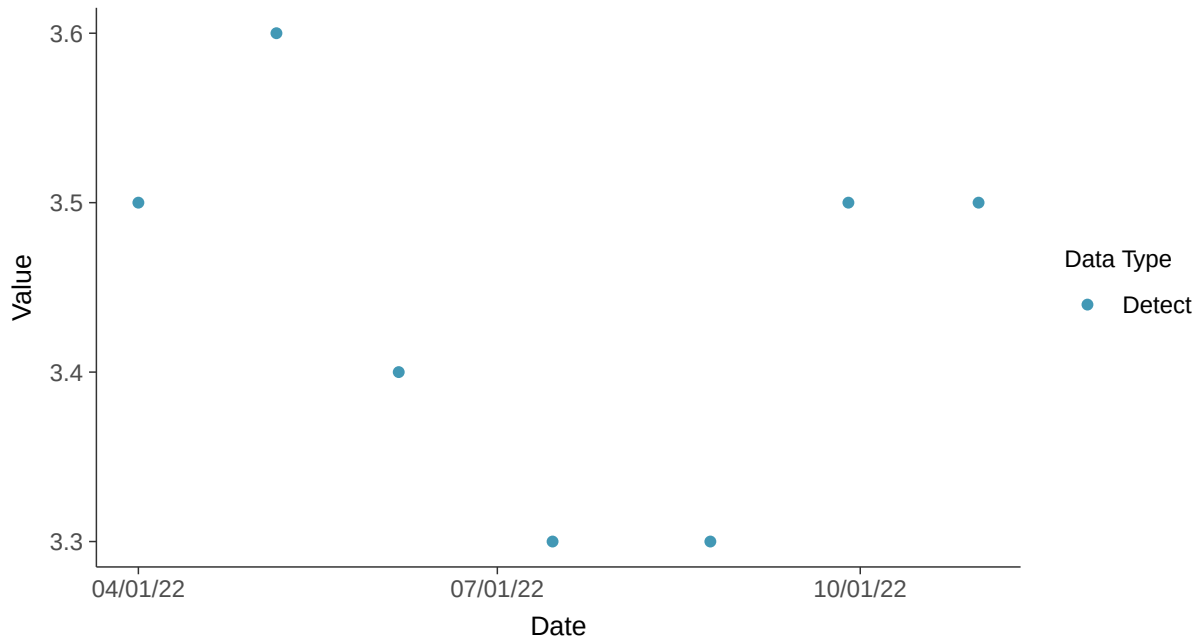


Appendix IV: Lithium, W-14

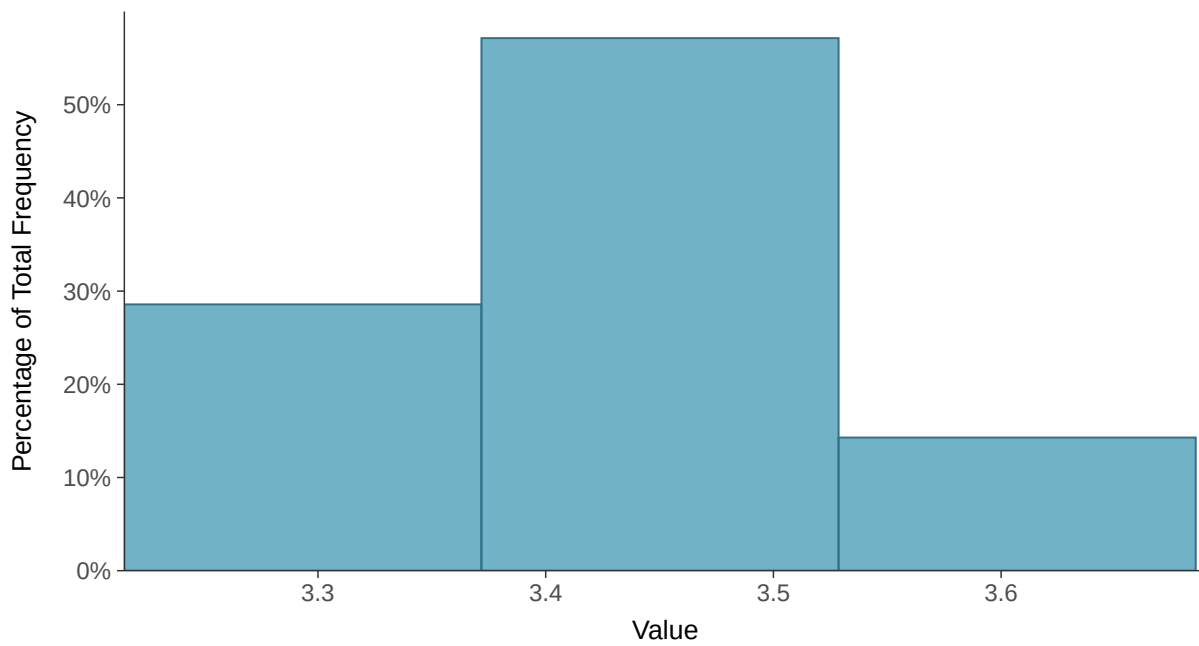
ID: 4_2_114

Scatter Plot

Lithium, W-14 (mg/l)

**Histogram**

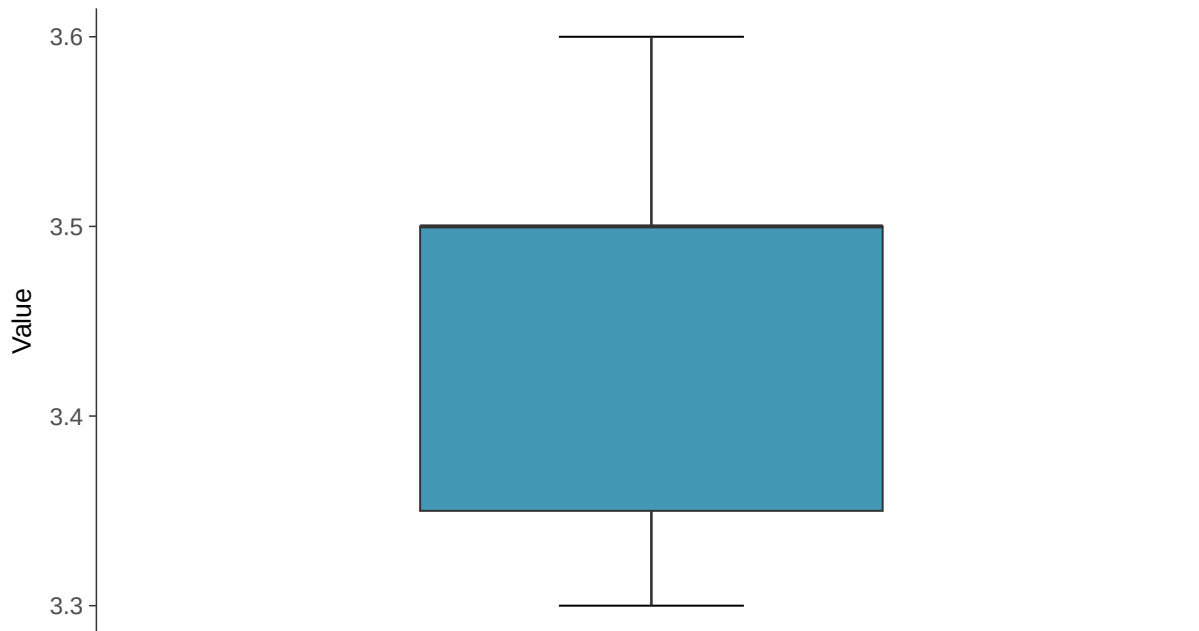
Lithium, W-14 (mg/l)



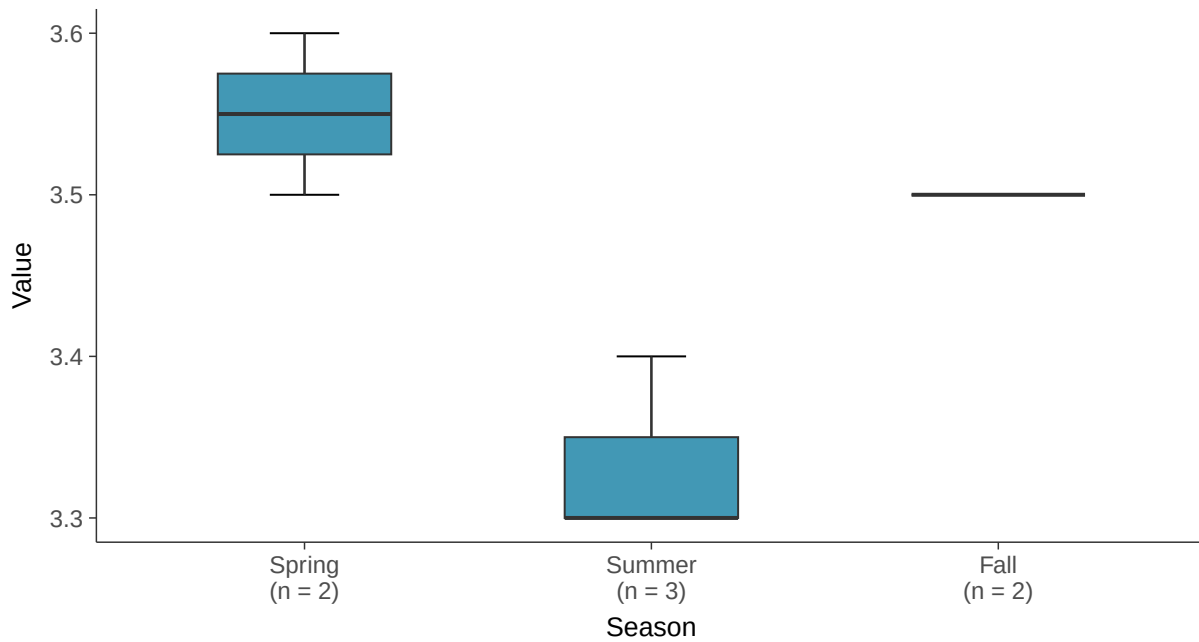
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Lithium, W-14 (mg/l)

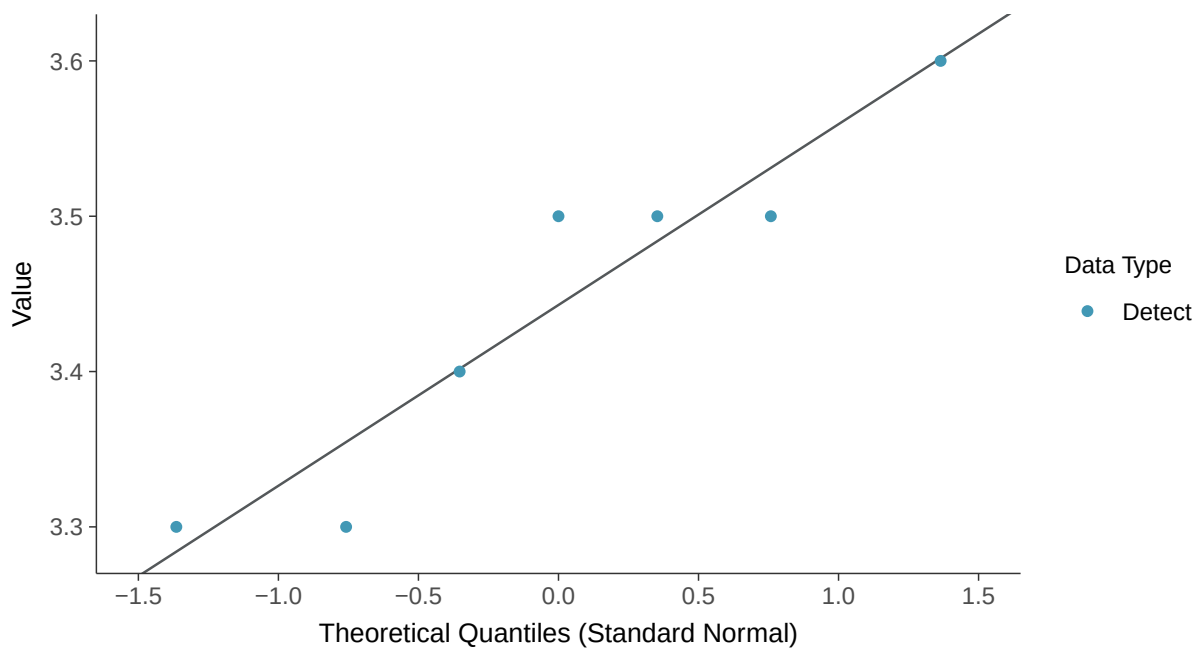
**Boxplot by Season**

Lithium, W-14 (mg/l)



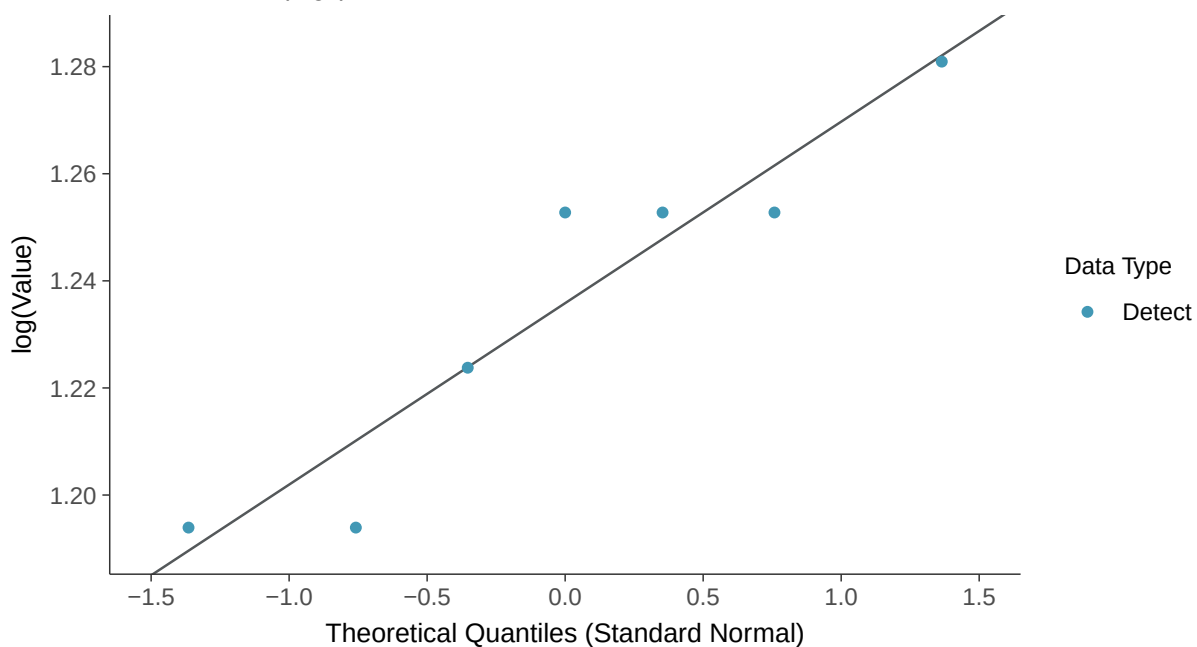
Normal Q-Q plot

Lithium, W-14 (mg/l)



Lognormal Q-Q plot

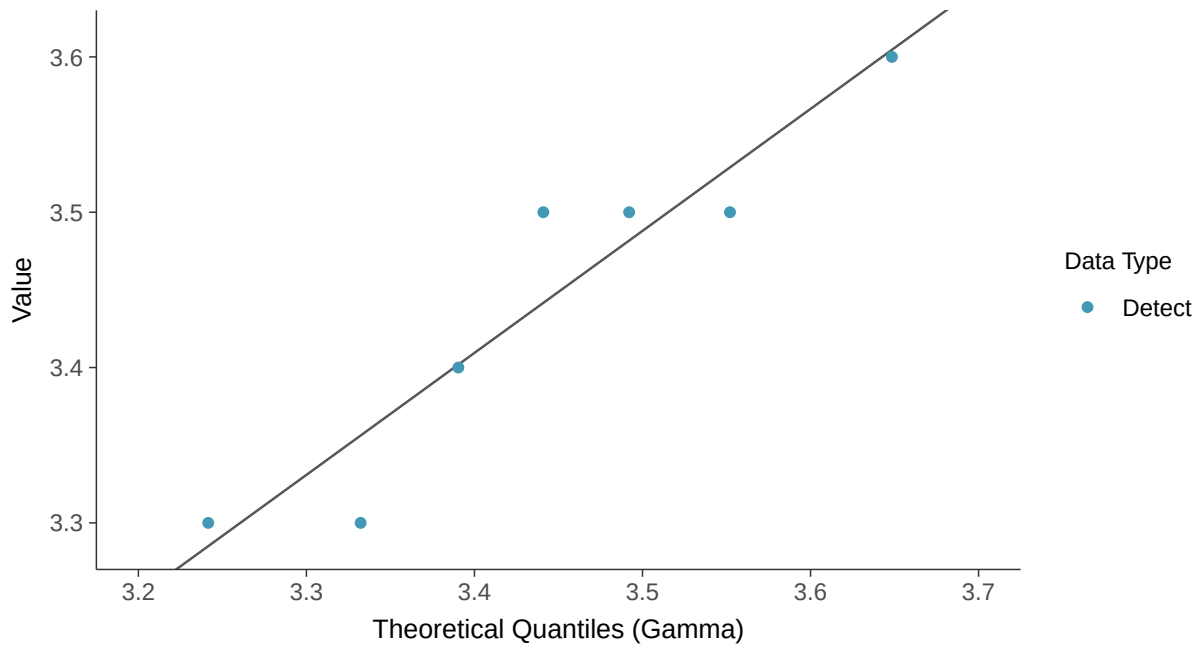
Lithium, W-14 (mg/l)





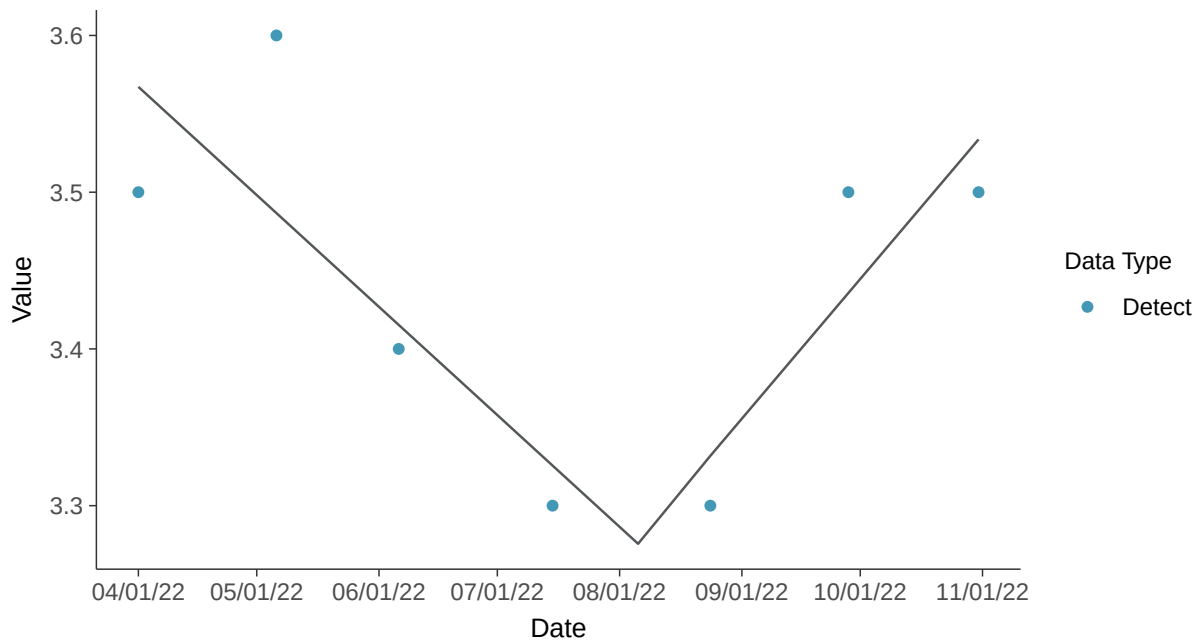
Gamma Q-Q plot

Lithium, W-14 (mg/l)



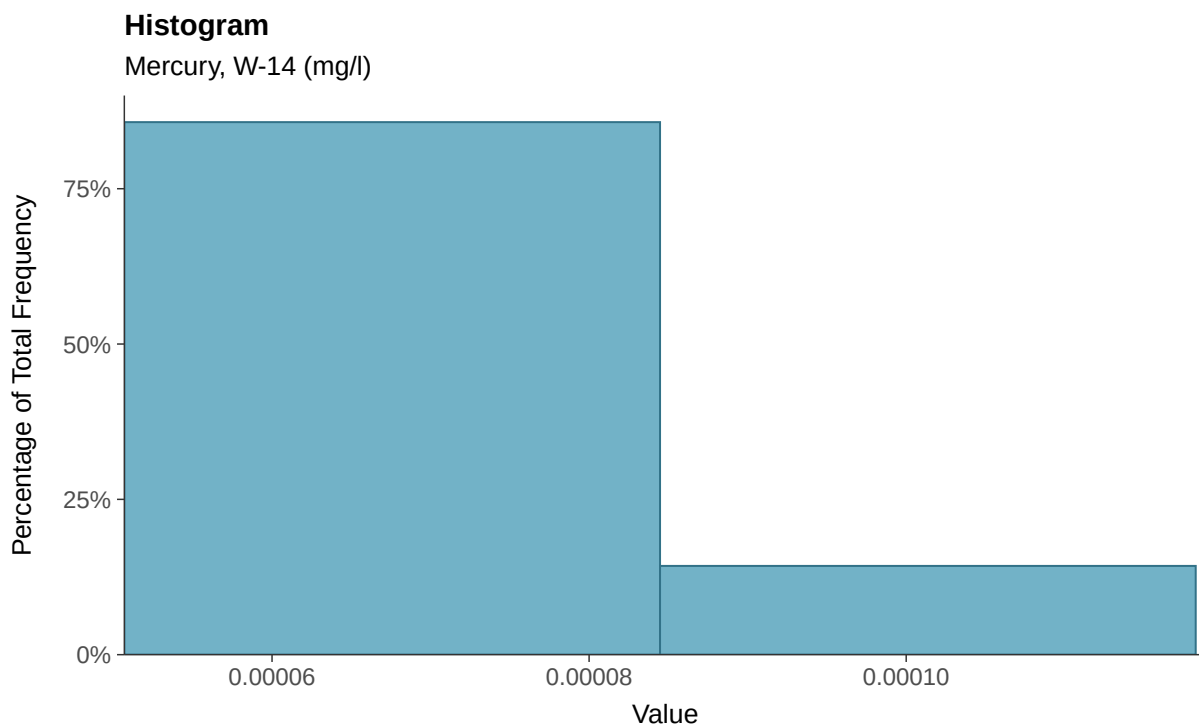
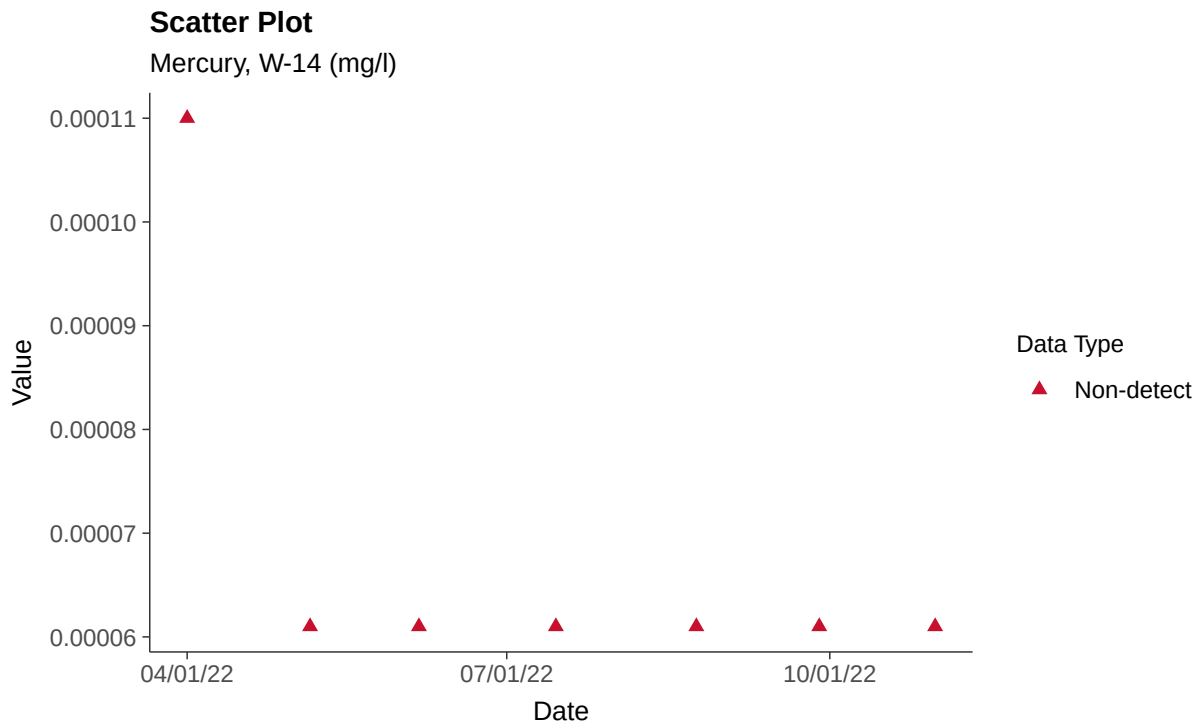
Trend Regression: Piecewise Linear-Linear

Lithium, W-14 (mg/l)



Appendix IV: Mercury, W-14

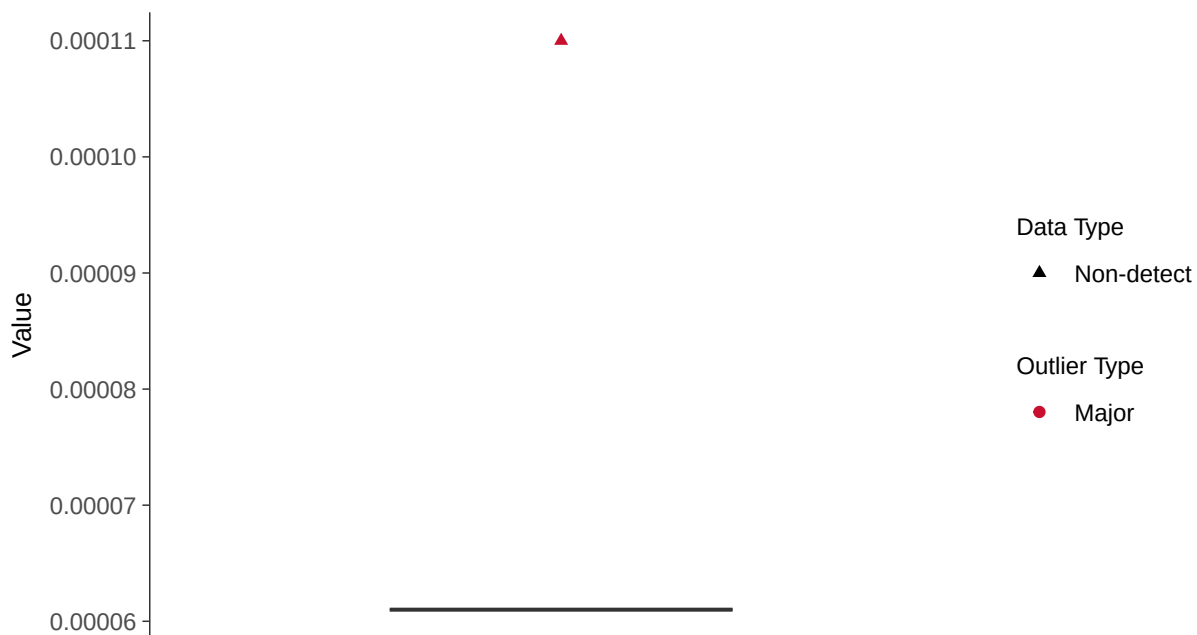
ID: 4_2_115





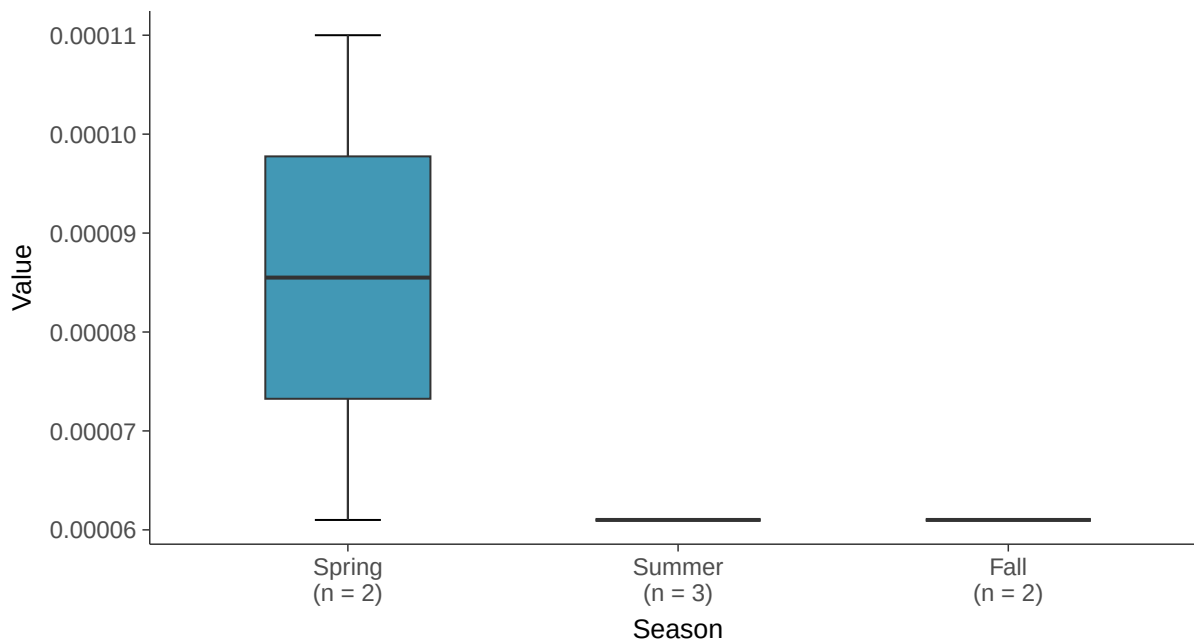
Boxplot

Mercury, W-14 (mg/l)



Boxplot by Season

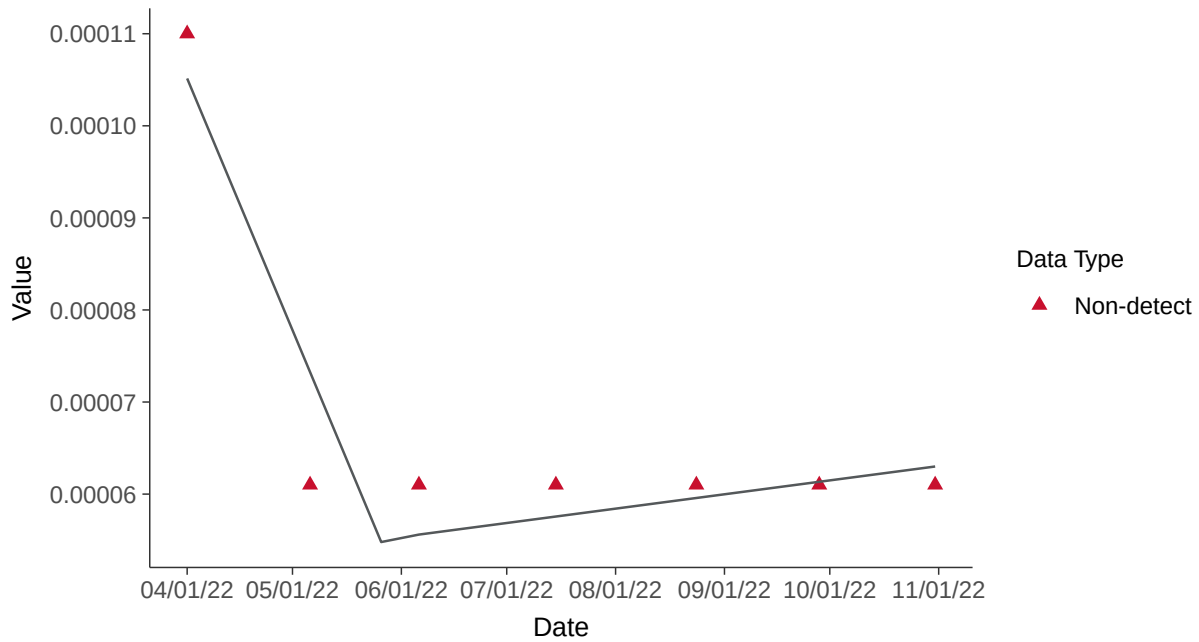
Mercury, W-14 (mg/l)



Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Trend Regression: Piecewise Linear-Linear

Mercury, W-14 (mg/l)

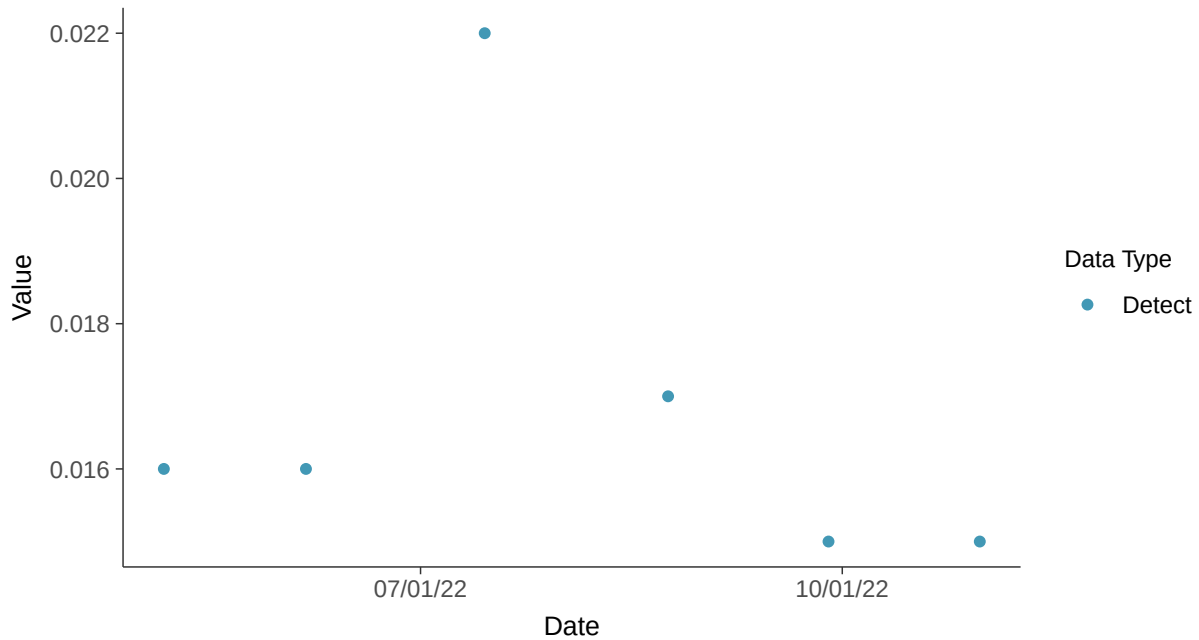


Appendix IV: Molybdenum, W-14

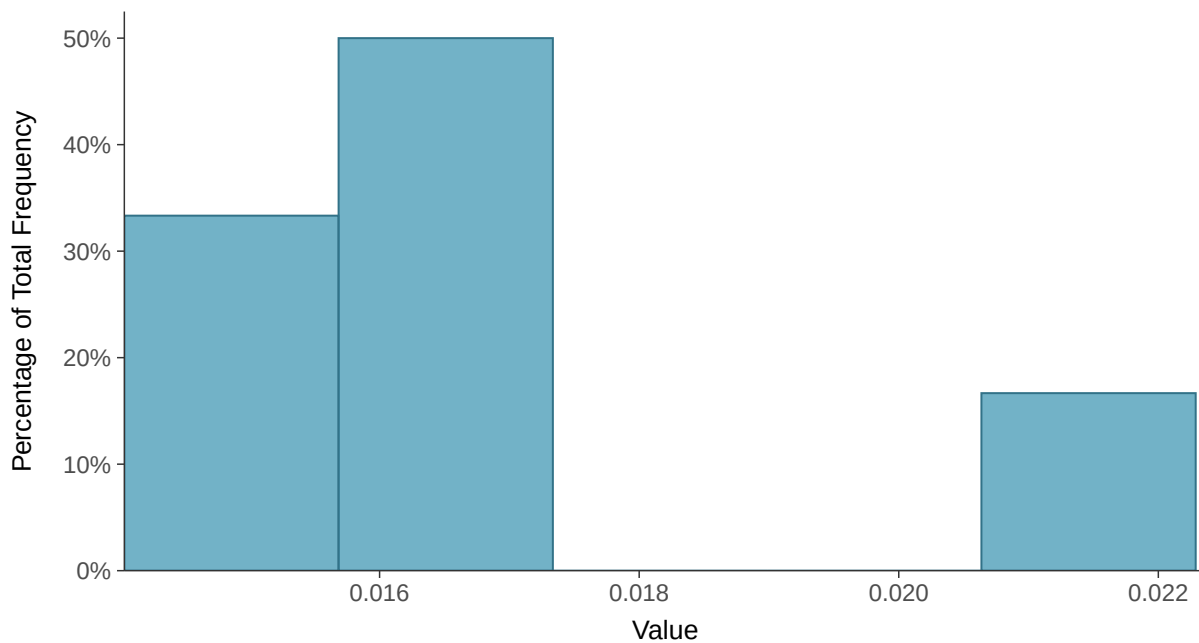
ID: 4_2_116

Scatter Plot

Molybdenum, W-14 (mg/l)

**Histogram**

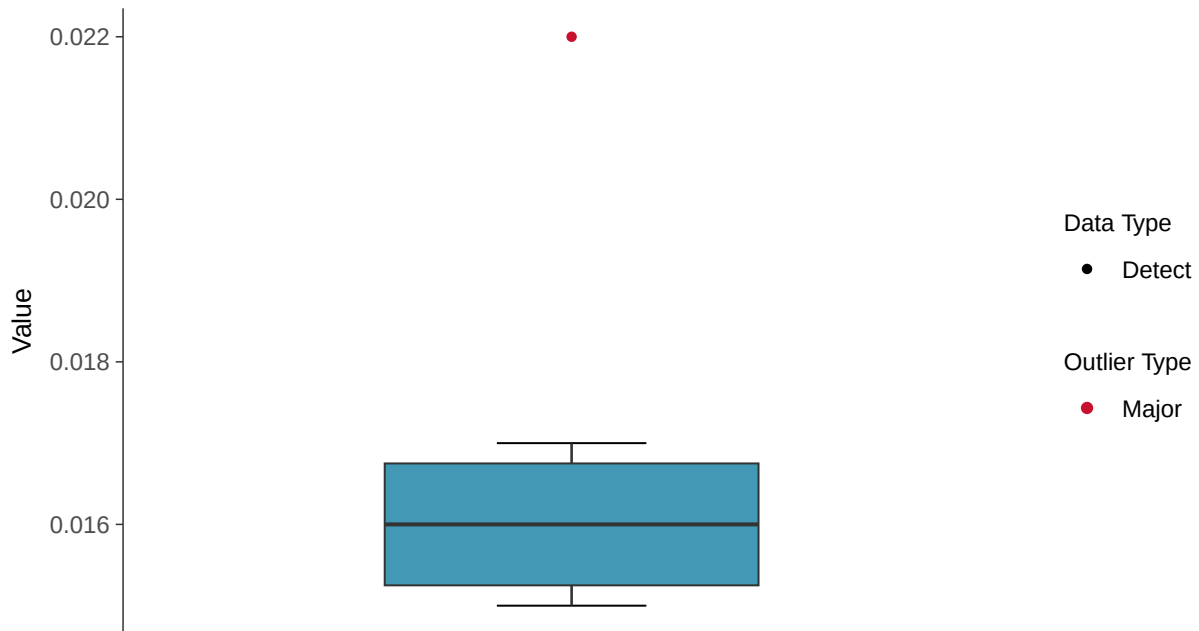
Molybdenum, W-14 (mg/l)



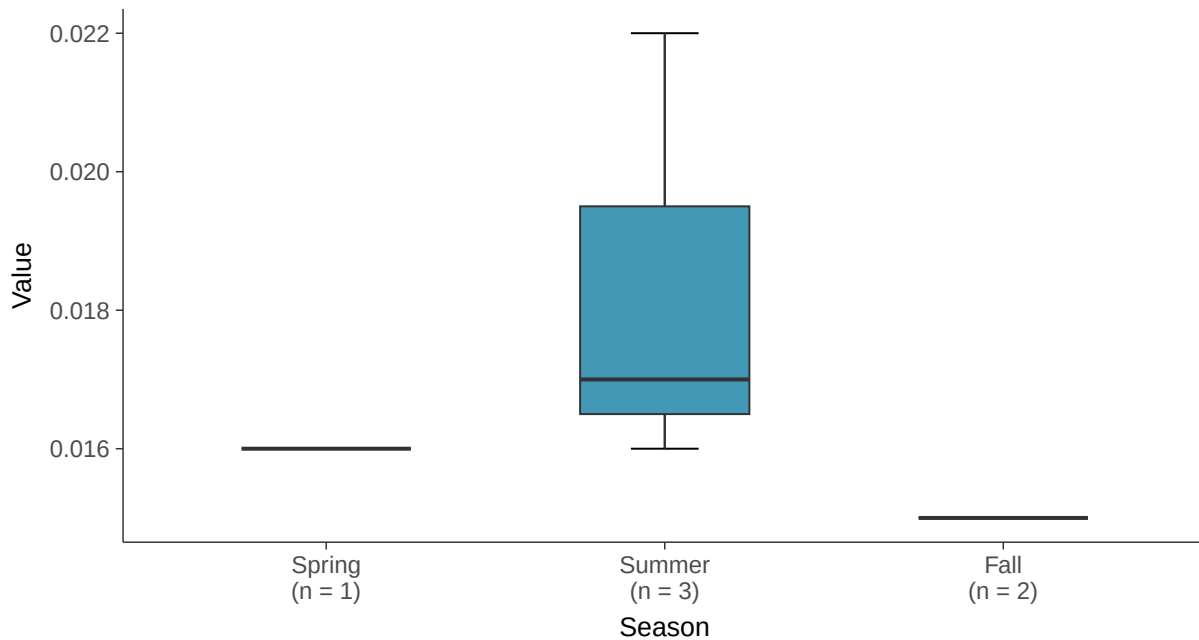
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Molybdenum, W-14 (mg/l)

**Boxplot by Season**

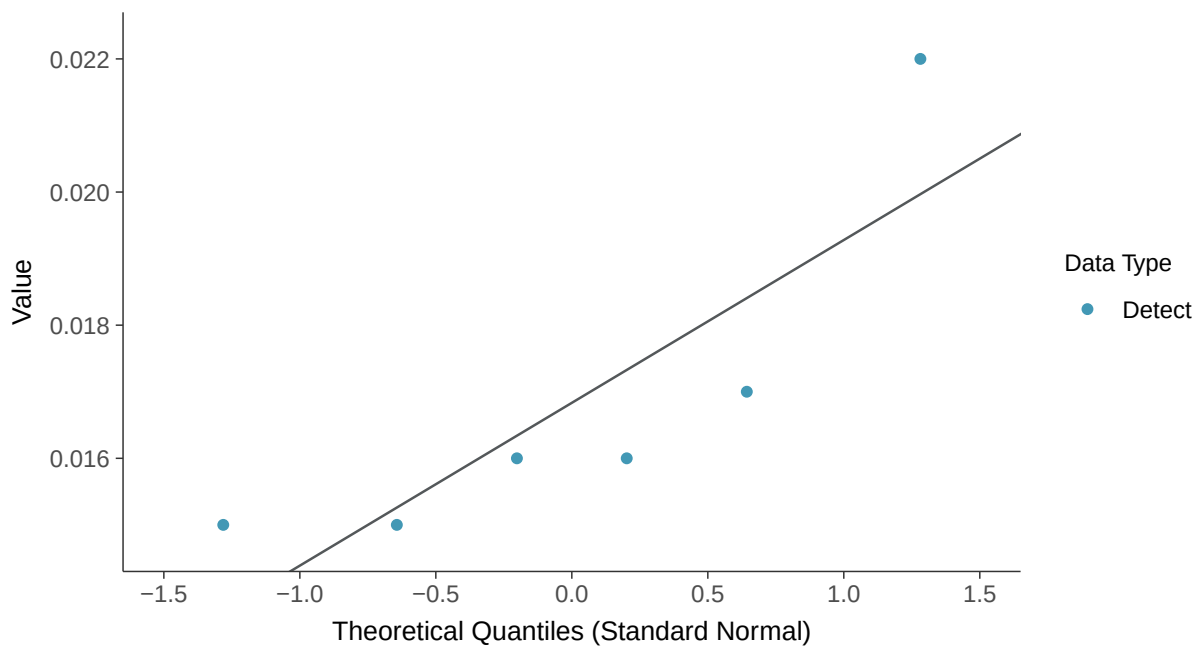
Molybdenum, W-14 (mg/l)





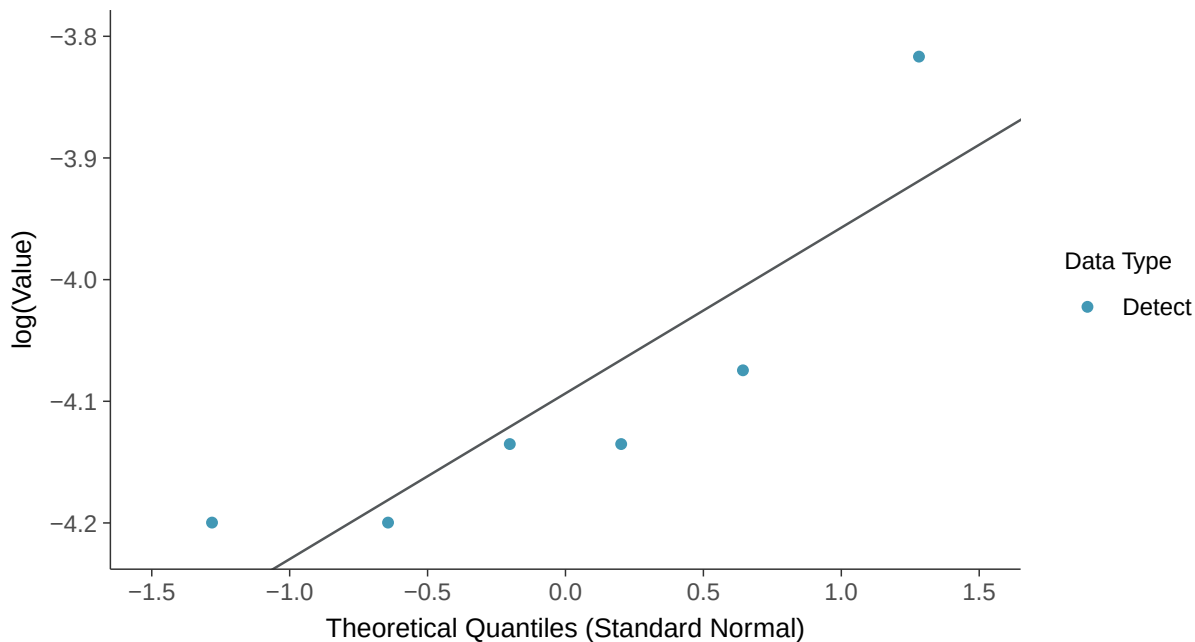
Normal Q-Q plot

Molybdenum, W-14 (mg/l)



Lognormal Q-Q plot

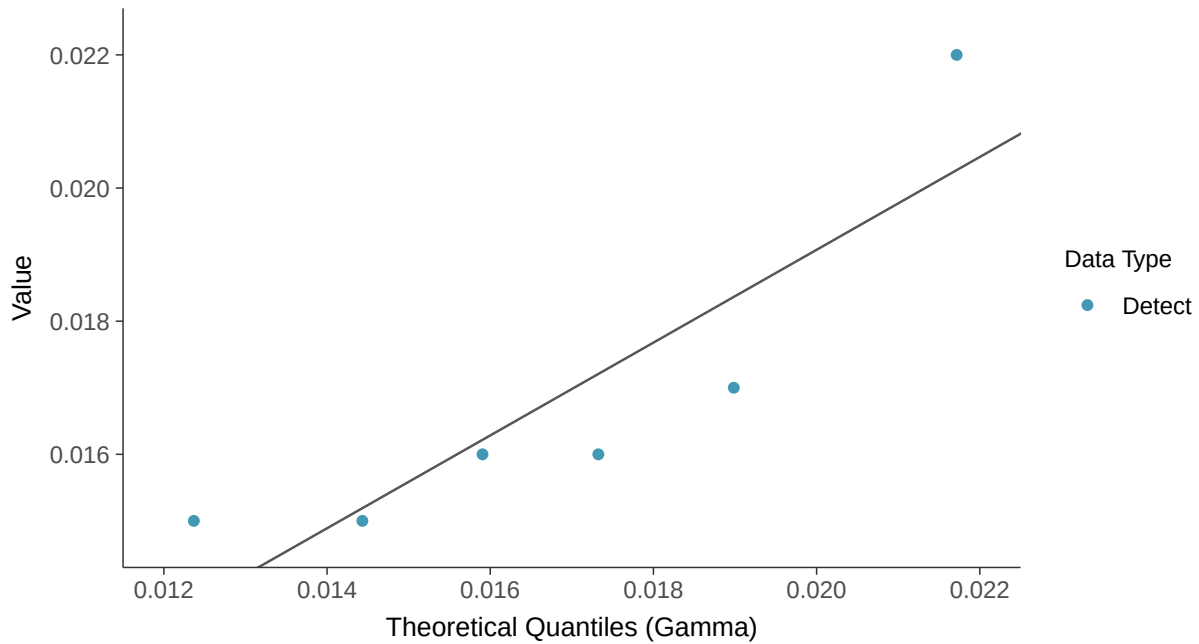
Molybdenum, W-14 (mg/l)





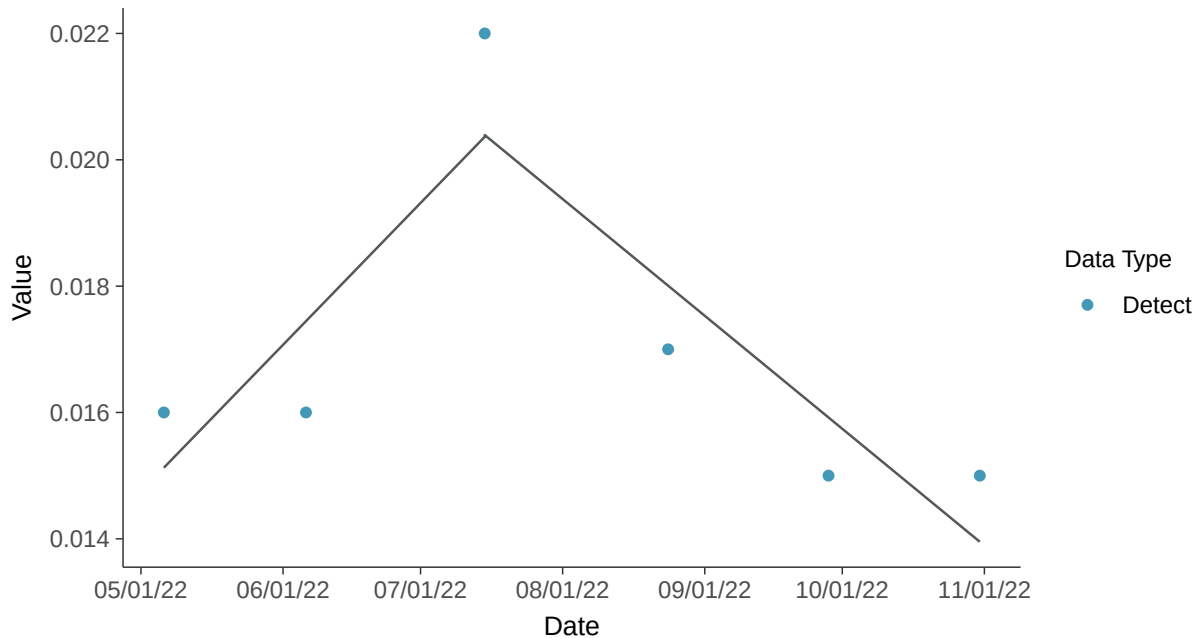
Gamma Q-Q plot

Molybdenum, W-14 (mg/l)



Trend Regression: Piecewise Linear-Linear

Molybdenum, W-14 (mg/l)

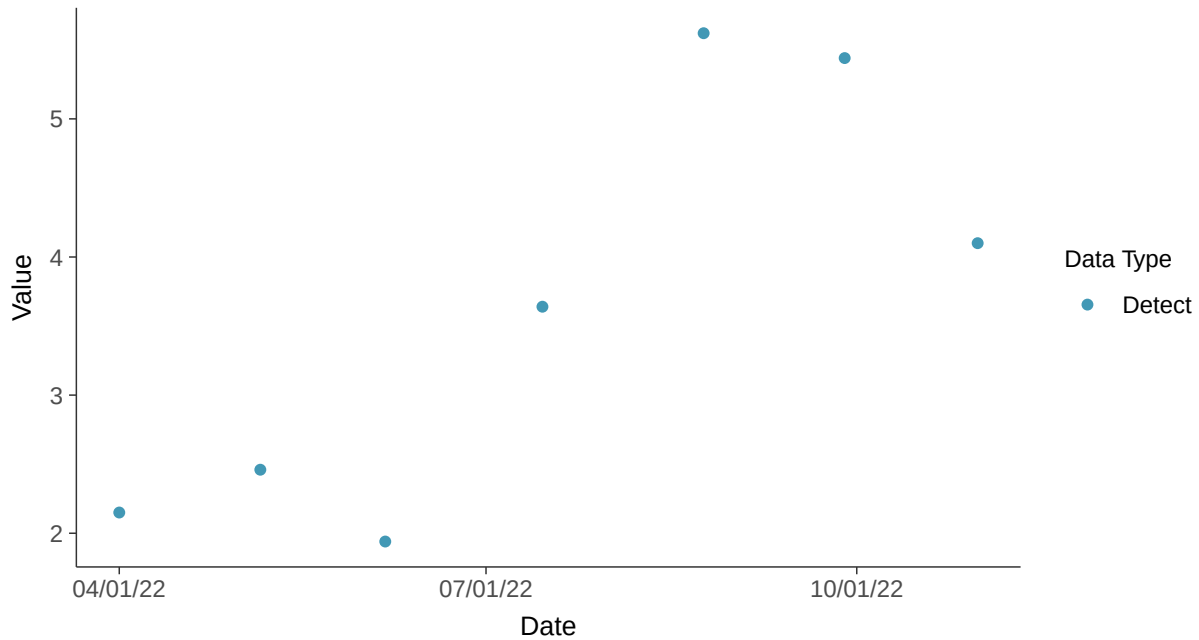


Appendix IV: Radium-226+228, W-14

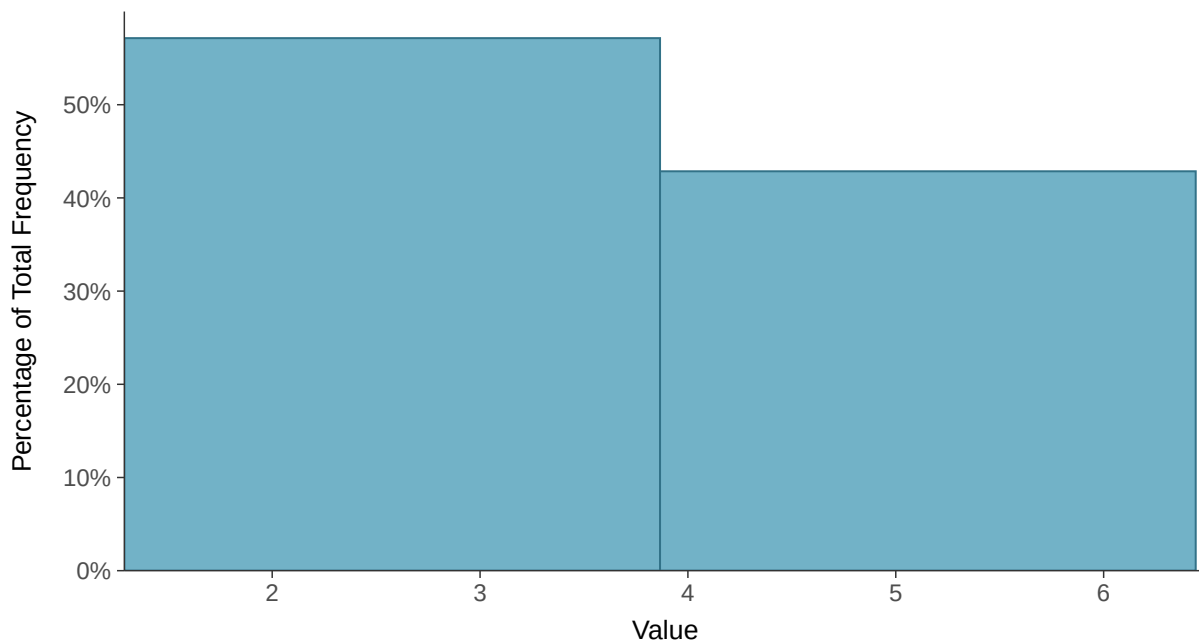
ID: 4_2_120

Scatter Plot

Radium-226+228, W-14 (pci/l)

**Histogram**

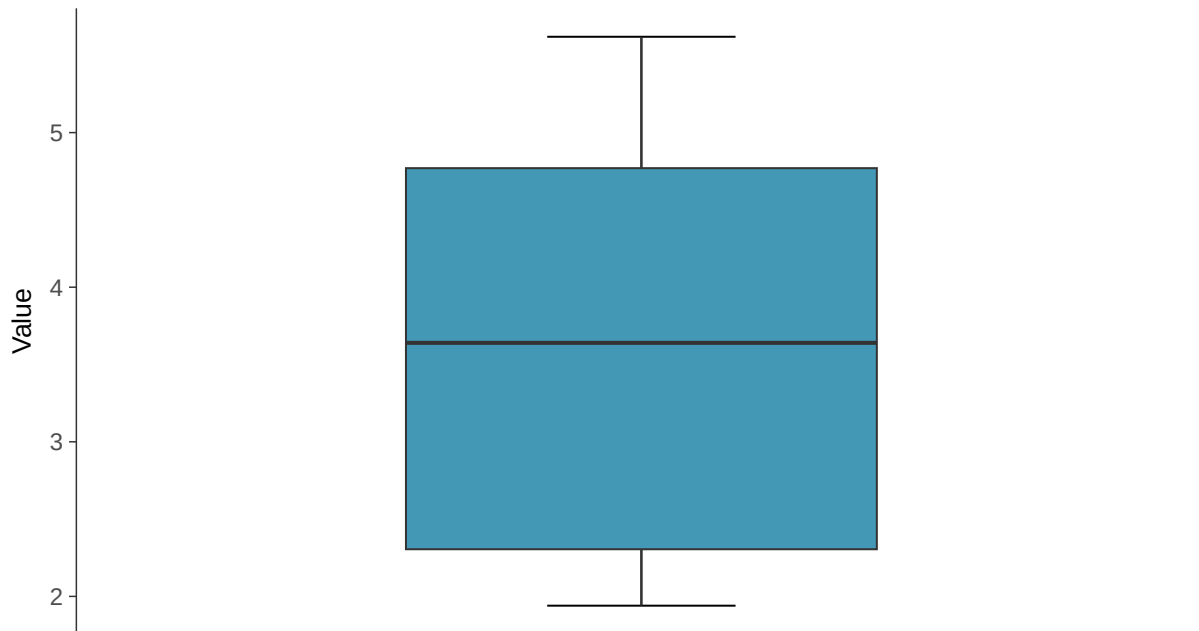
Radium-226+228, W-14 (pci/l)



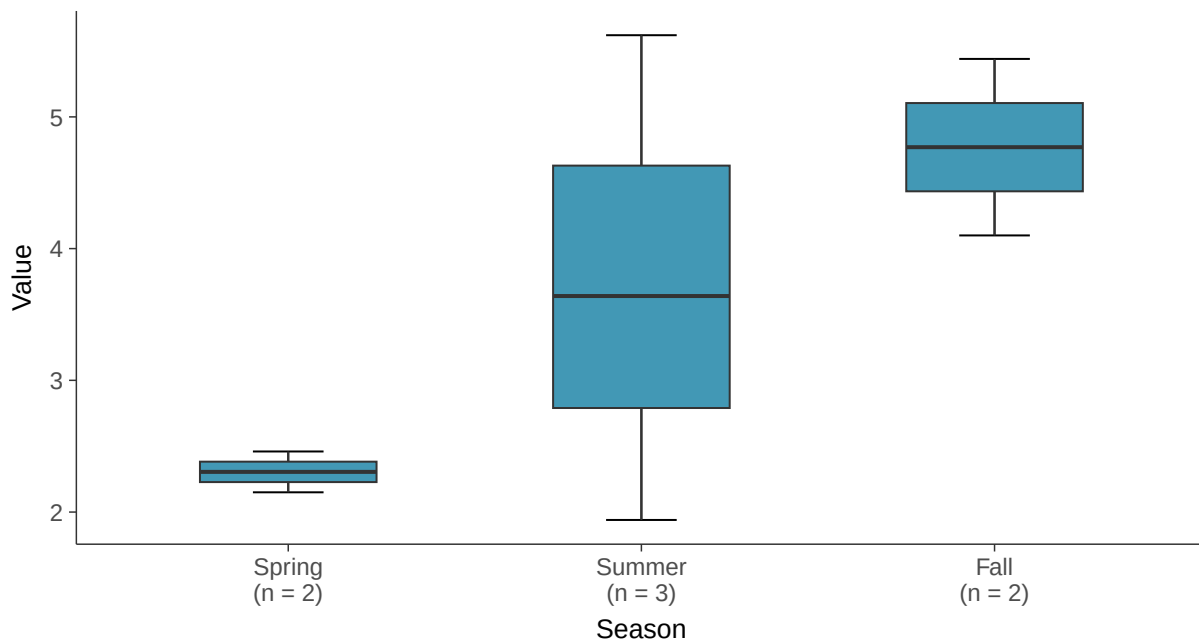
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Radium-226+228, W-14 (pci/l)

**Boxplot by Season**

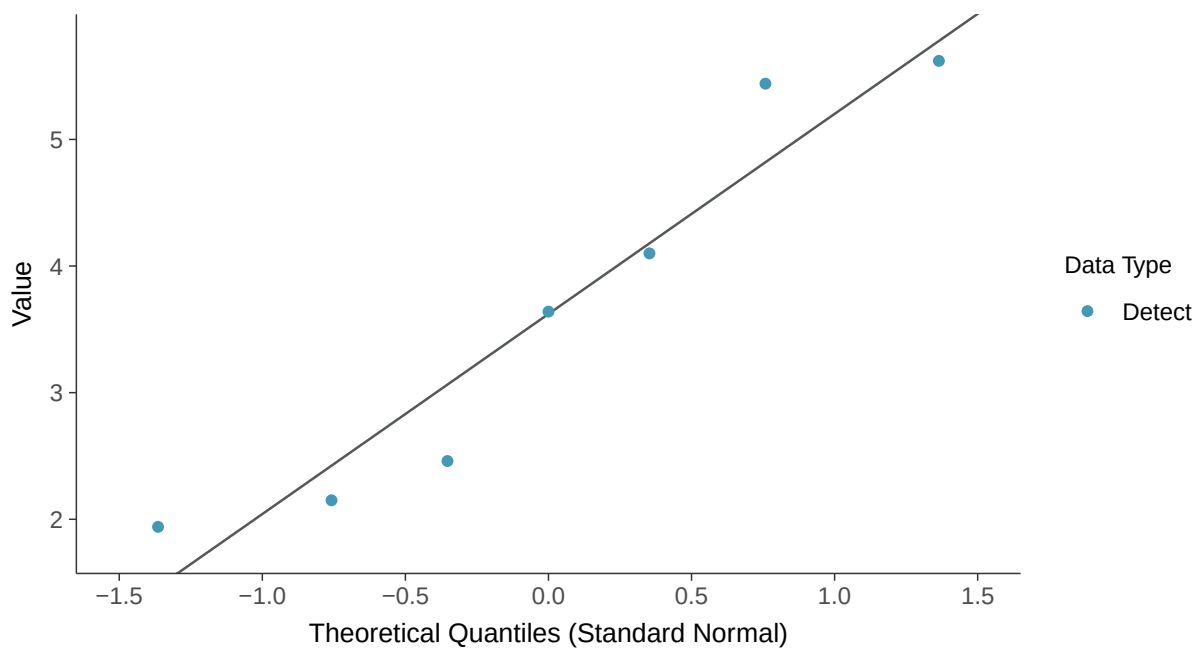
Radium-226+228, W-14 (pci/l)





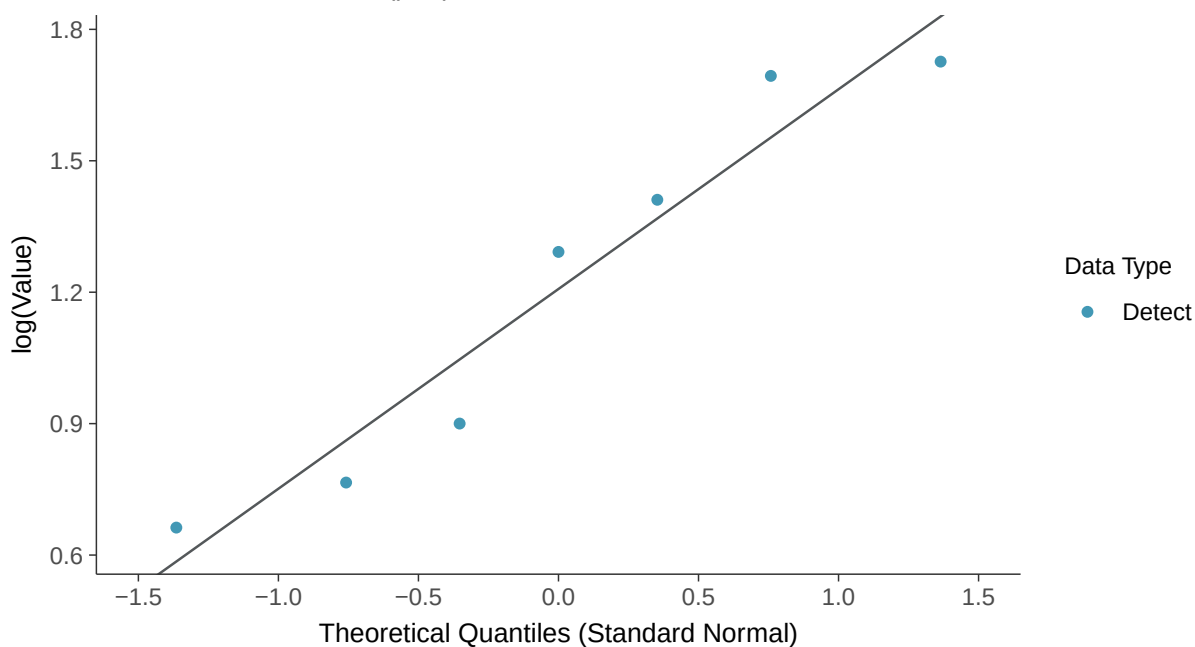
Normal Q-Q plot

Radium-226+228, W-14 (pci/l)



Lognormal Q-Q plot

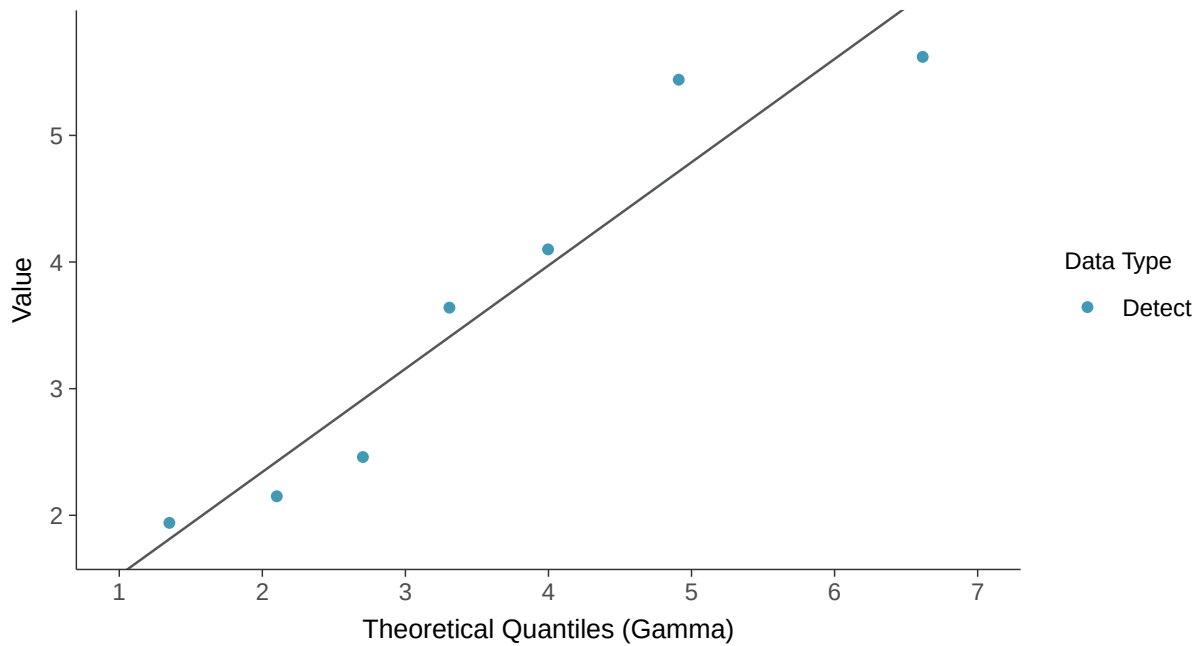
Radium-226+228, W-14 (pci/l)





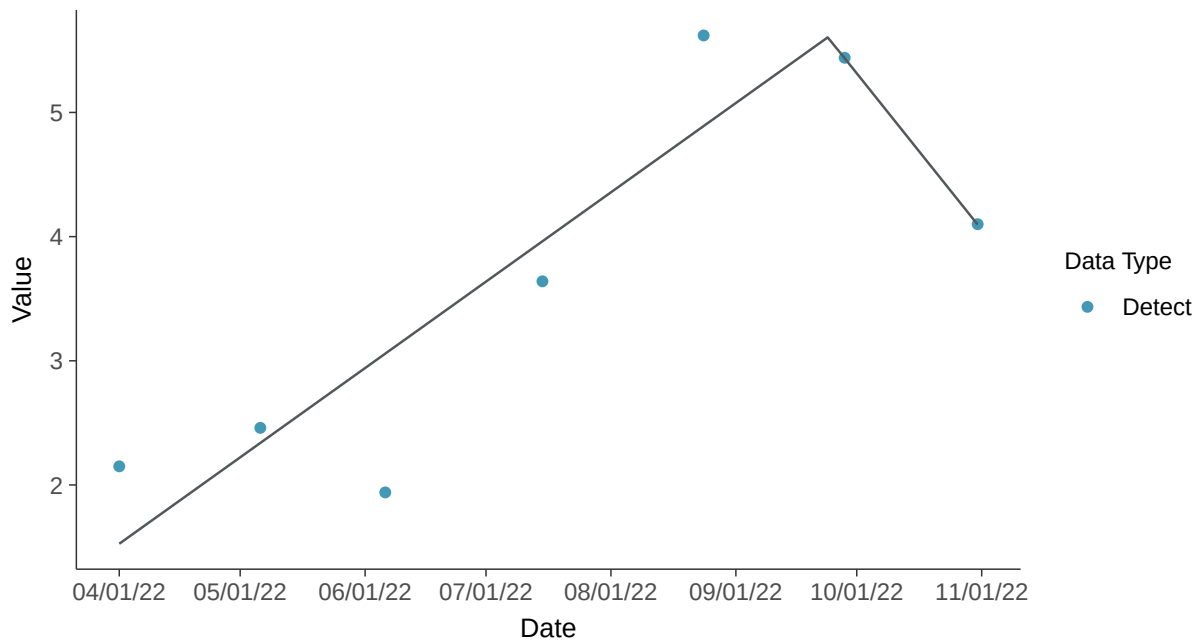
Gamma Q-Q plot

Radium-226+228, W-14 (pci/l)



Trend Regression: Piecewise Linear-Linear

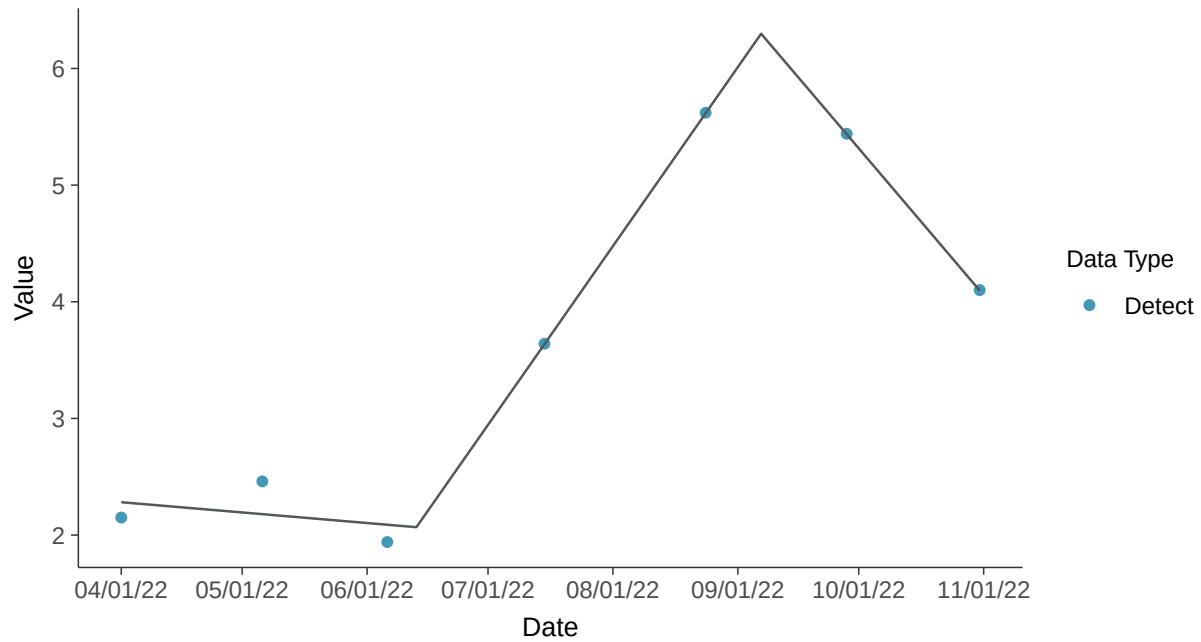
Radium-226+228, W-14 (pci/l)



Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Trend Regression: Piecewise Linear-Linear-Linear

Radium-226+228, W-14 (pci/l)

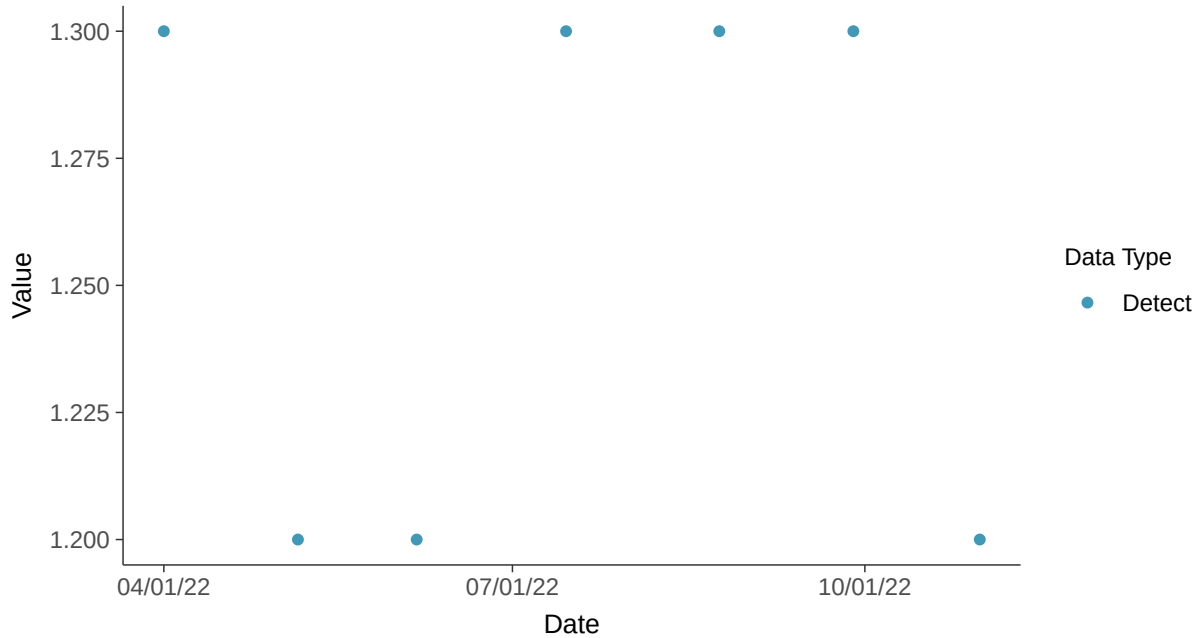


Appendix IV: Selenium, W-14

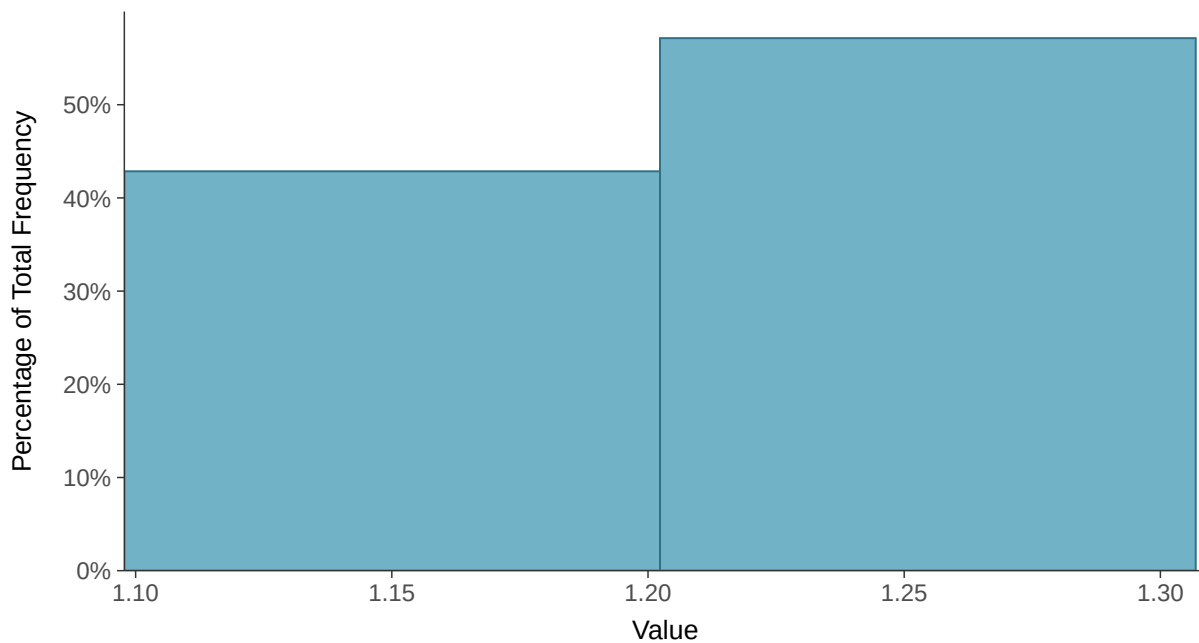
ID: 4_2_122

Scatter Plot

Selenium, W-14 (mg/l)

**Histogram**

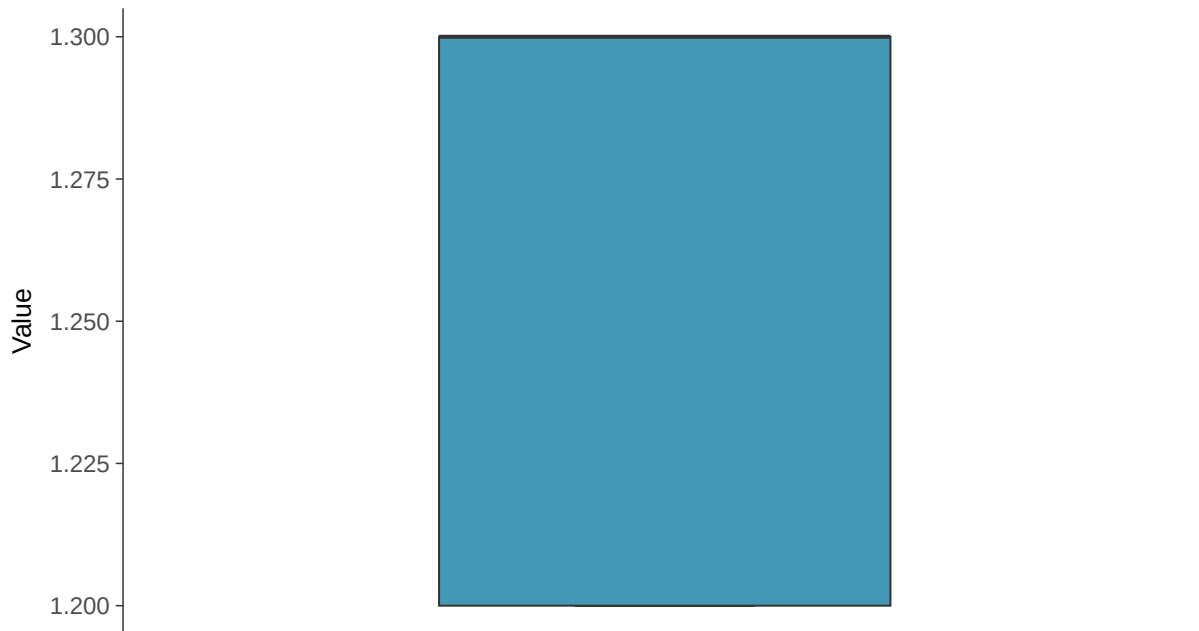
Selenium, W-14 (mg/l)



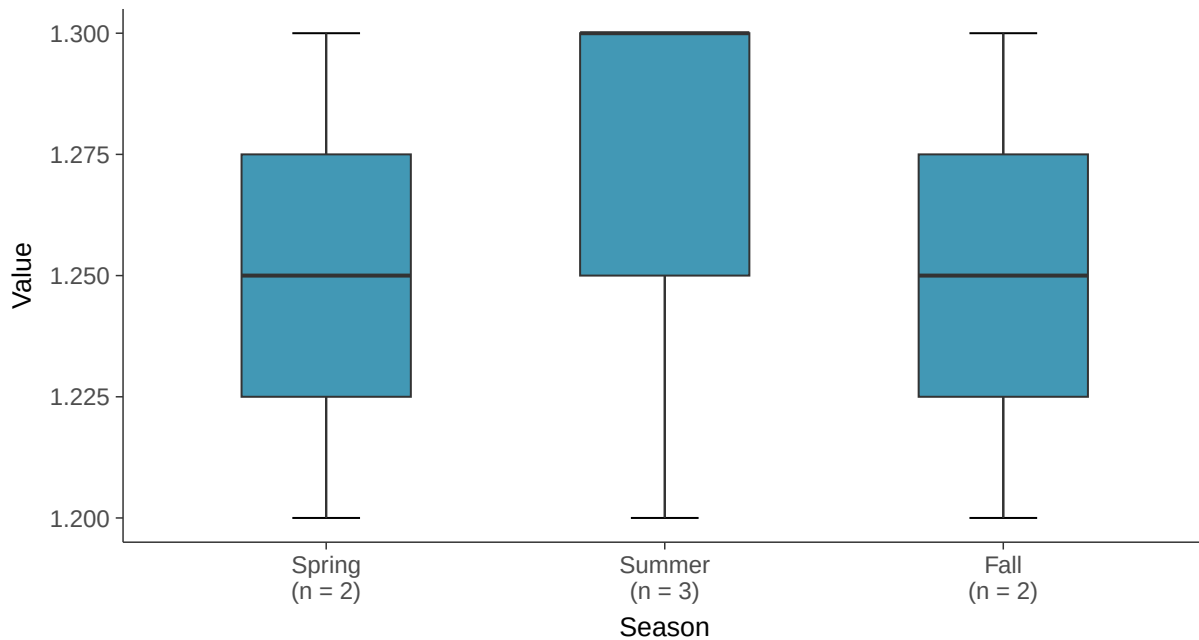
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Selenium, W-14 (mg/l)

**Boxplot by Season**

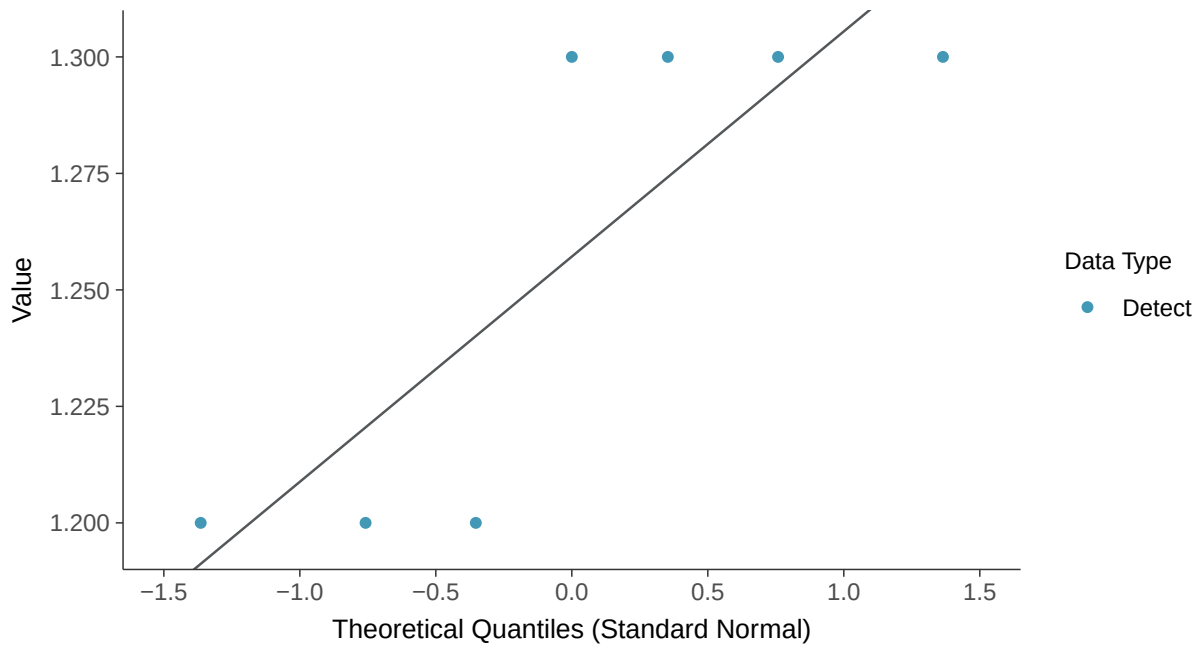
Selenium, W-14 (mg/l)



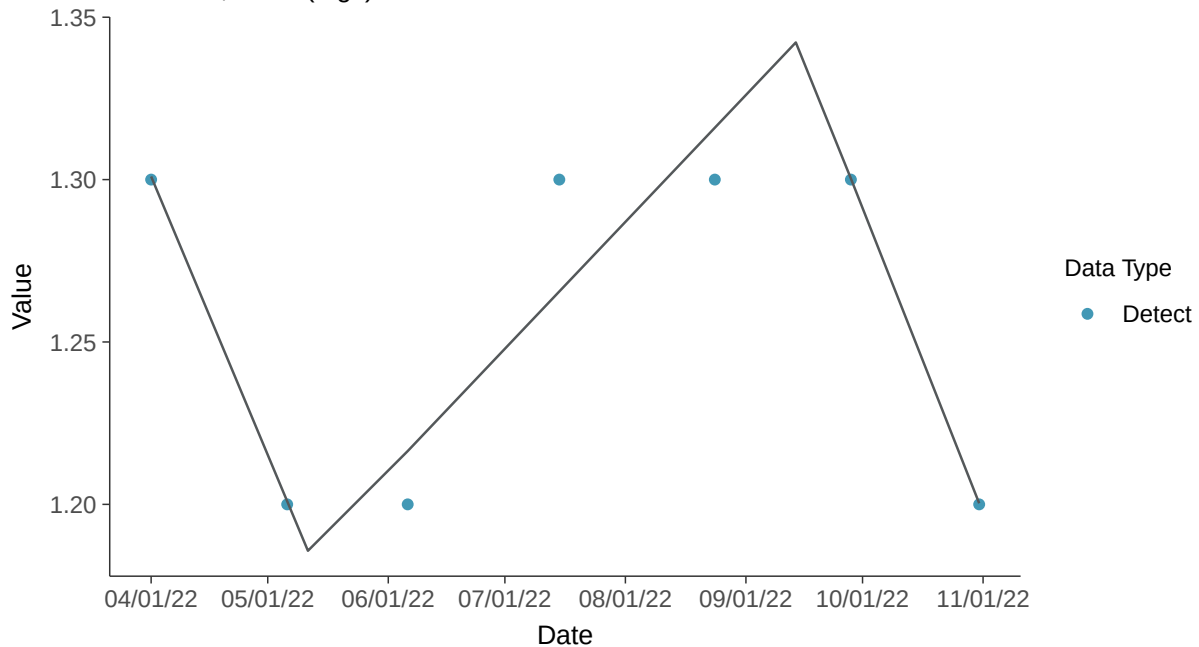
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Normal Q-Q plot

Selenium, W-14 (mg/l)

**Trend Regression: Piecewise Linear-Linear-Linear**

Selenium, W-14 (mg/l)

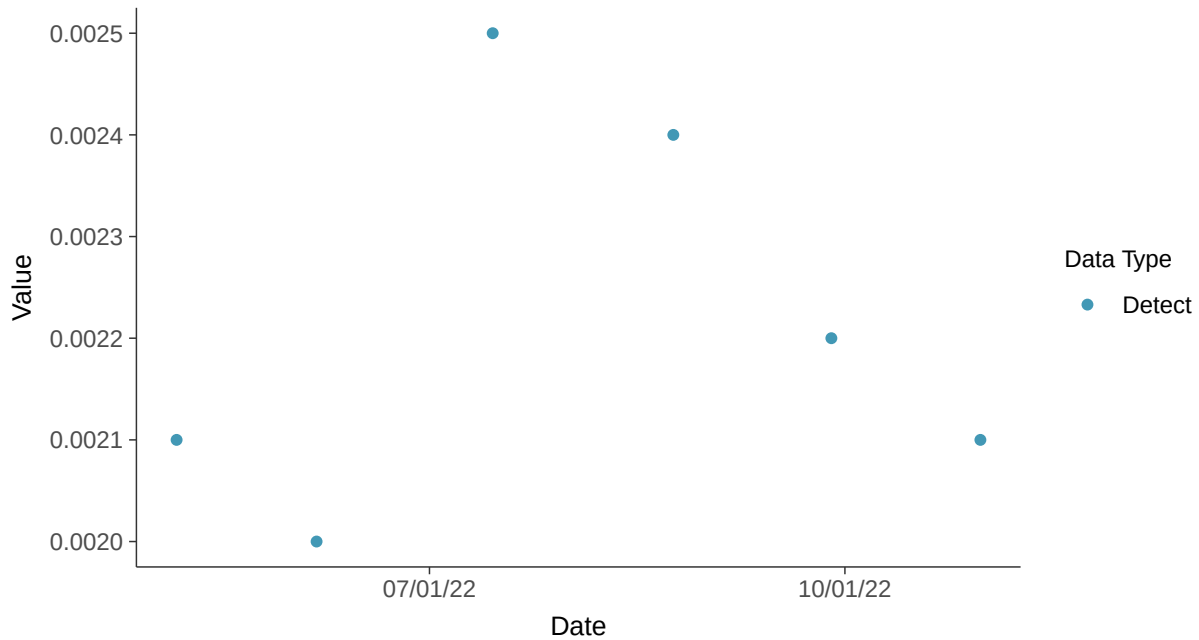


Appendix IV: Thallium, W-14

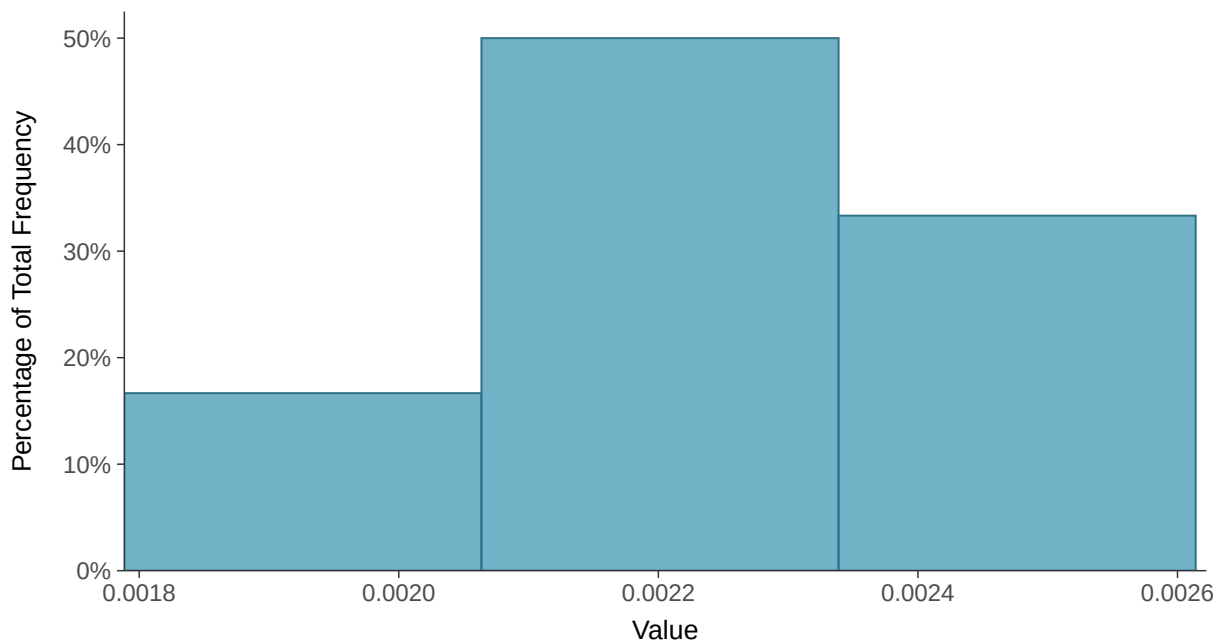
ID: 4_2_126

Scatter Plot

Thallium, W-14 (mg/l)

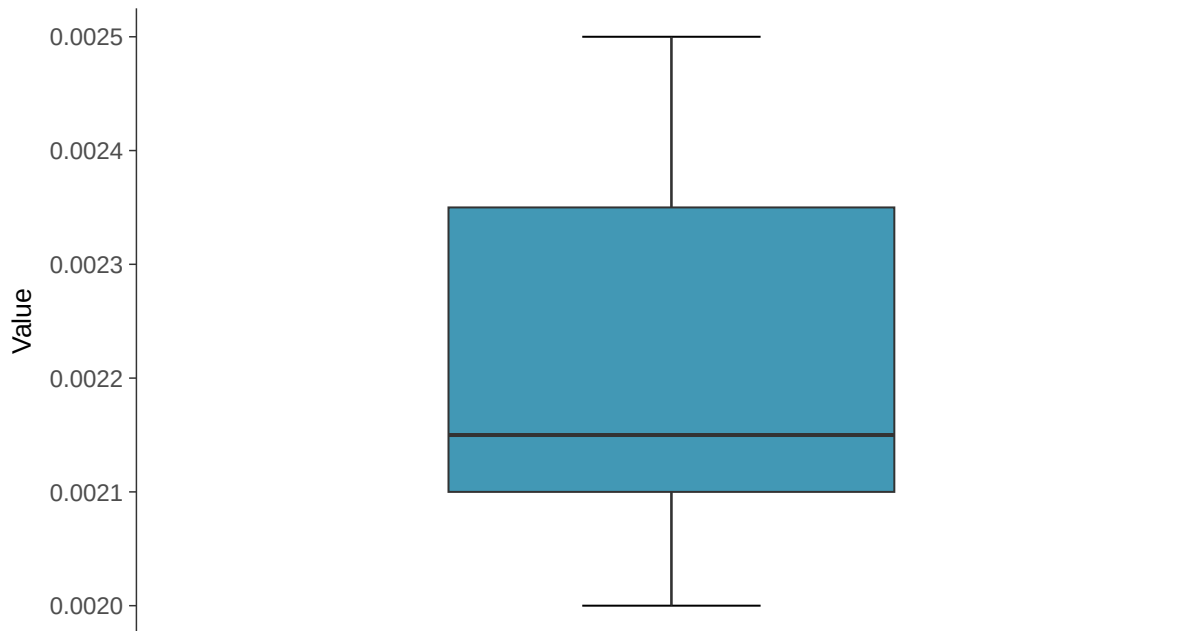
**Histogram**

Thallium, W-14 (mg/l)



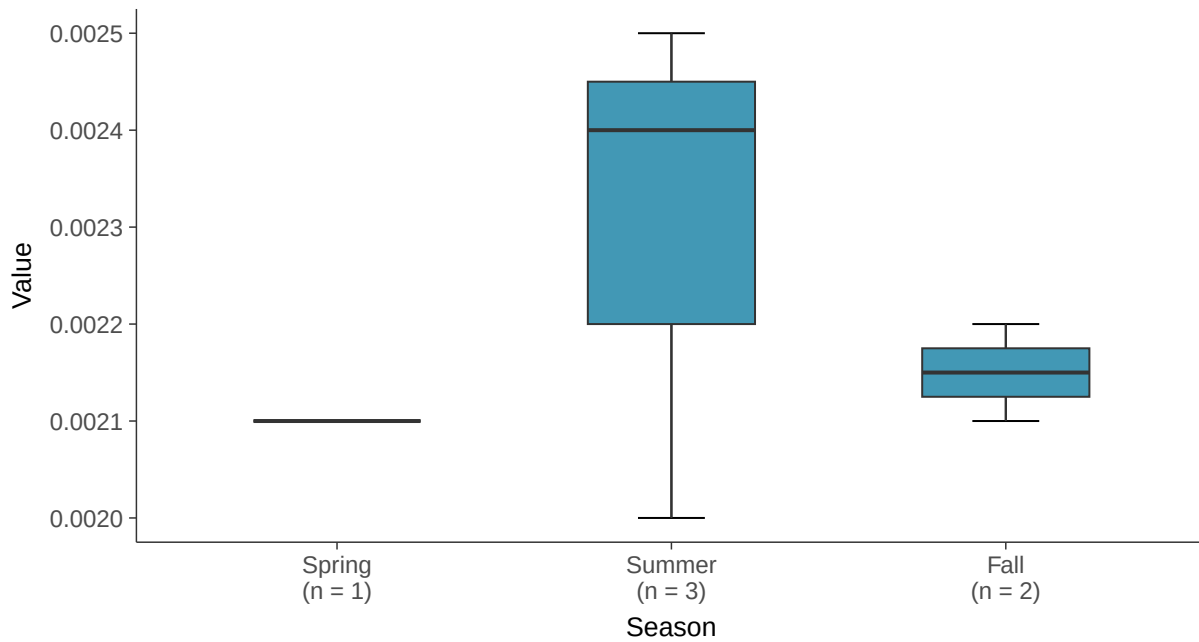
Boxplot

Thallium, W-14 (mg/l)



Boxplot by Season

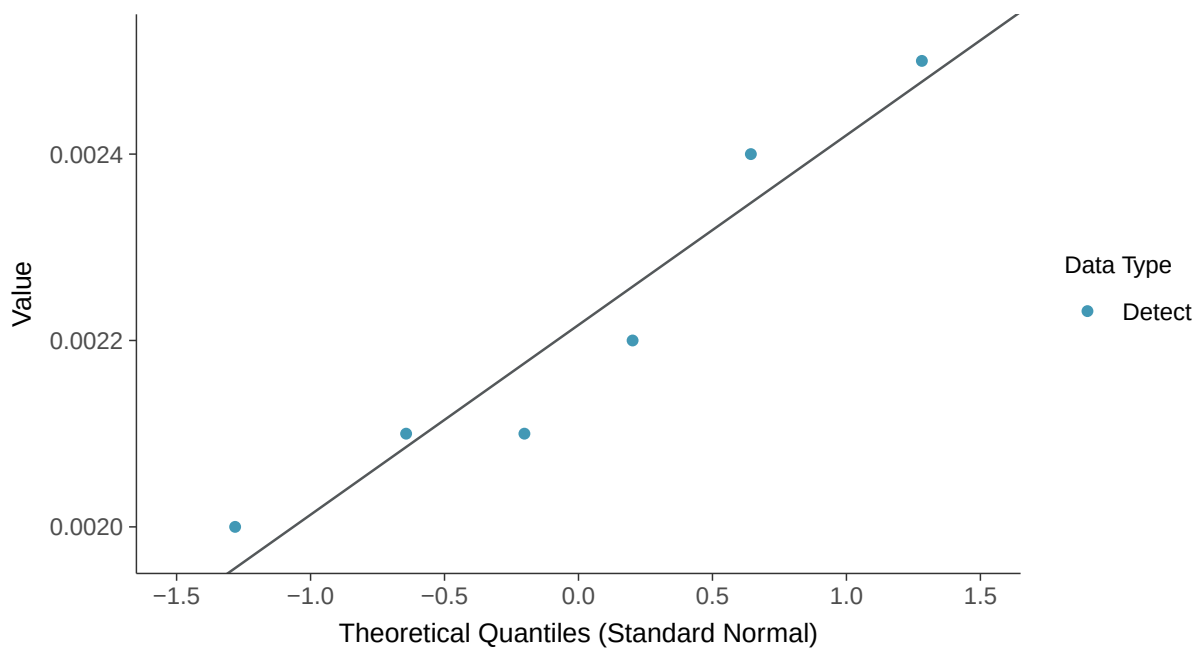
Thallium, W-14 (mg/l)





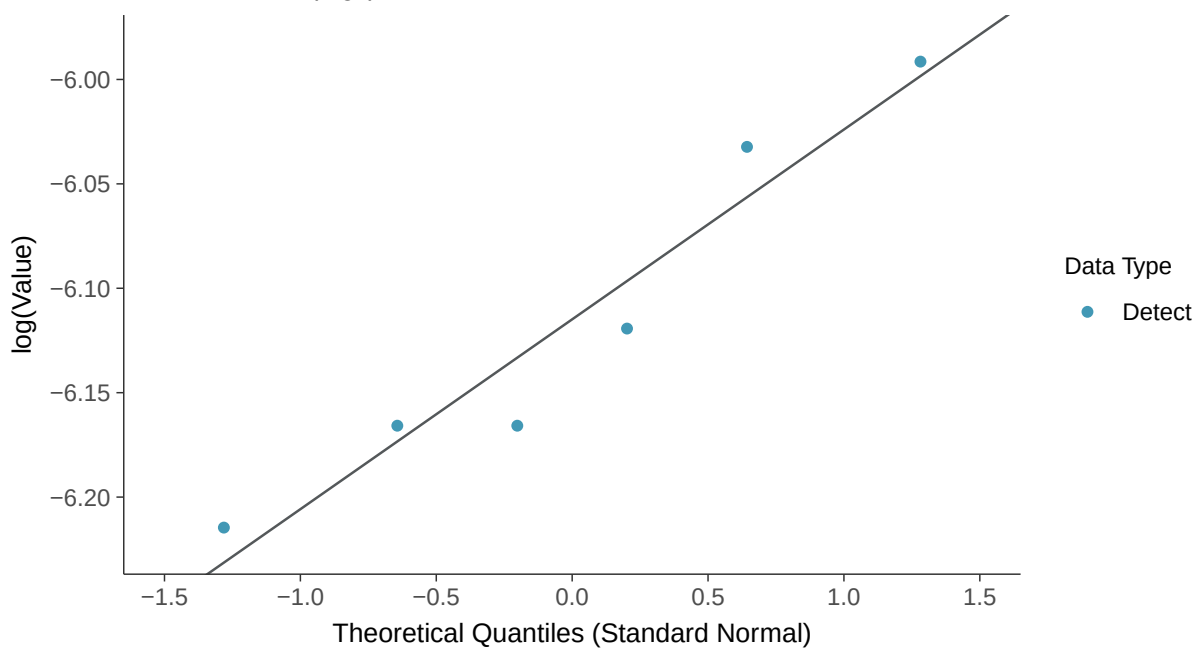
Normal Q-Q plot

Thallium, W-14 (mg/l)



Lognormal Q-Q plot

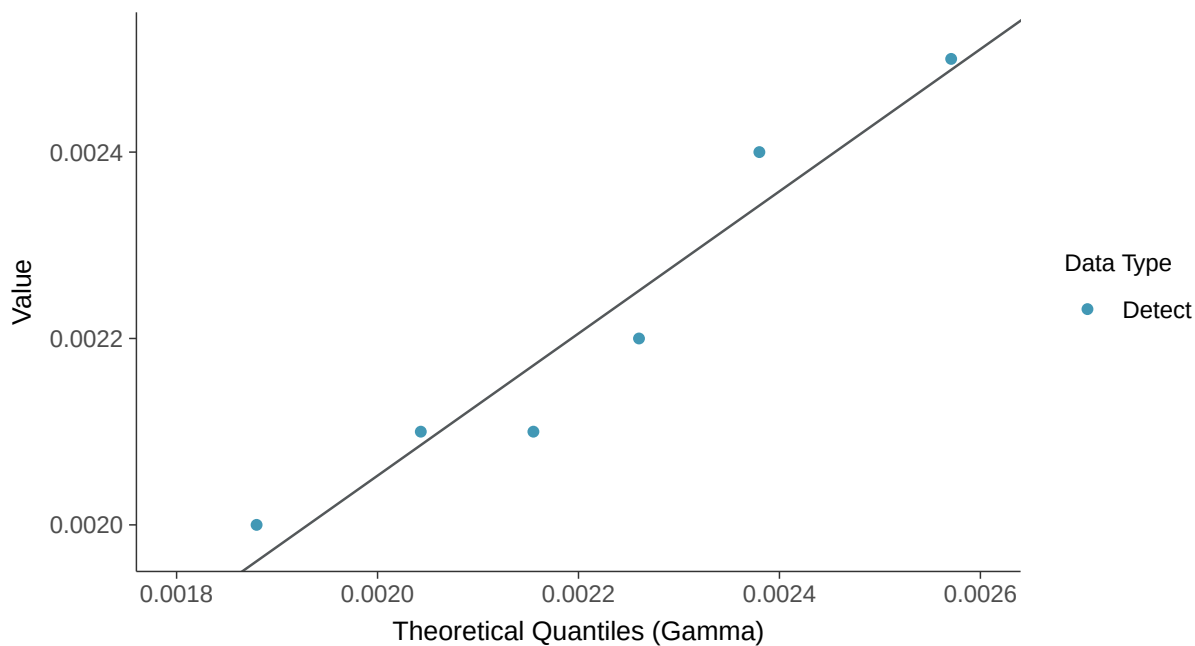
Thallium, W-14 (mg/l)





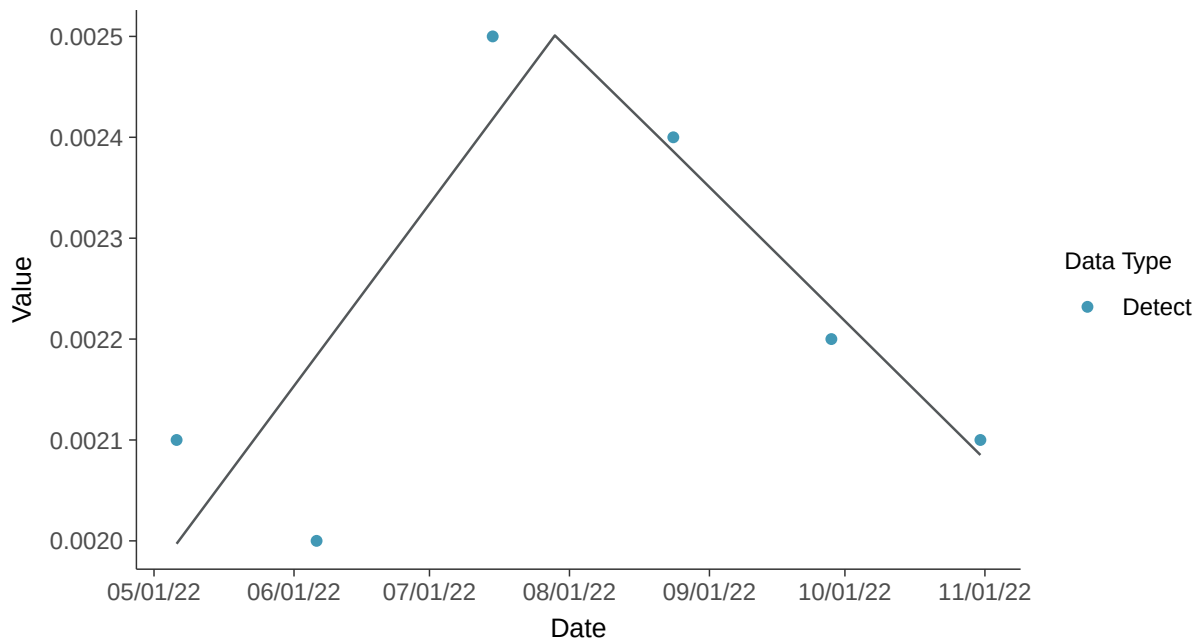
Gamma Q-Q plot

Thallium, W-14 (mg/l)



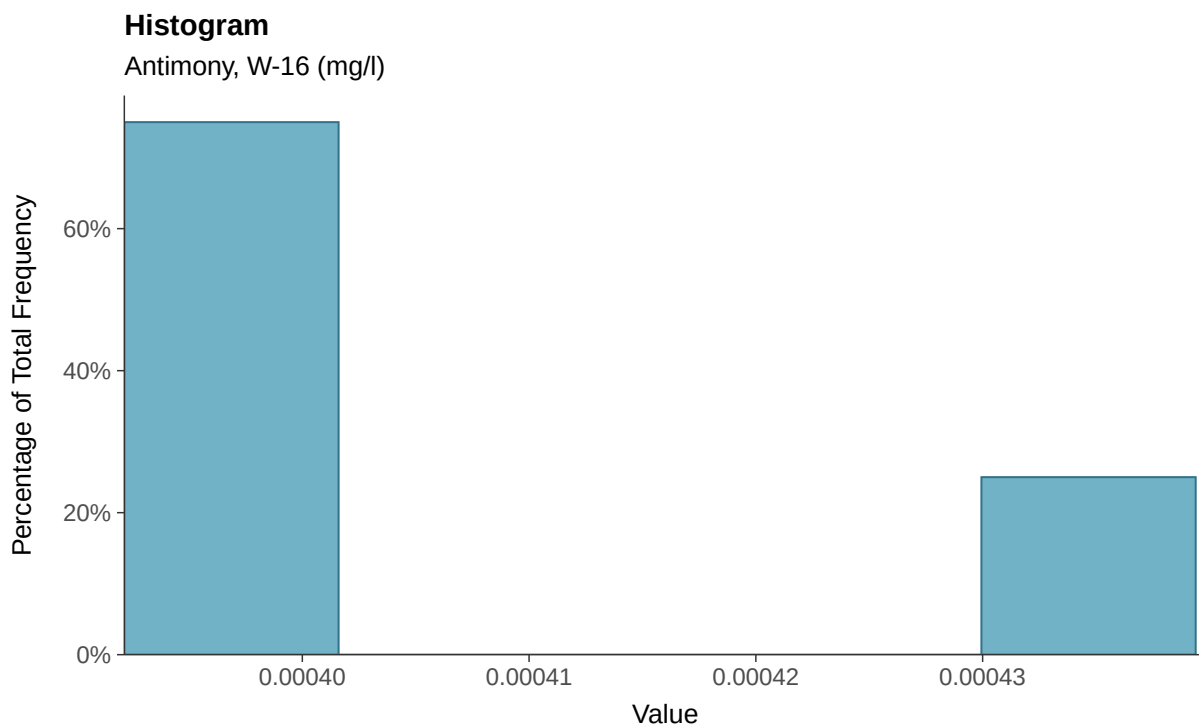
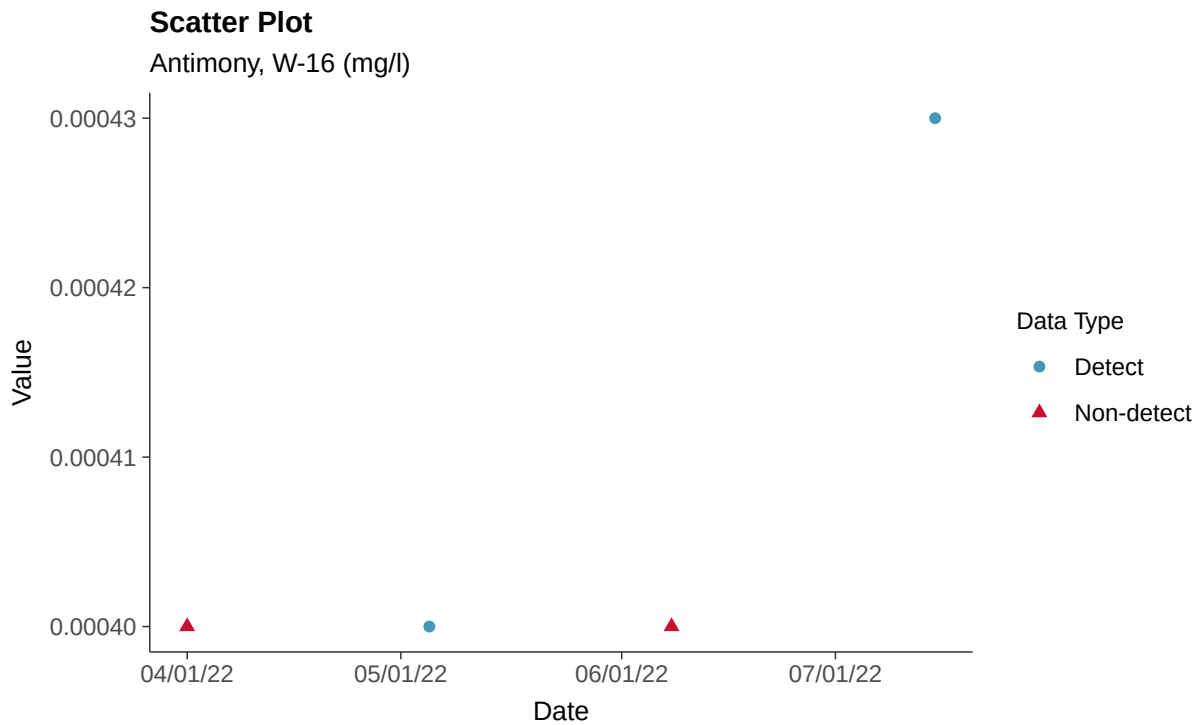
Trend Regression: Piecewise Linear-Linear

Thallium, W-14 (mg/l)



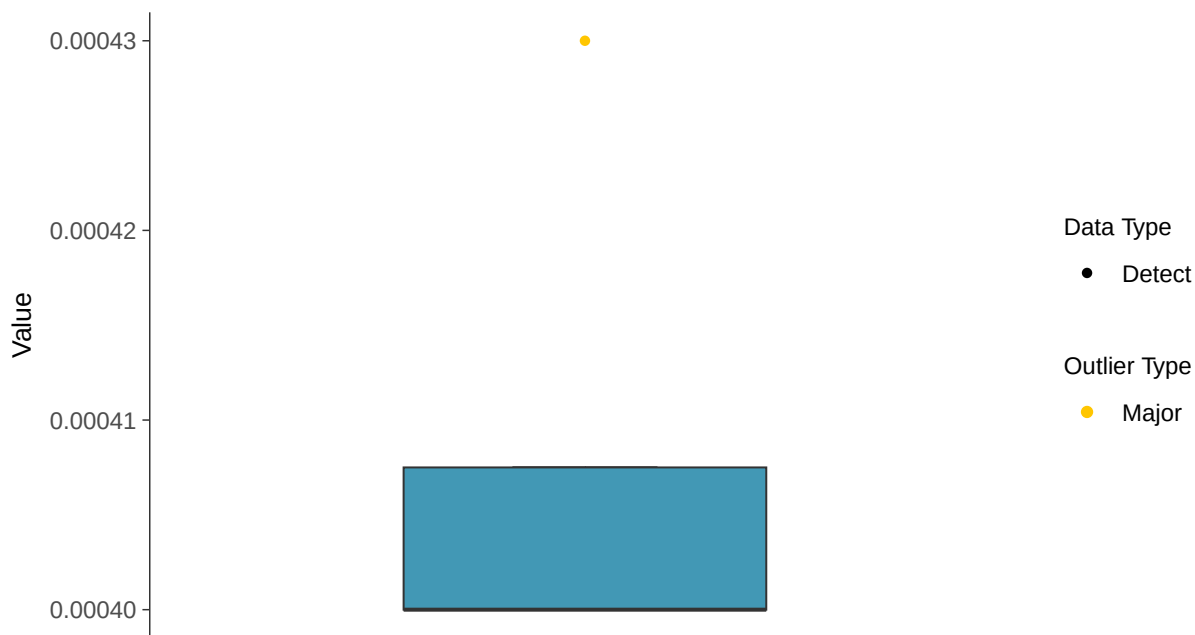
Appendix IV: Antimony, W-16

ID: 5_2_101



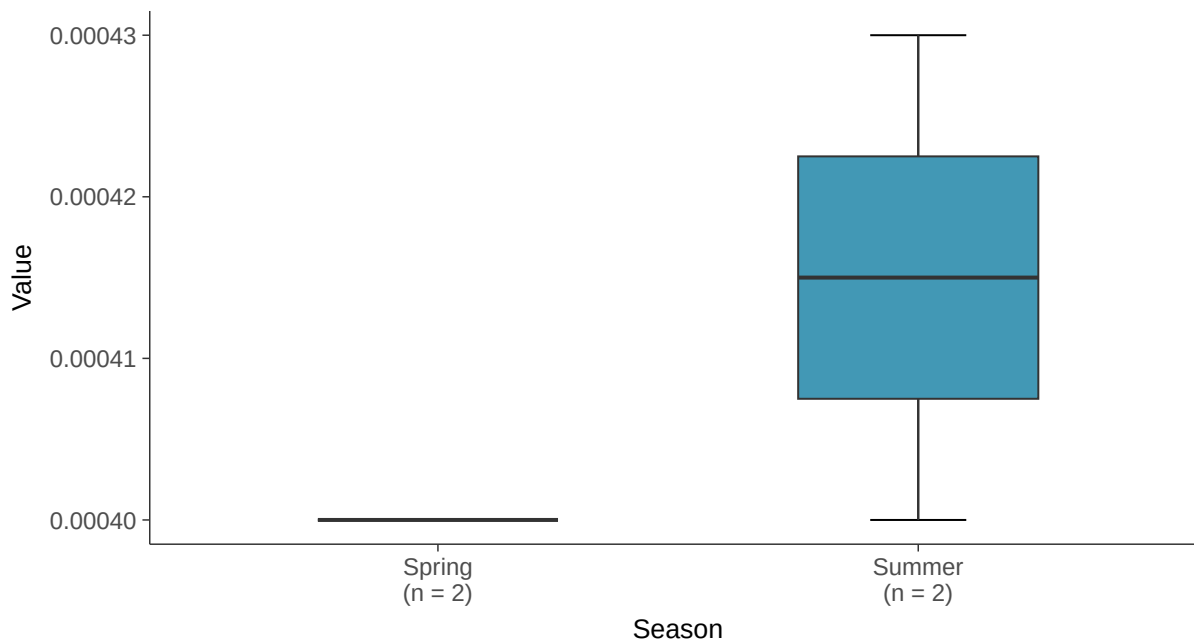
Boxplot

Antimony, W-16 (mg/l)



Boxplot by Season

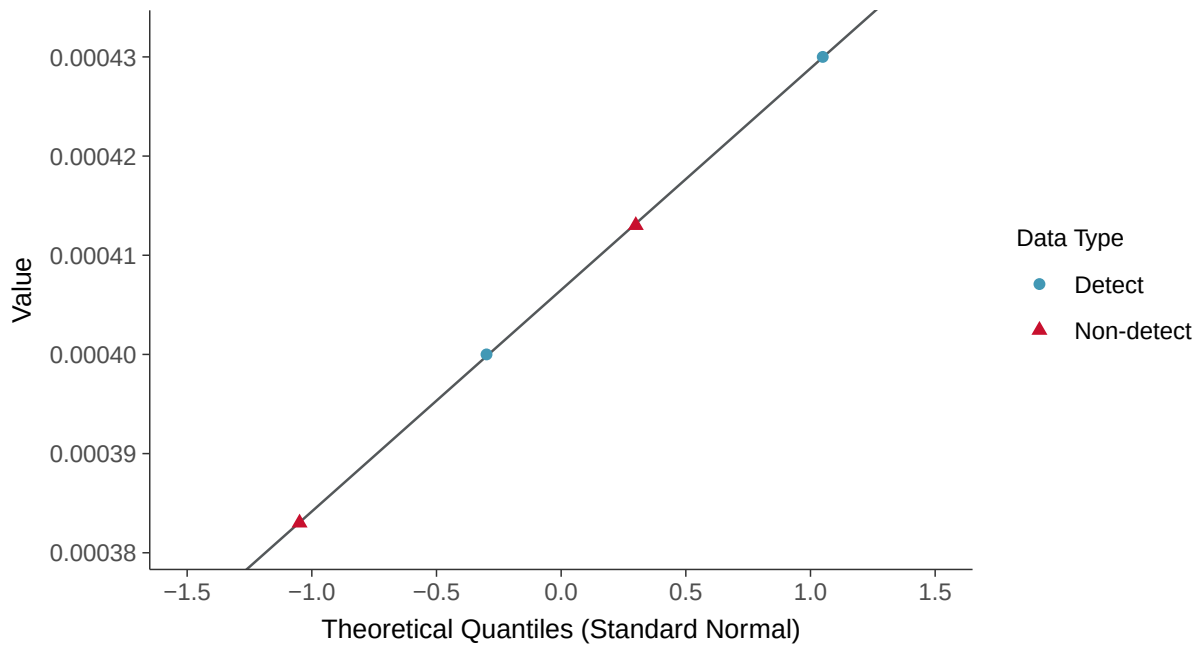
Antimony, W-16 (mg/l)



Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

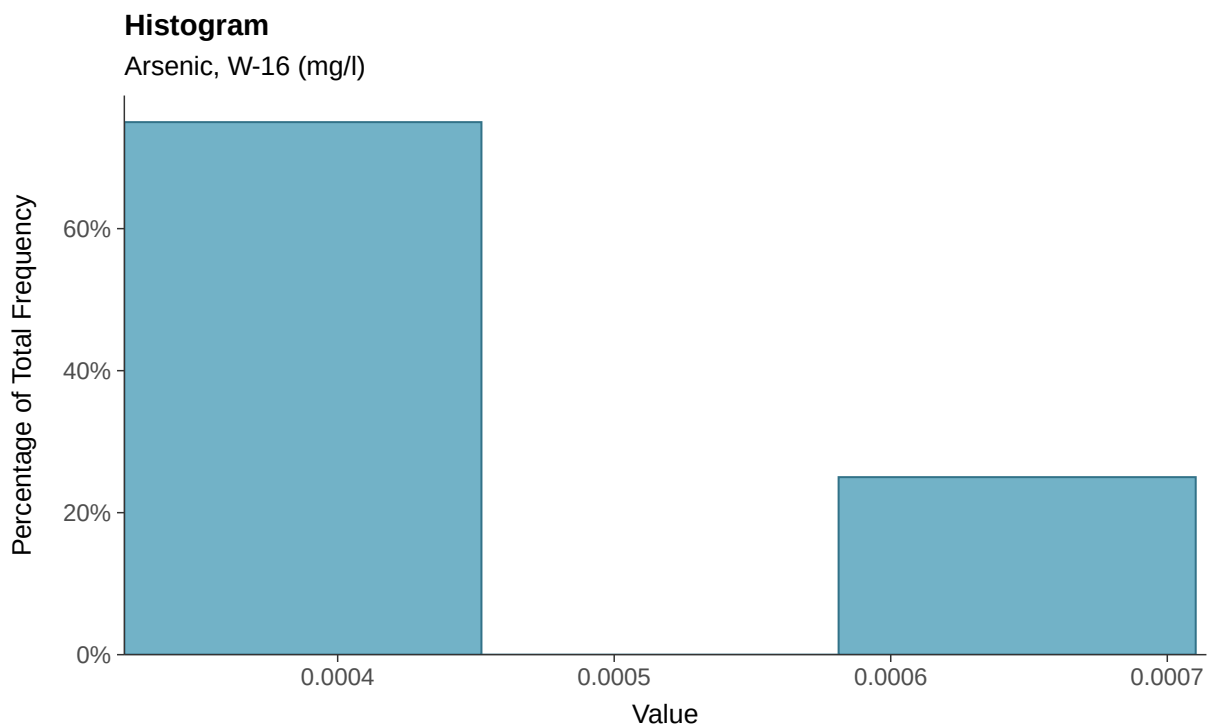
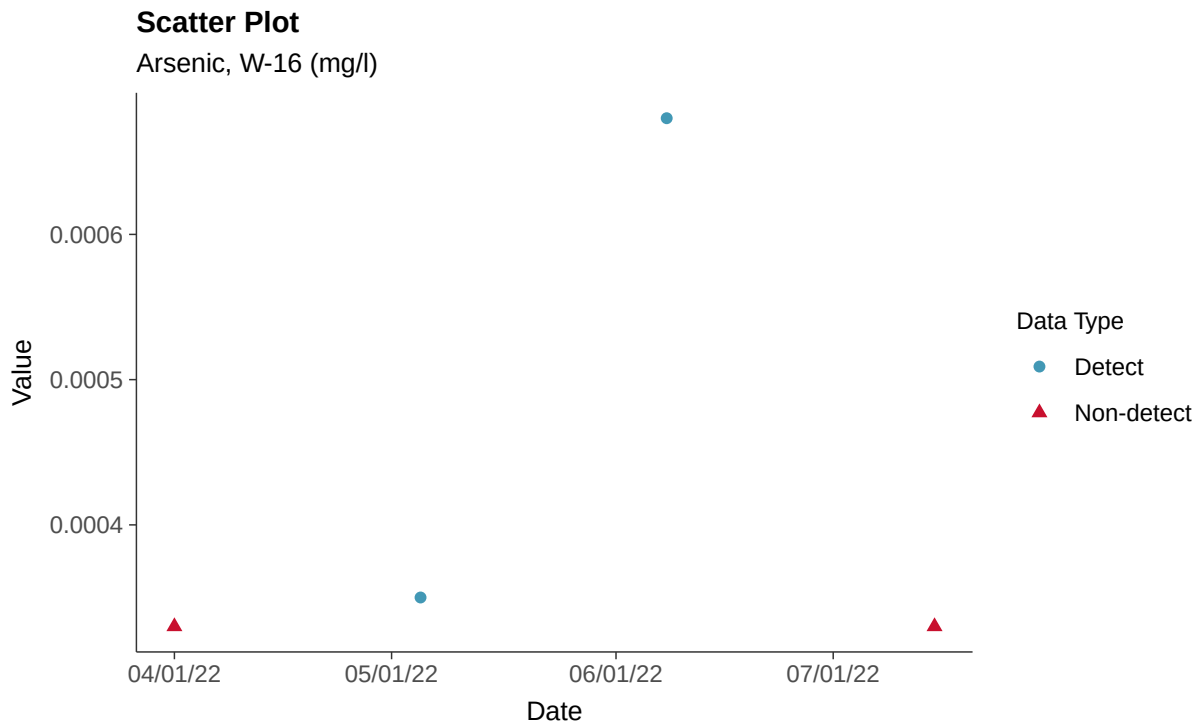
Normal Q-Q plot using ROS Imputed Estimates

Antimony, W-16 (mg/l)



Appendix IV: Arsenic, W-16

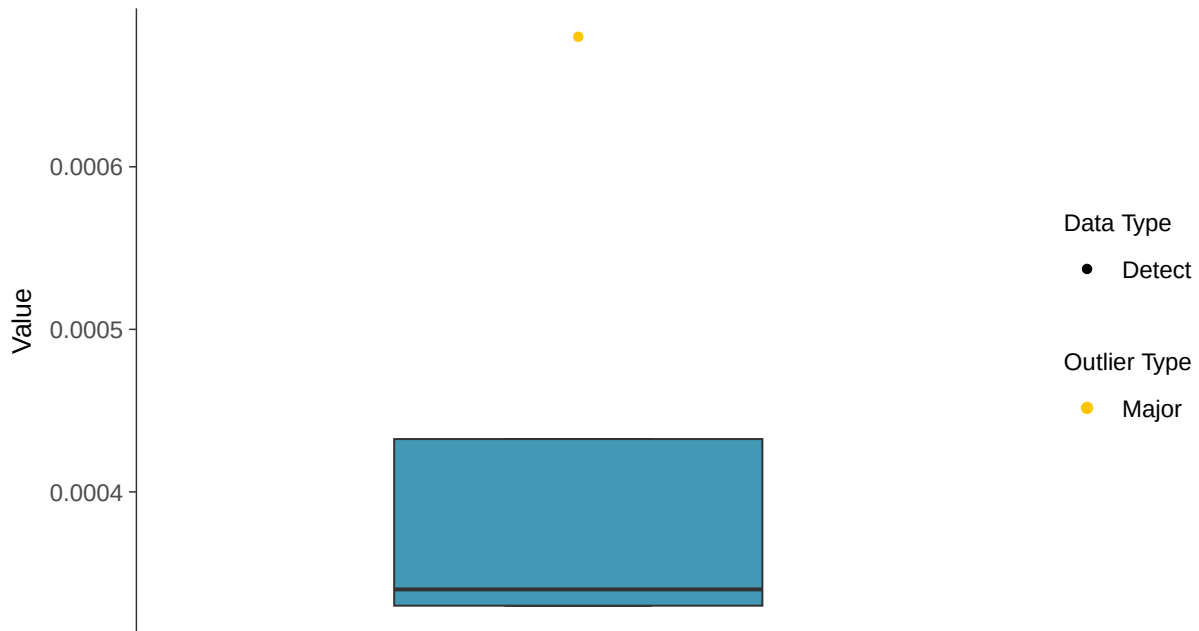
ID: 5_2_102





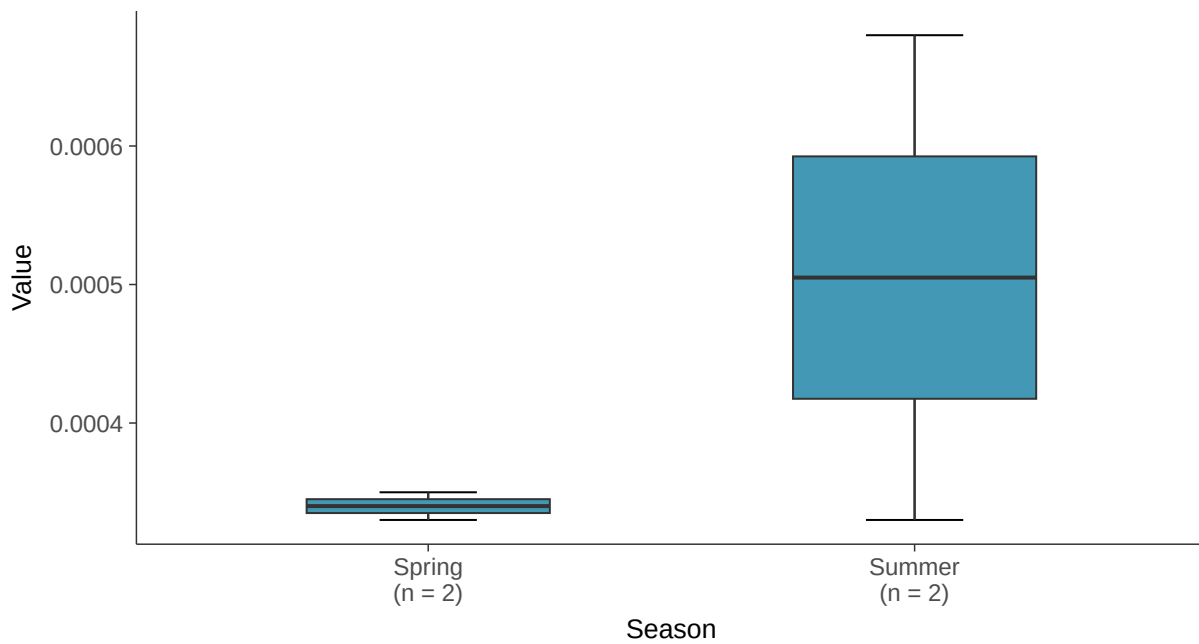
Boxplot

Arsenic, W-16 (mg/l)



Boxplot by Season

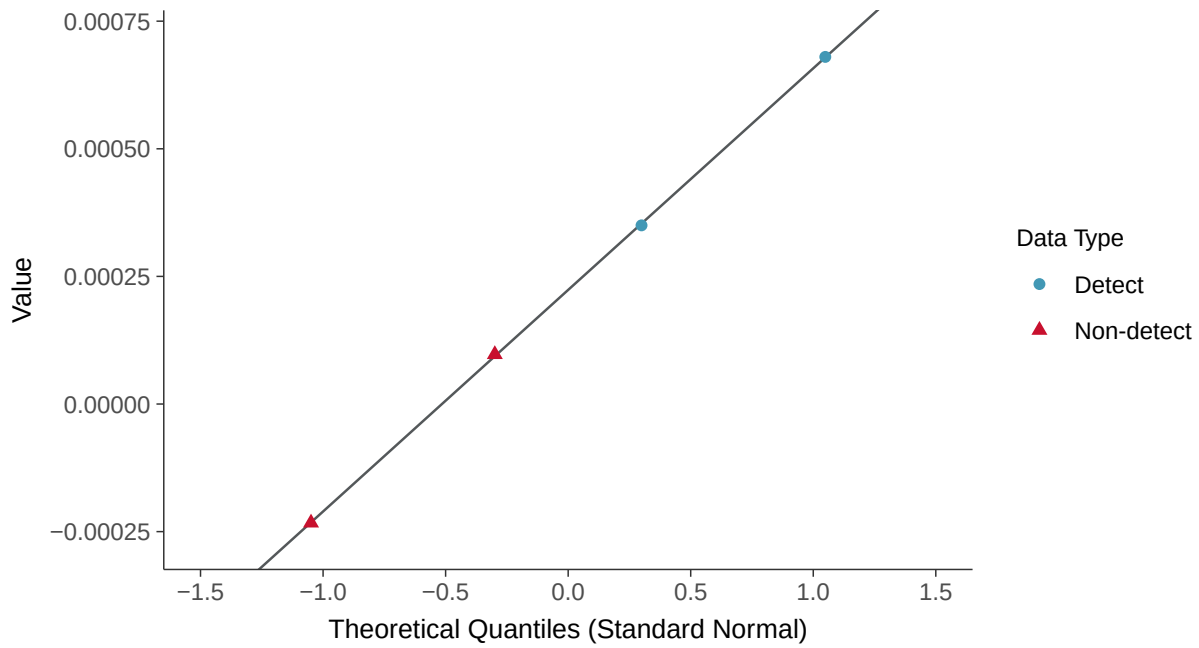
Arsenic, W-16 (mg/l)



Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

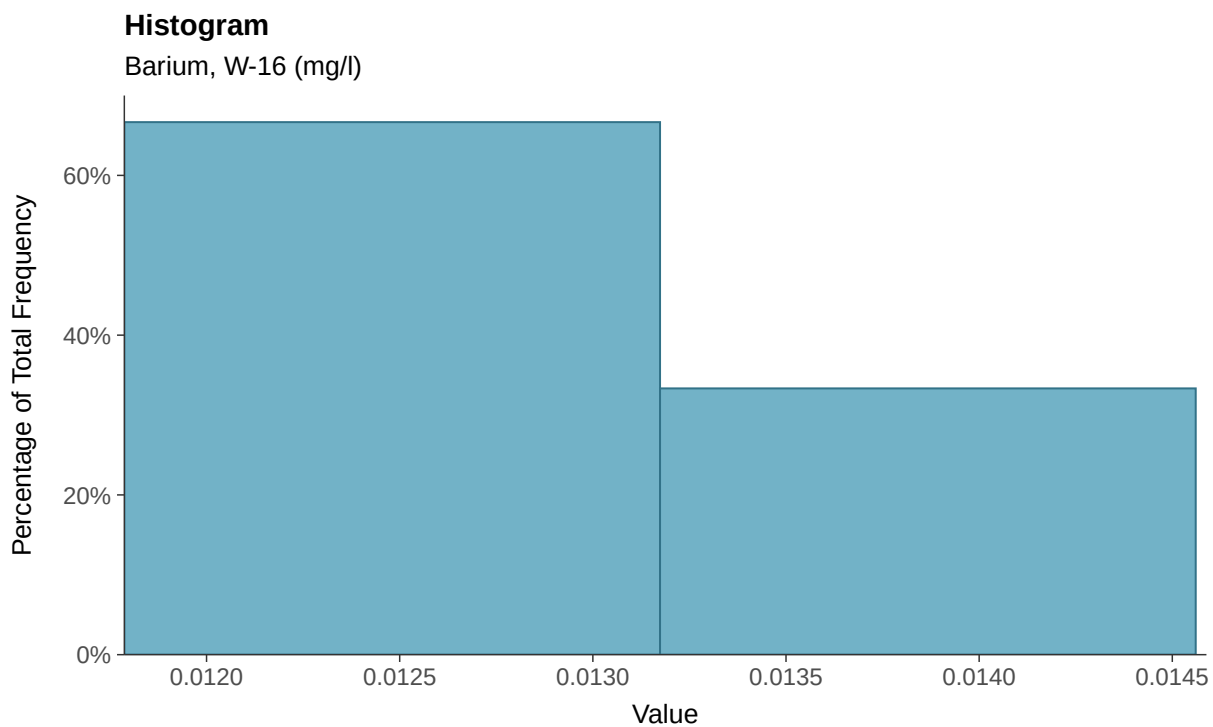
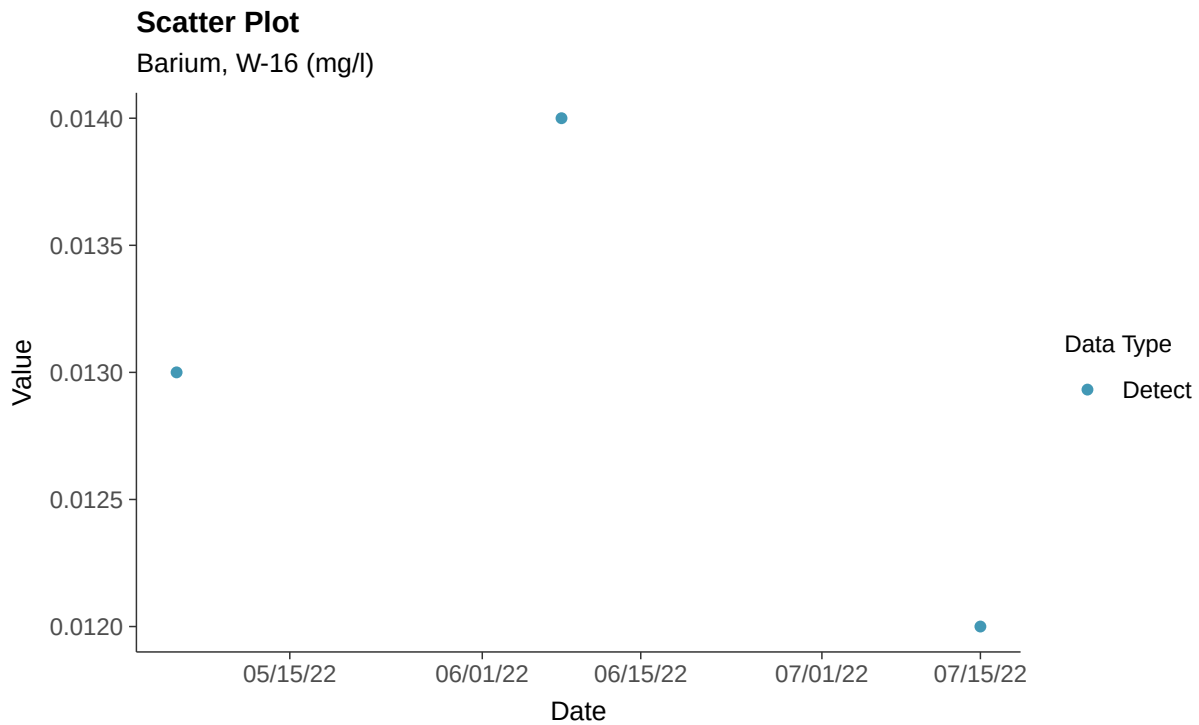
Normal Q-Q plot using ROS Imputed Estimates

Arsenic, W-16 (mg/l)



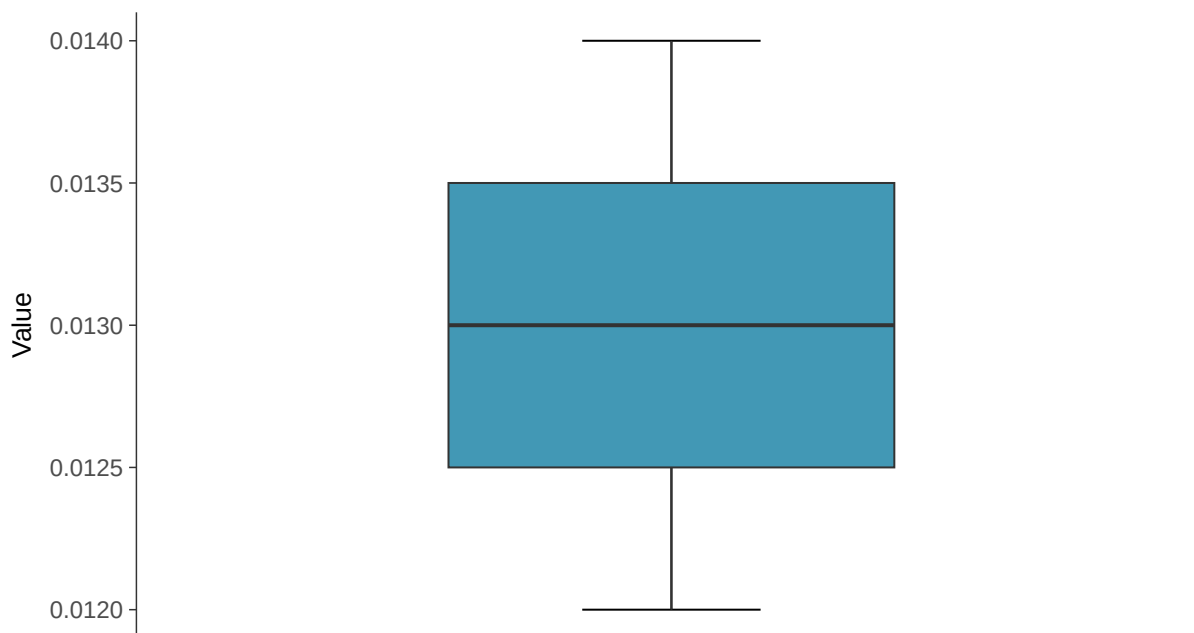
Appendix IV: Barium, W-16

ID: 5_2_103



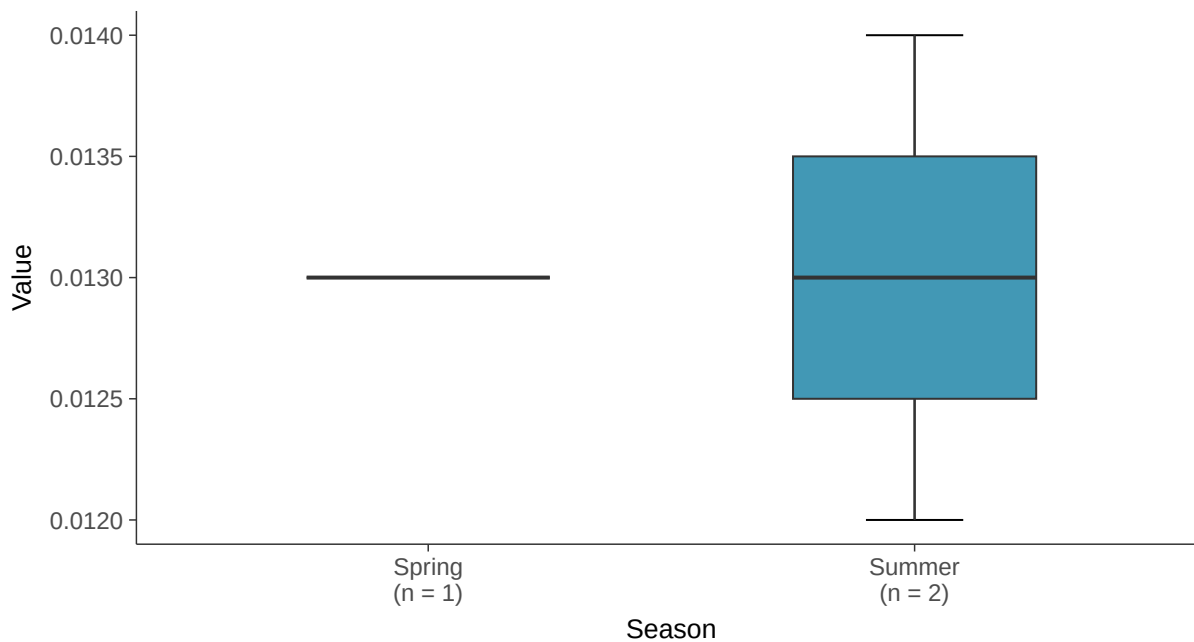
Boxplot

Barium, W-16 (mg/l)



Boxplot by Season

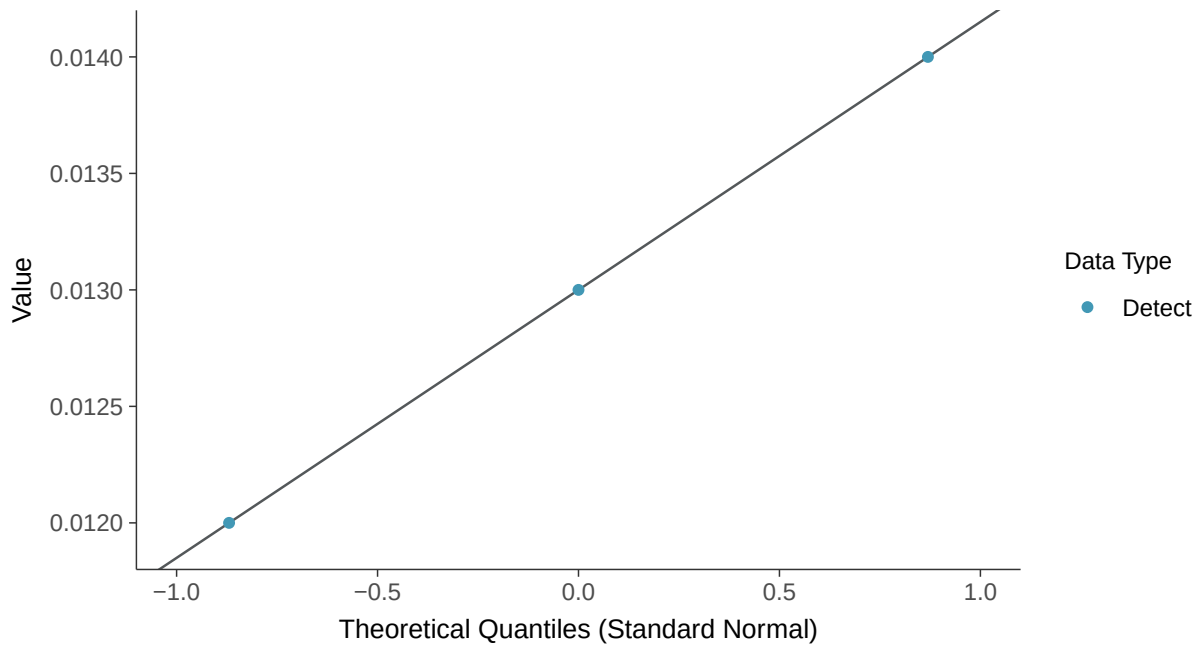
Barium, W-16 (mg/l)



Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

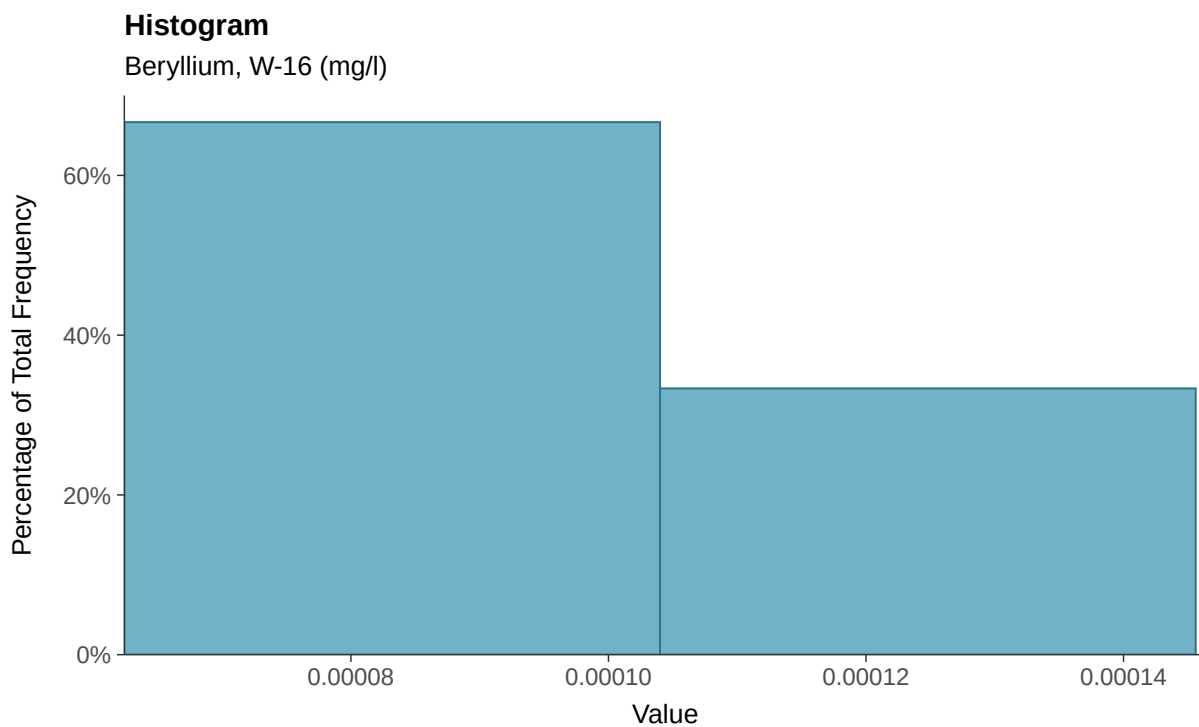
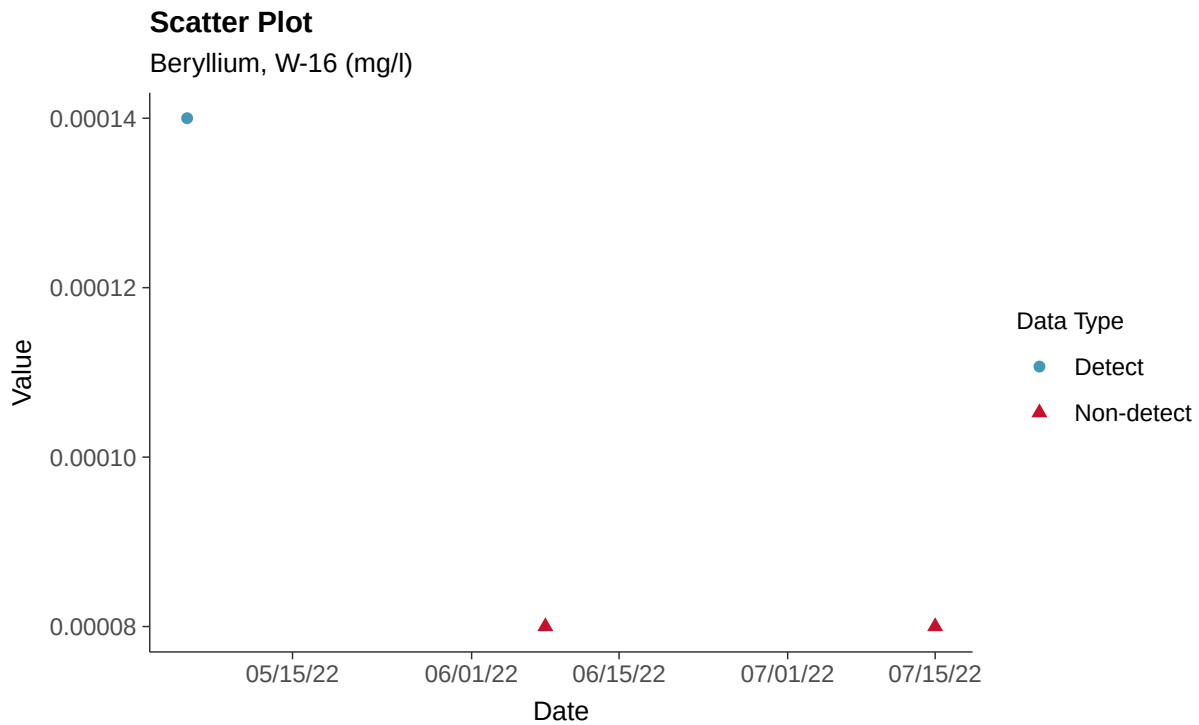
Normal Q-Q plot

Barium, W-16 (mg/l)



Appendix IV: Beryllium, W-16

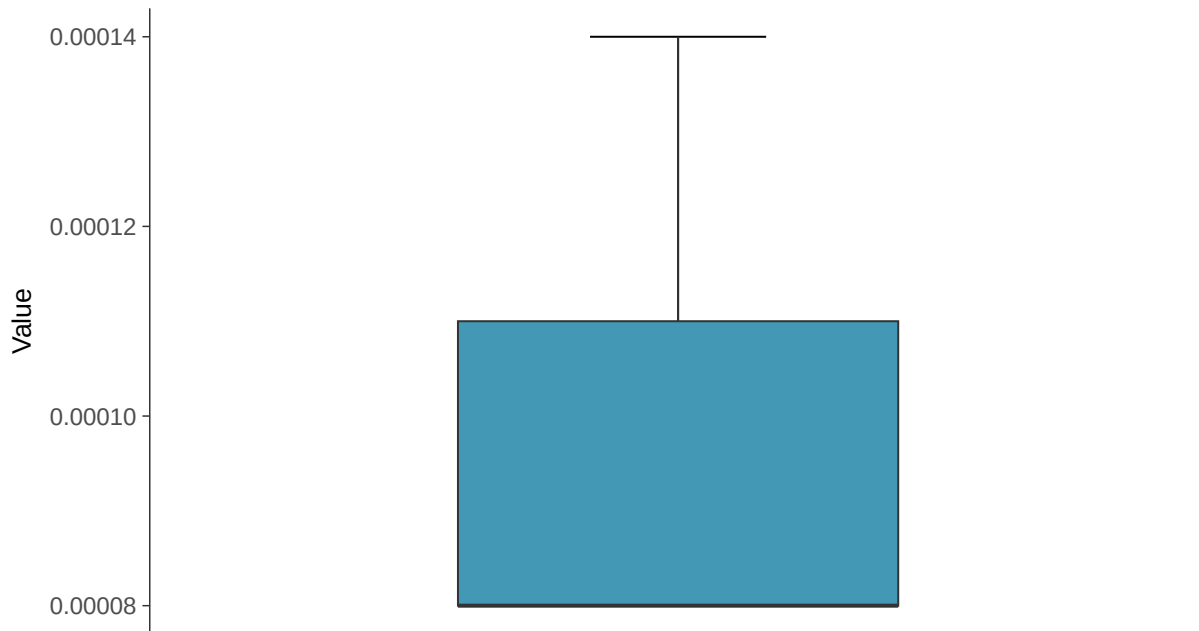
ID: 5_2_104





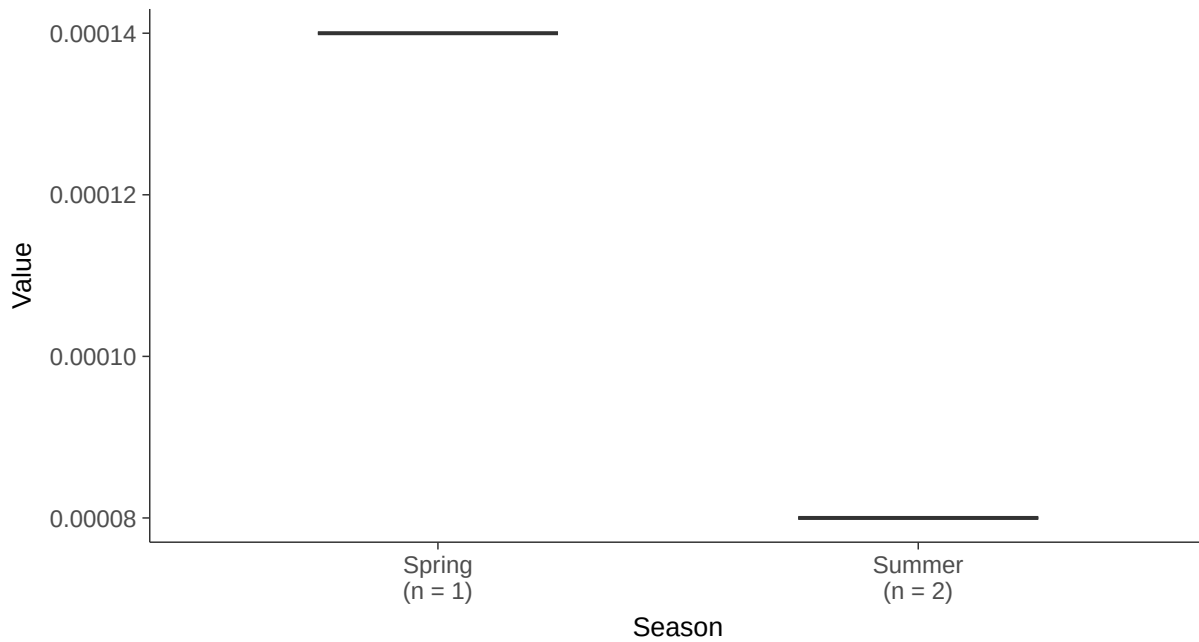
Boxplot

Beryllium, W-16 (mg/l)



Boxplot by Season

Beryllium, W-16 (mg/l)

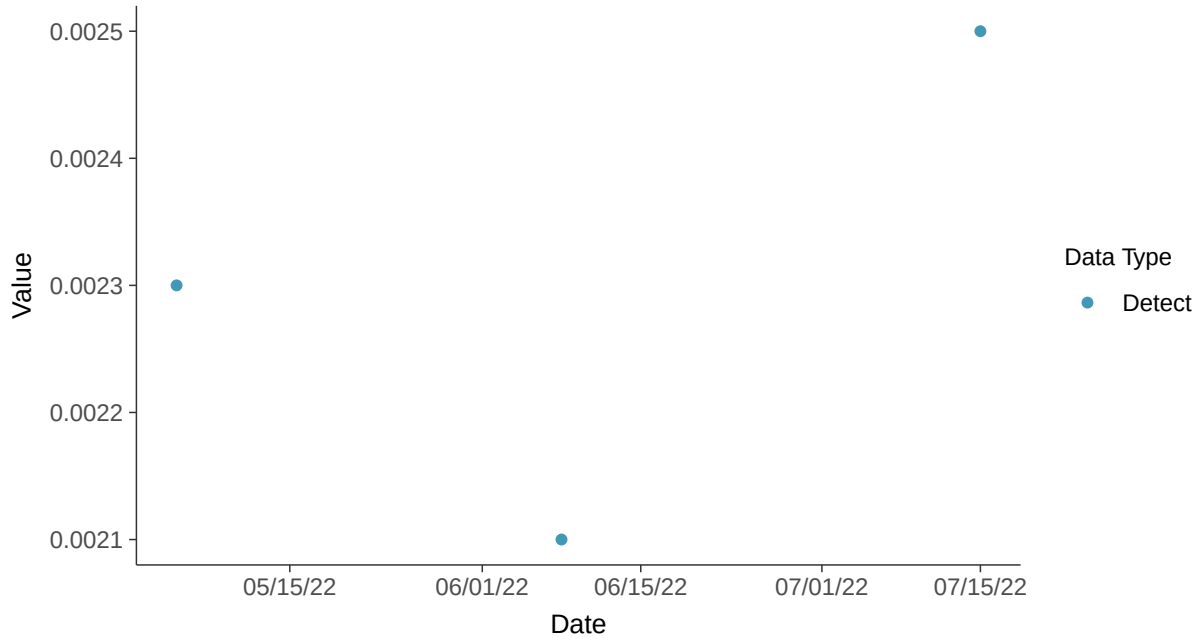


Appendix IV: Cadmium, W-16

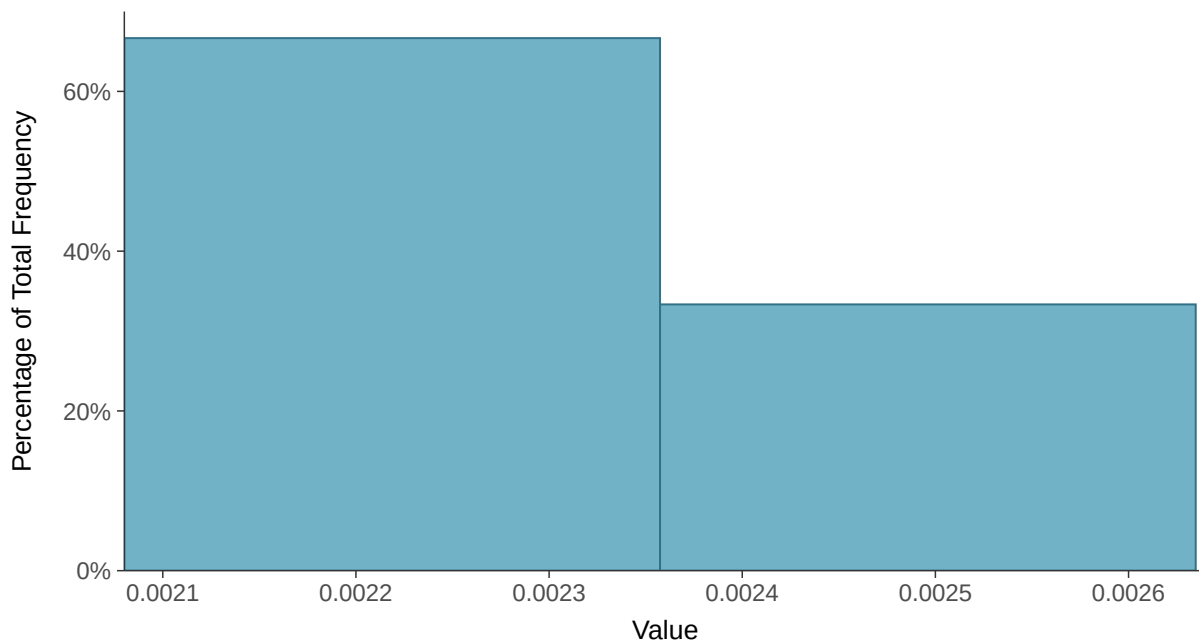
ID: 5_2_106

Scatter Plot

Cadmium, W-16 (mg/l)

**Histogram**

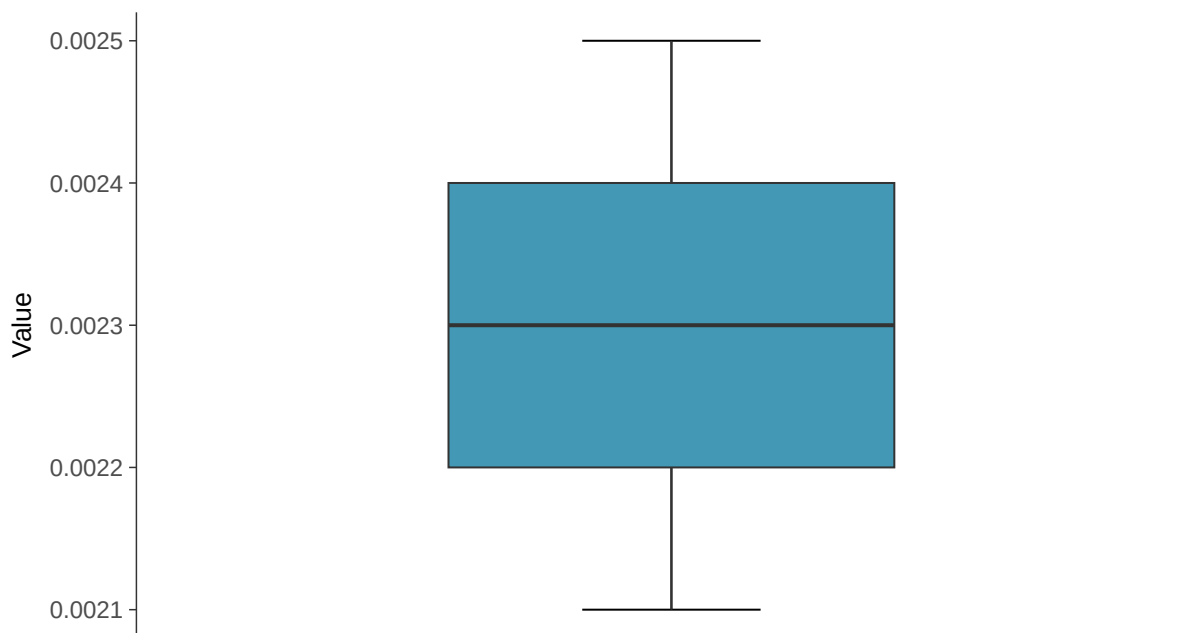
Cadmium, W-16 (mg/l)





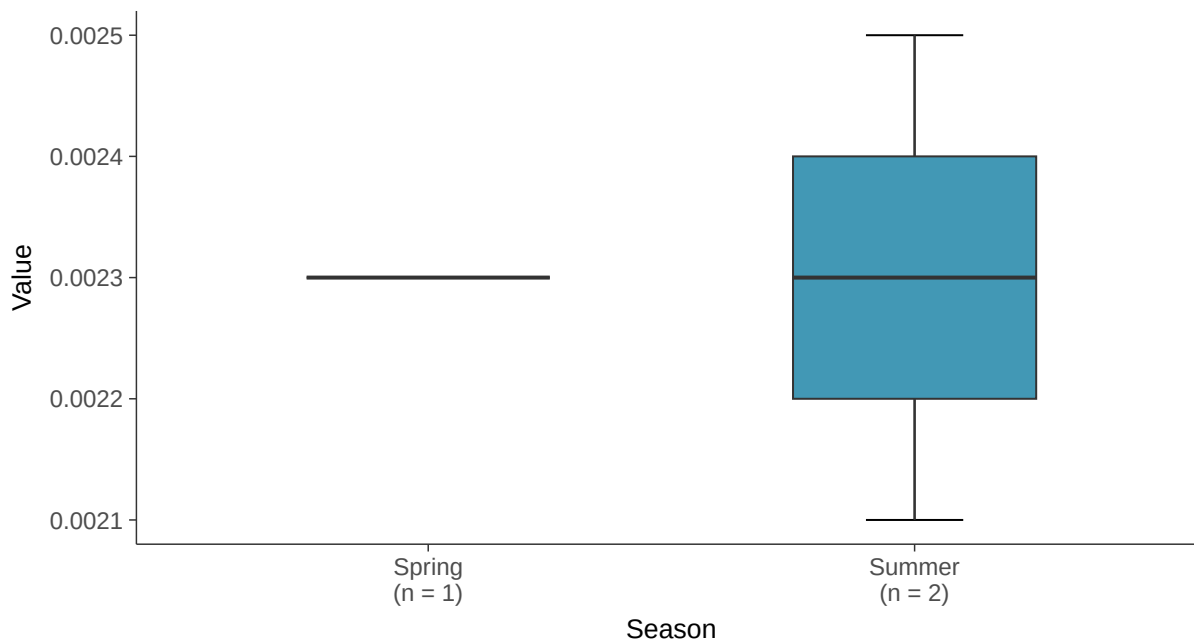
Boxplot

Cadmium, W-16 (mg/l)



Boxplot by Season

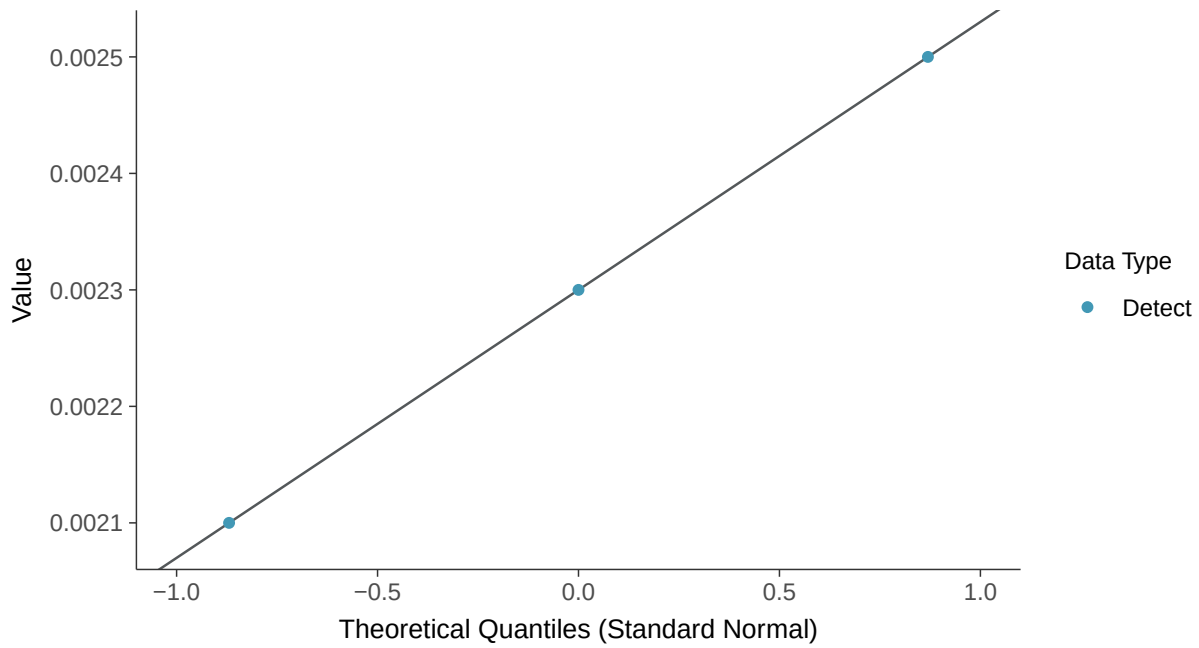
Cadmium, W-16 (mg/l)



Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Normal Q-Q plot

Cadmium, W-16 (mg/l)

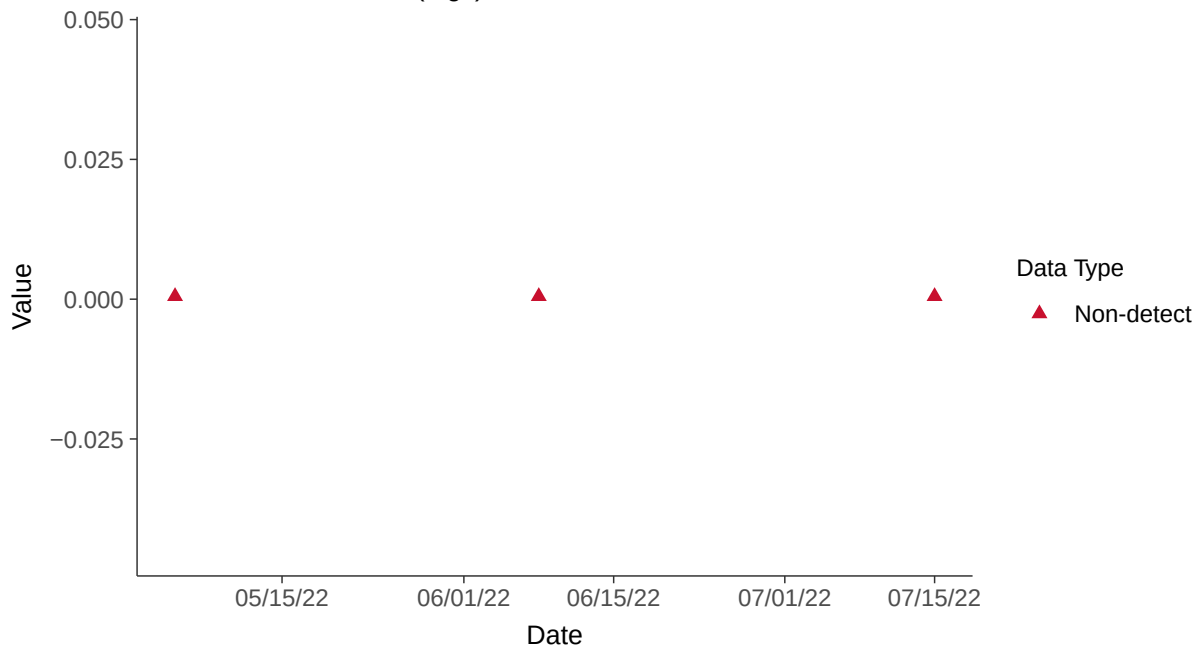


Appendix IV: Chromium, Total, W-16

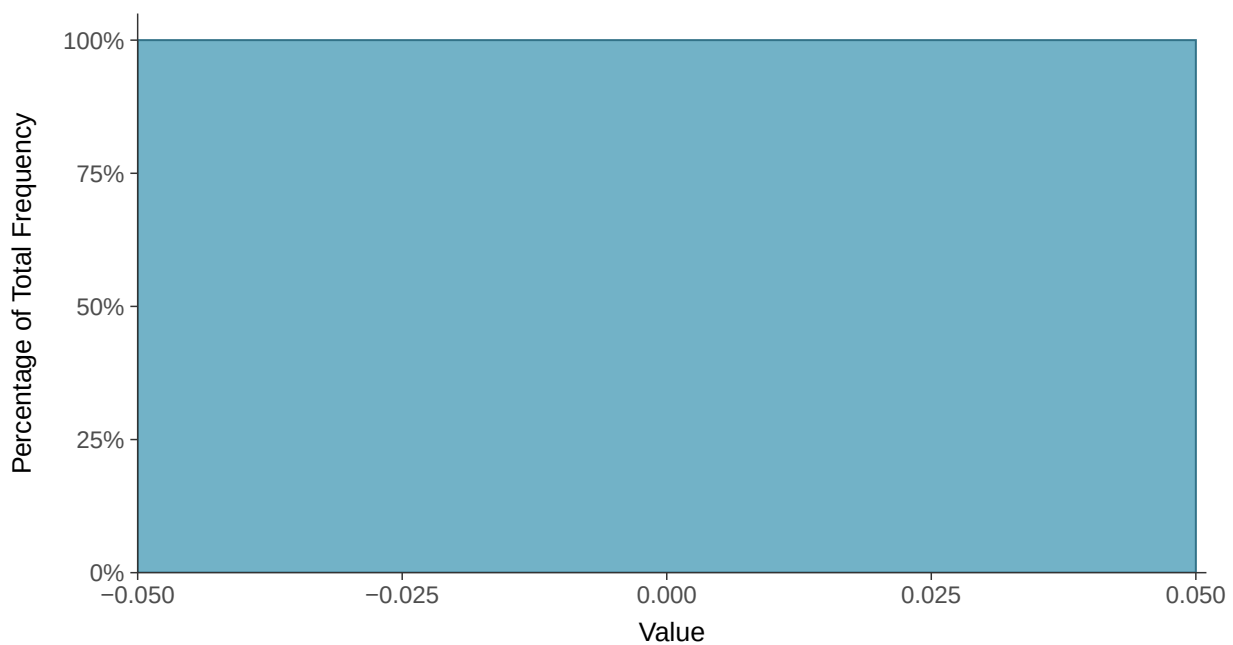
ID: 5_2_109

Scatter Plot

Chromium, Total, W-16 (mg/l)

**Histogram**

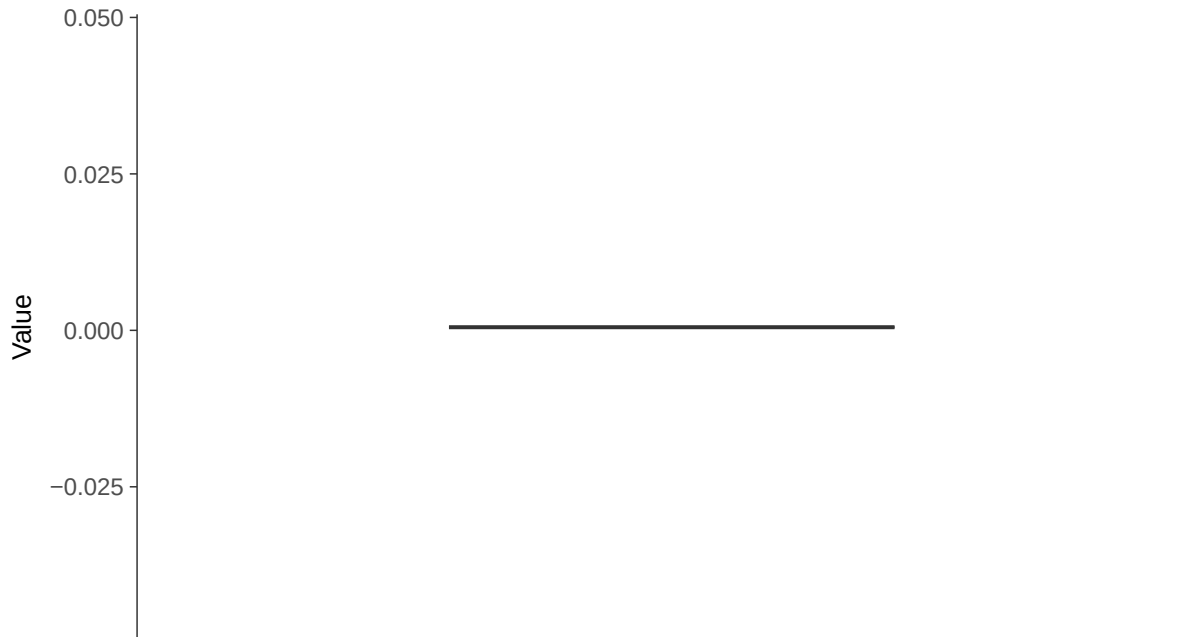
Chromium, Total, W-16 (mg/l)





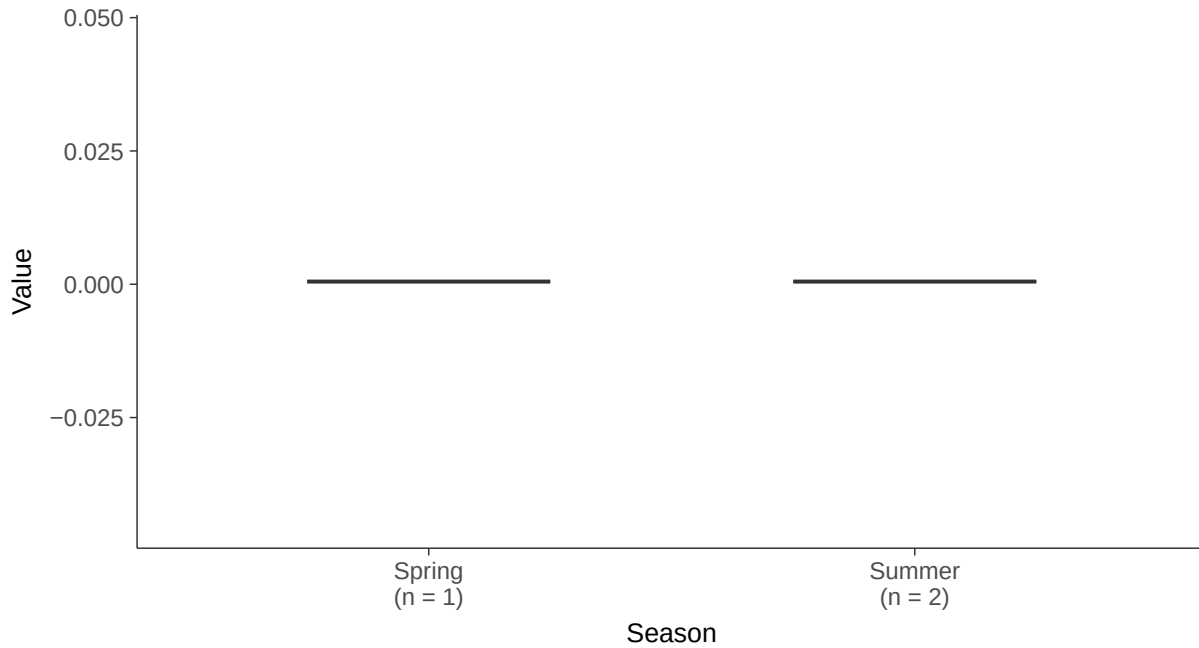
Boxplot

Chromium, Total, W-16 (mg/l)



Boxplot by Season

Chromium, Total, W-16 (mg/l)

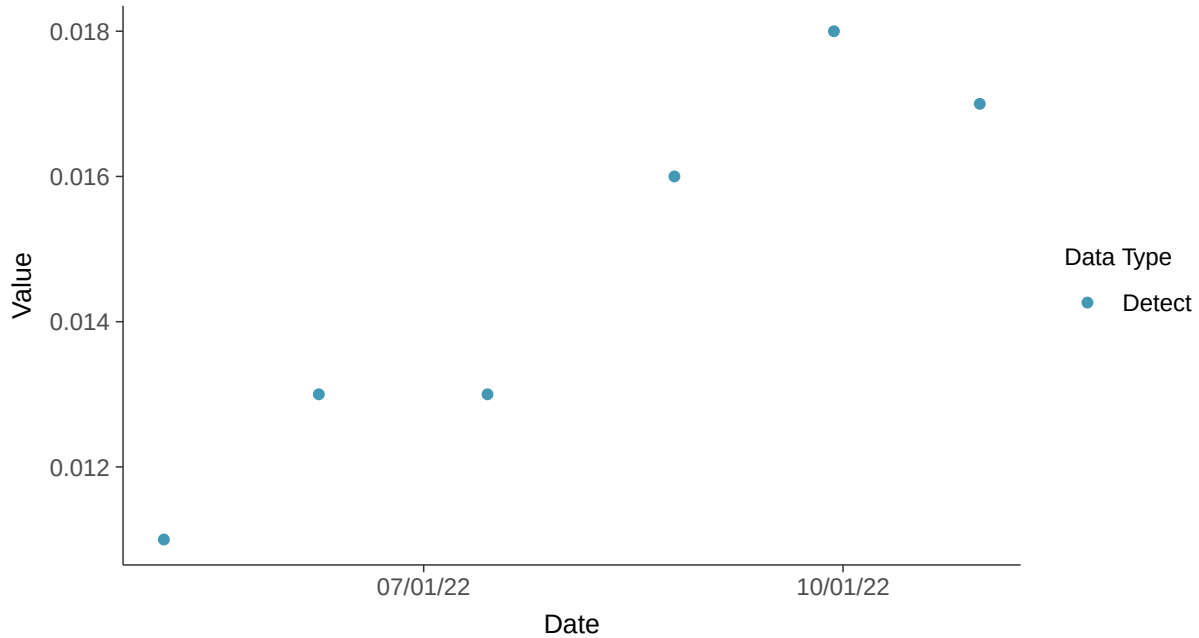


Appendix IV: Cobalt, W-16

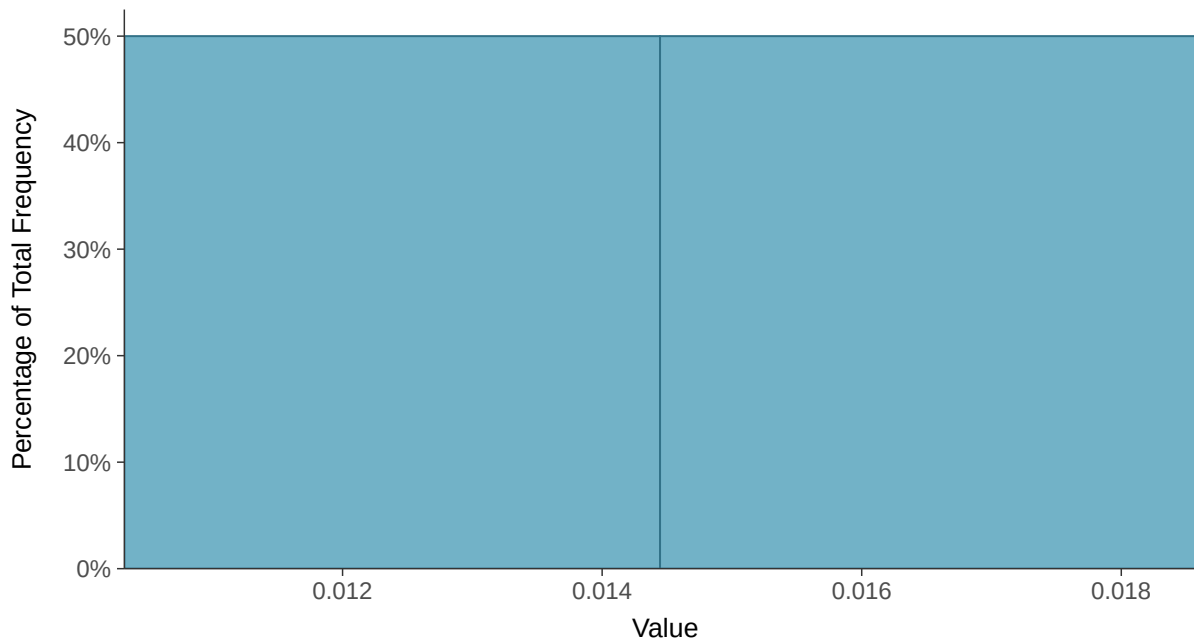
ID: 5_2_110

Scatter Plot

Cobalt, W-16 (mg/l)

**Histogram**

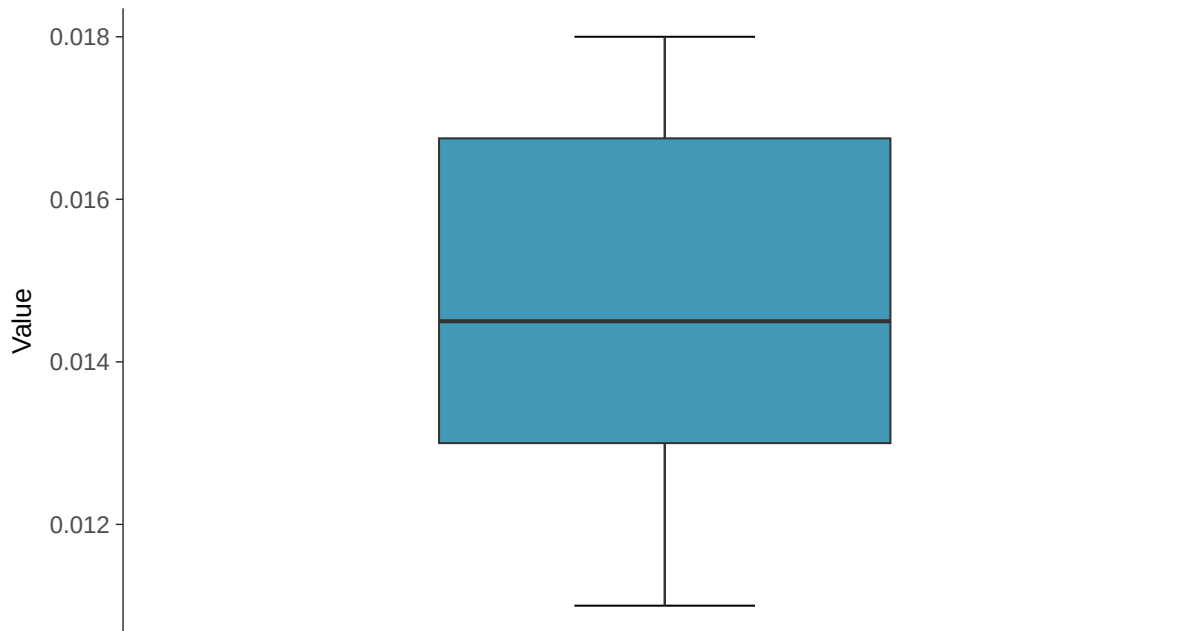
Cobalt, W-16 (mg/l)





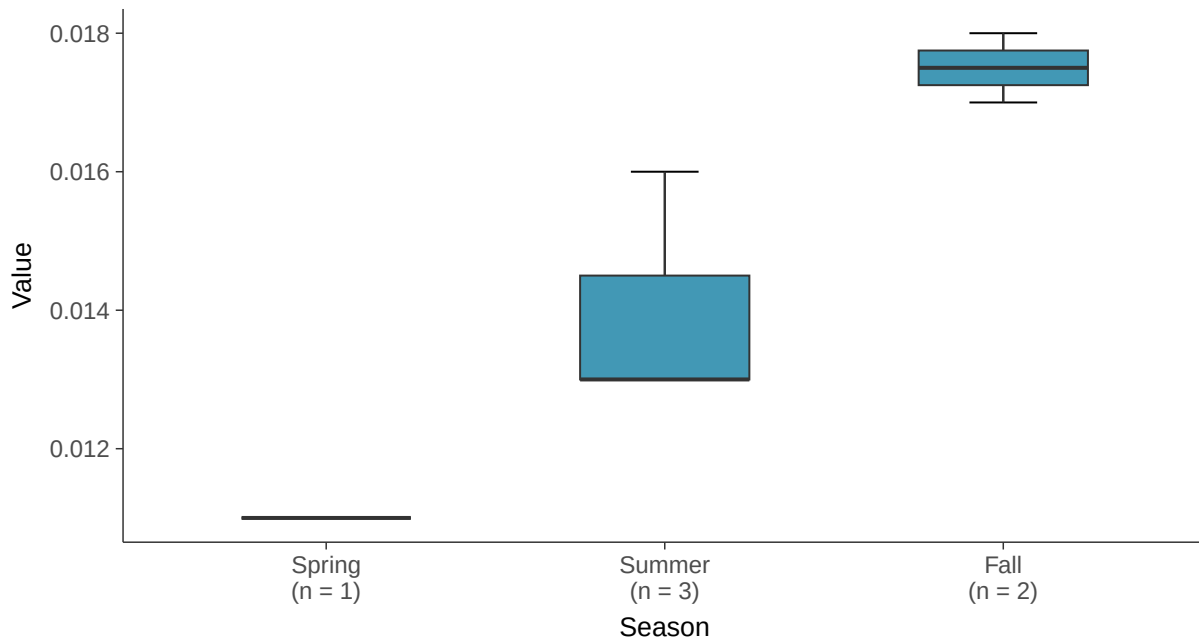
Boxplot

Cobalt, W-16 (mg/l)



Boxplot by Season

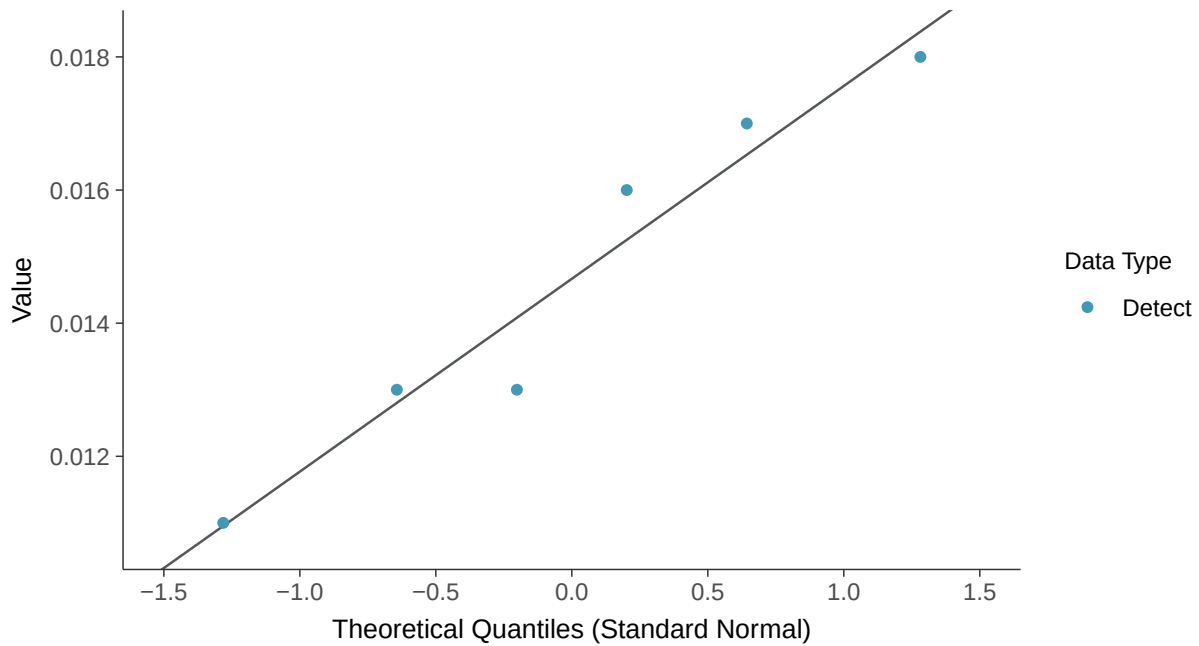
Cobalt, W-16 (mg/l)





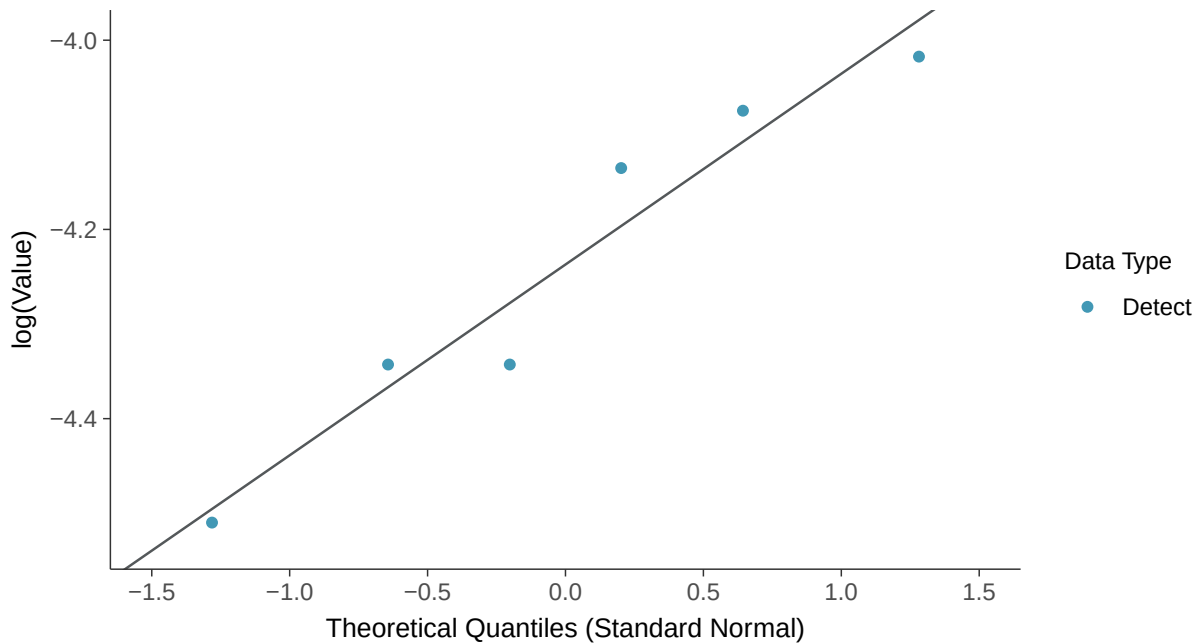
Normal Q-Q plot

Cobalt, W-16 (mg/l)



Lognormal Q-Q plot

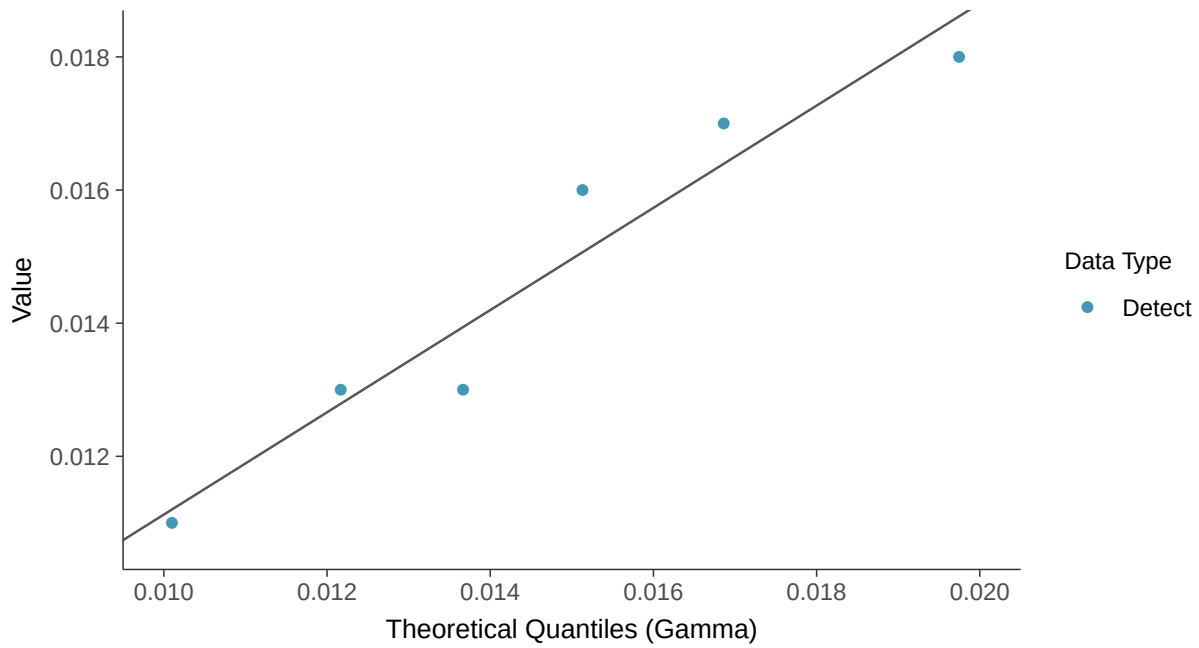
Cobalt, W-16 (mg/l)





Gamma Q-Q plot

Cobalt, W-16 (mg/l)

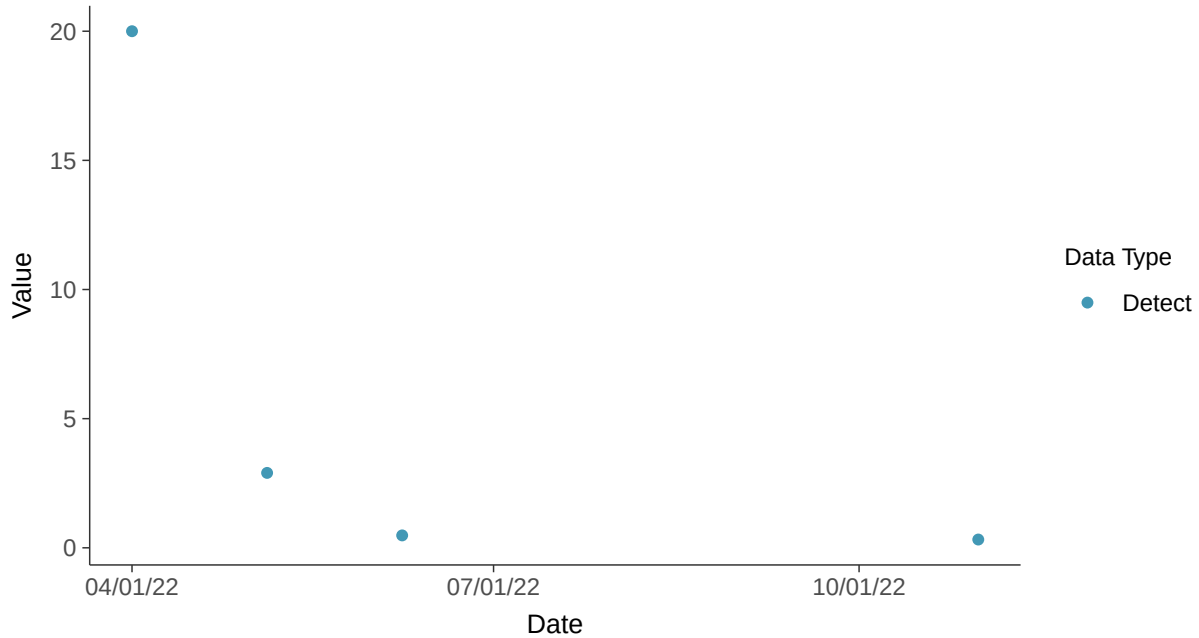


Appendix IV: Fluoride (App IV), W-16

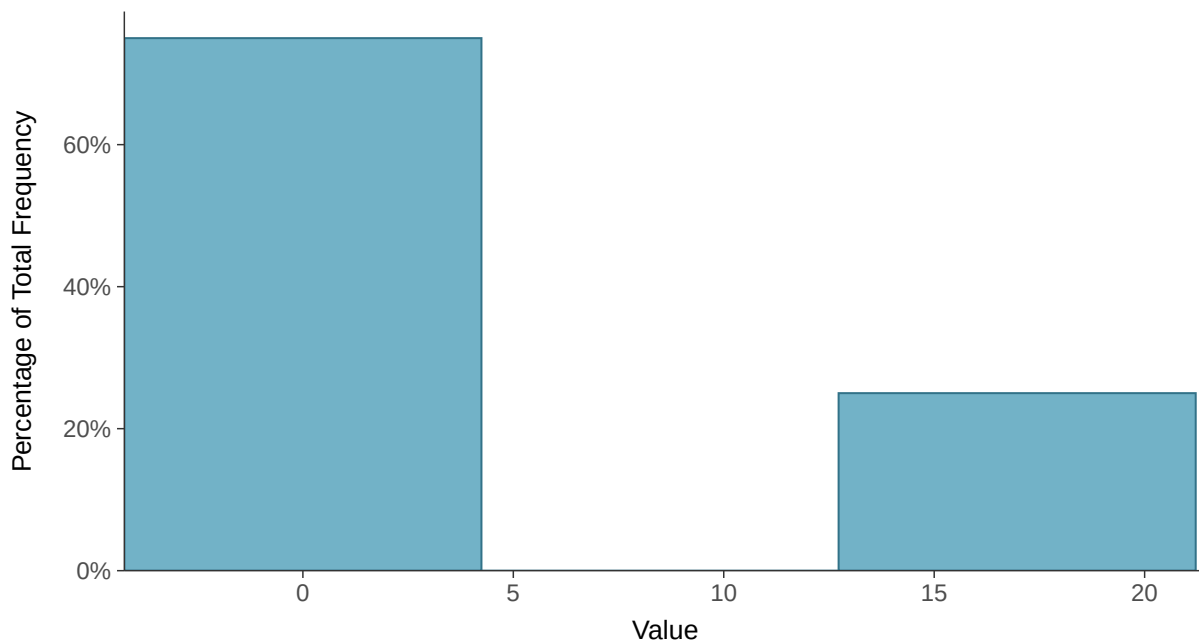
ID: 5_2_112

Scatter Plot

Fluoride (App IV), W-16 (mg/l)

**Histogram**

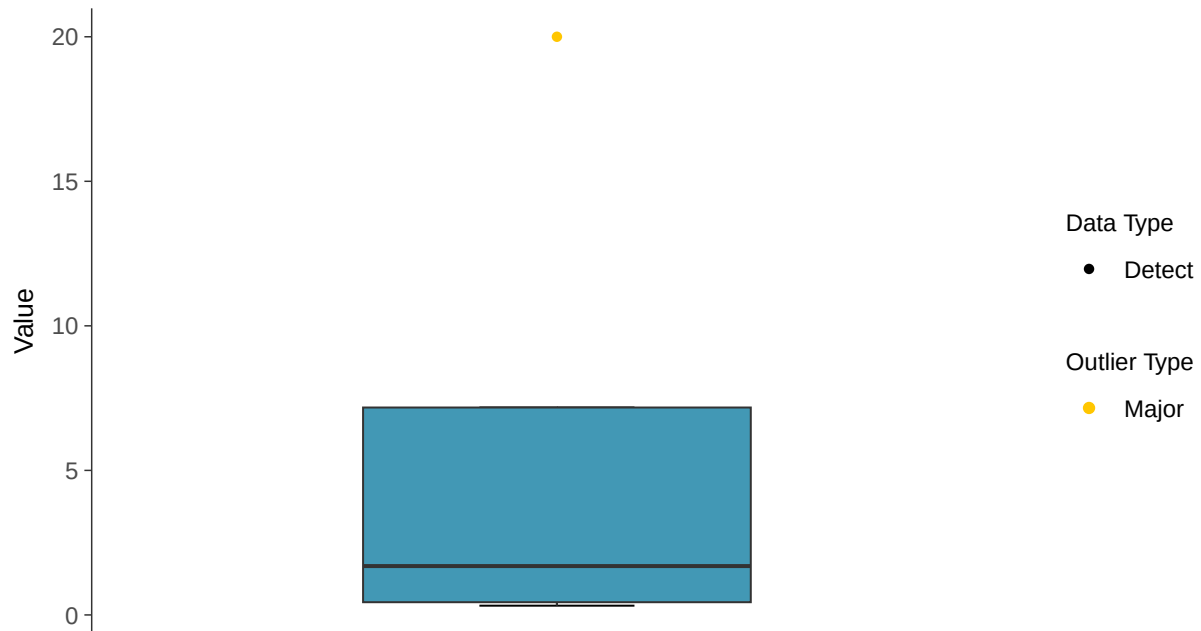
Fluoride (App IV), W-16 (mg/l)



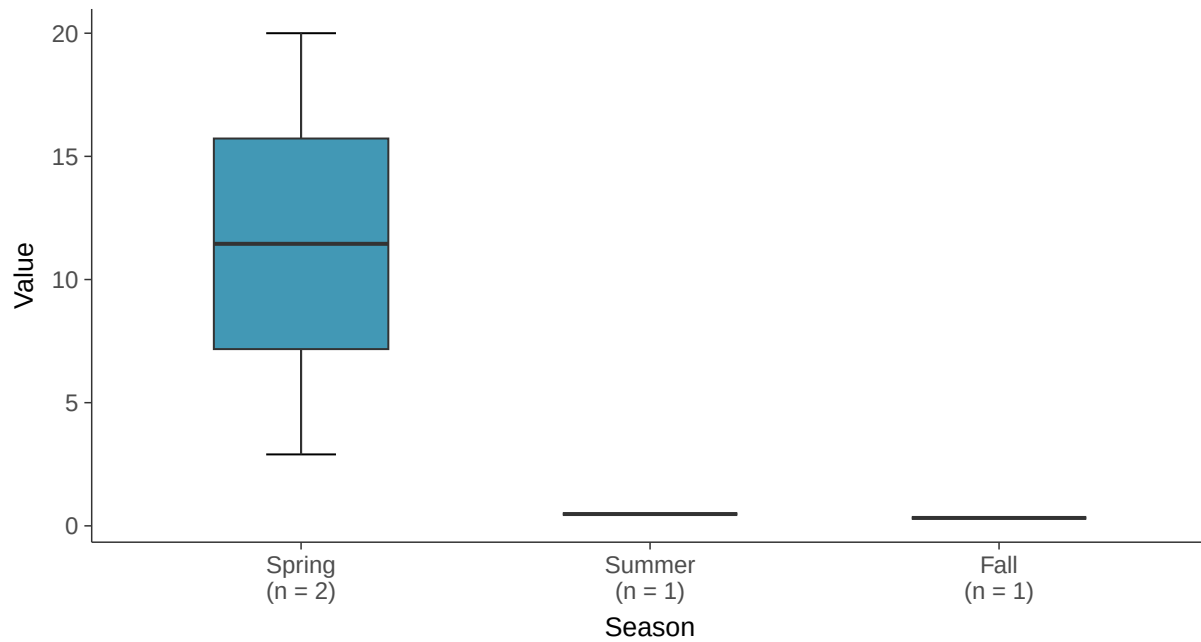
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Fluoride (App IV), W-16 (mg/l)

**Boxplot by Season**

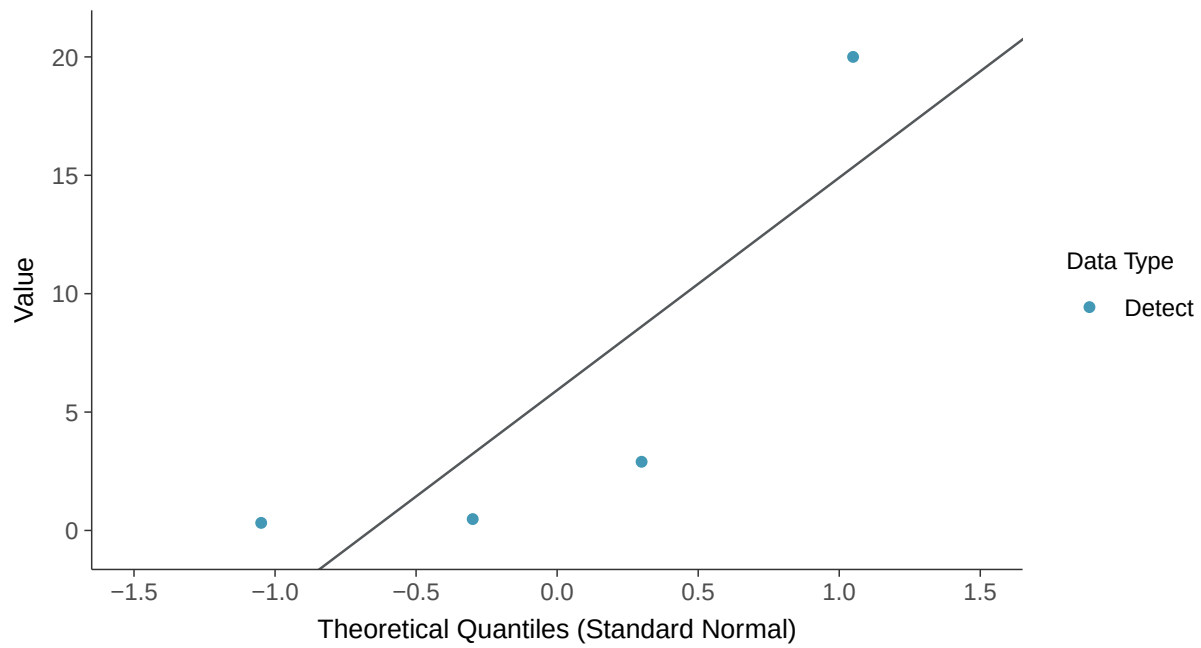
Fluoride (App IV), W-16 (mg/l)



Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

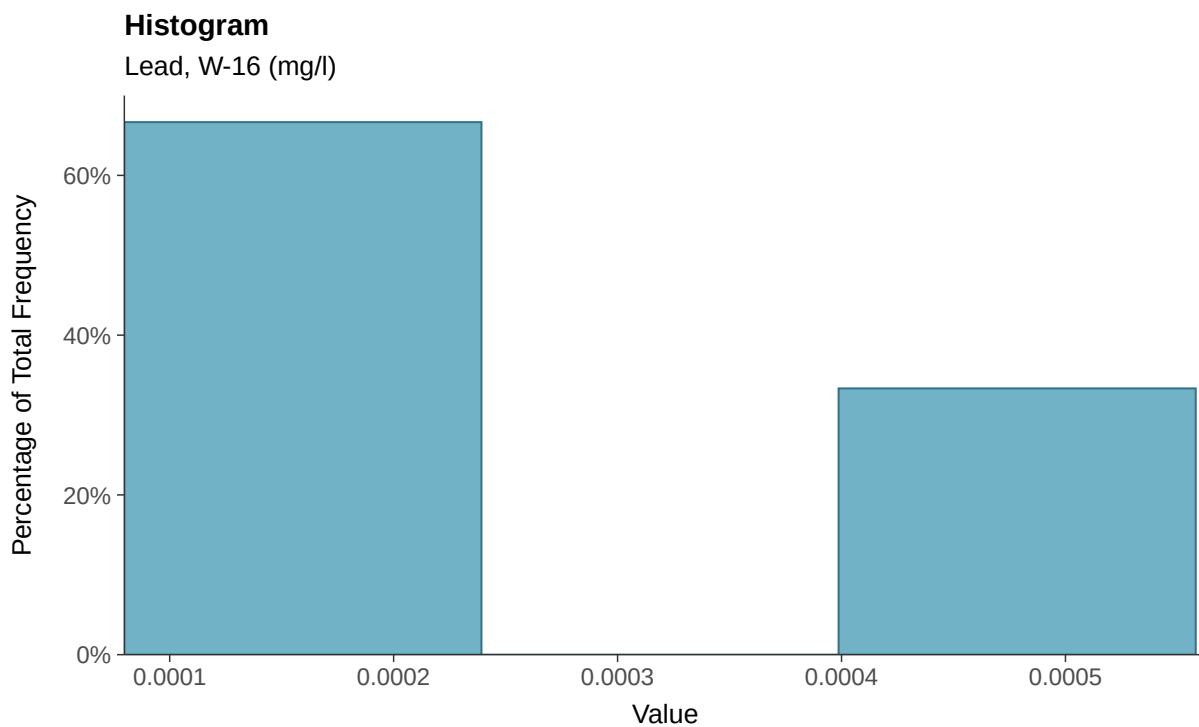
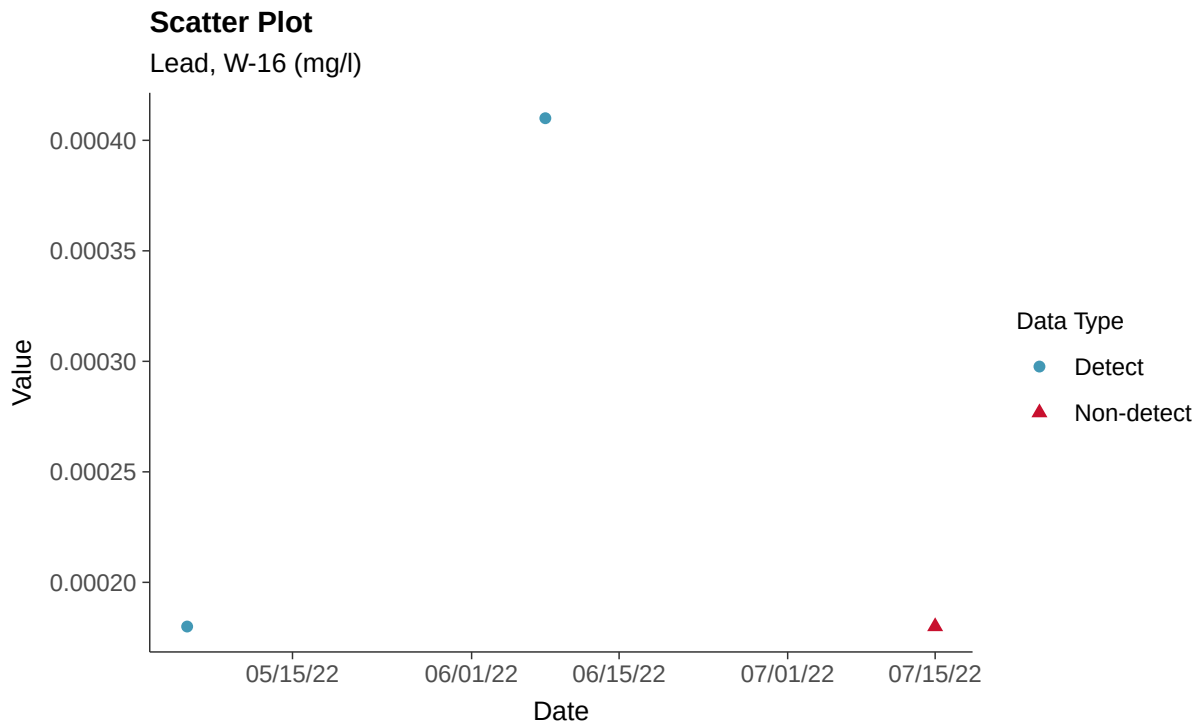
Normal Q-Q plot

Fluoride (App IV), W-16 (mg/l)



Appendix IV: Lead, W-16

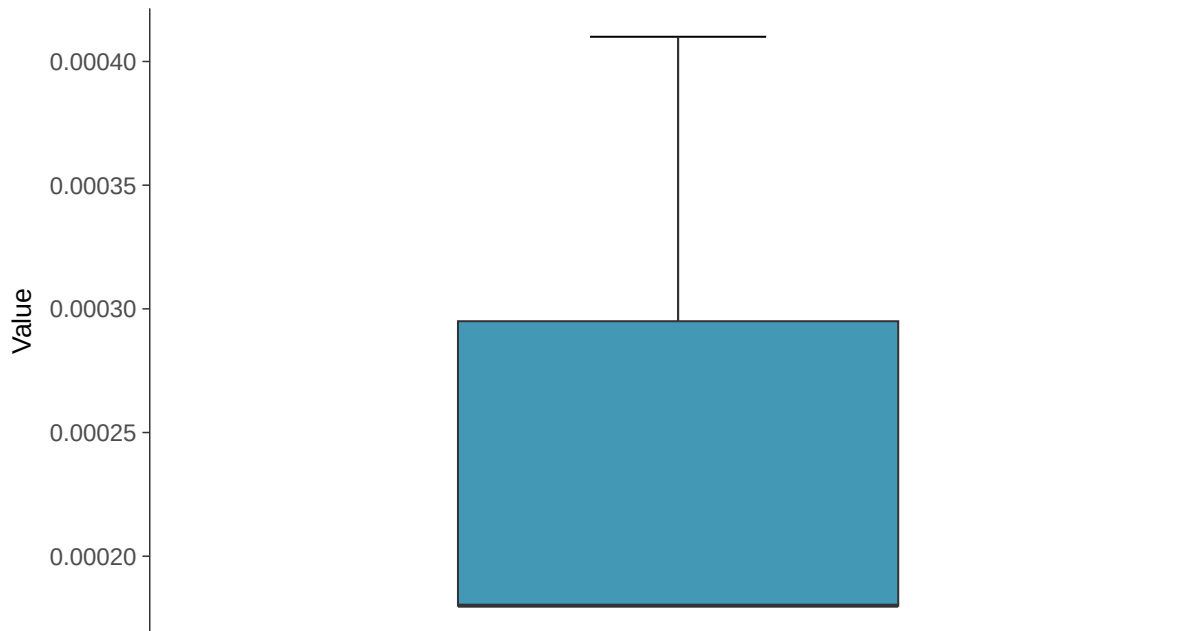
ID: 5_2_113





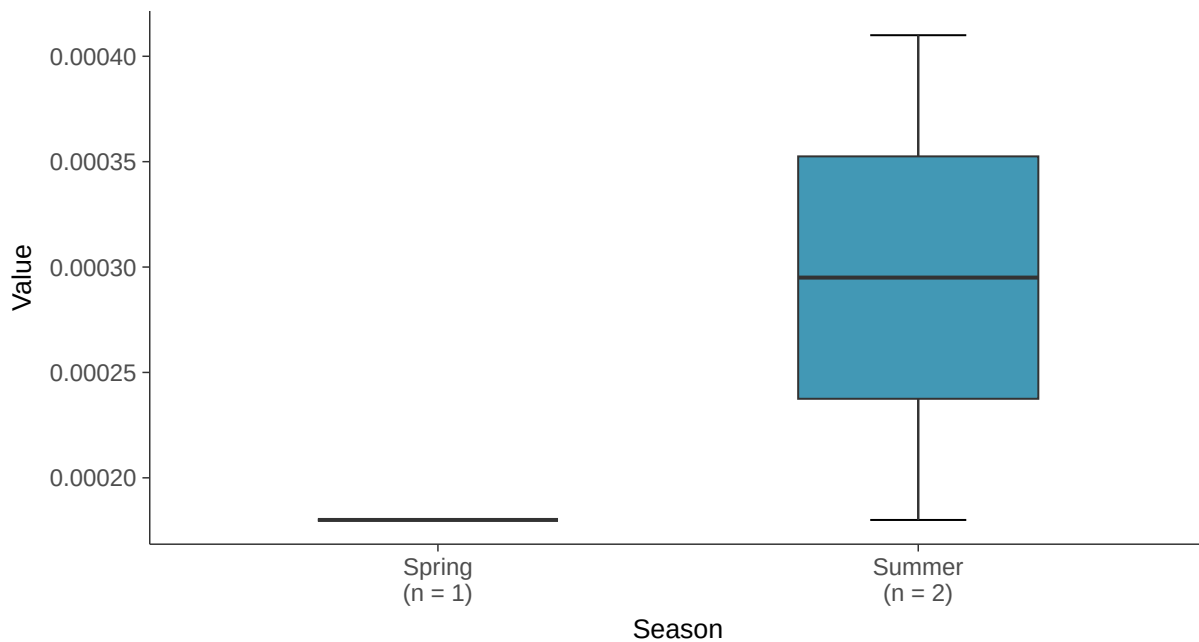
Boxplot

Lead, W-16 (mg/l)



Boxplot by Season

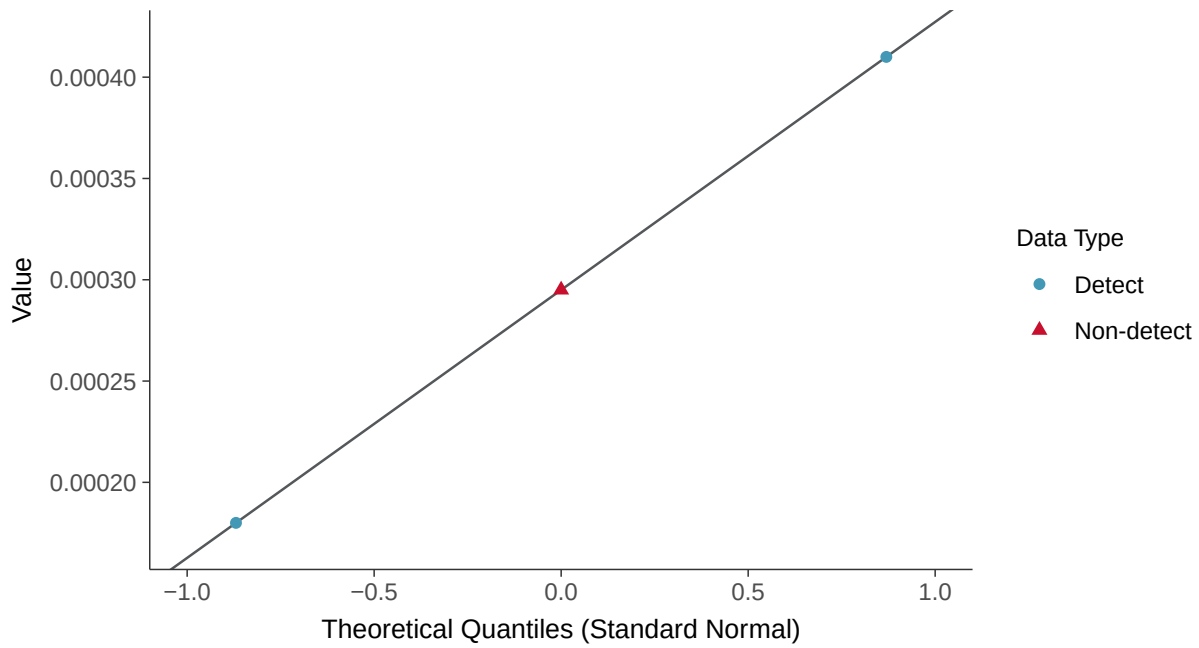
Lead, W-16 (mg/l)





Normal Q-Q plot using ROS Imputed Estimates

Lead, W-16 (mg/l)

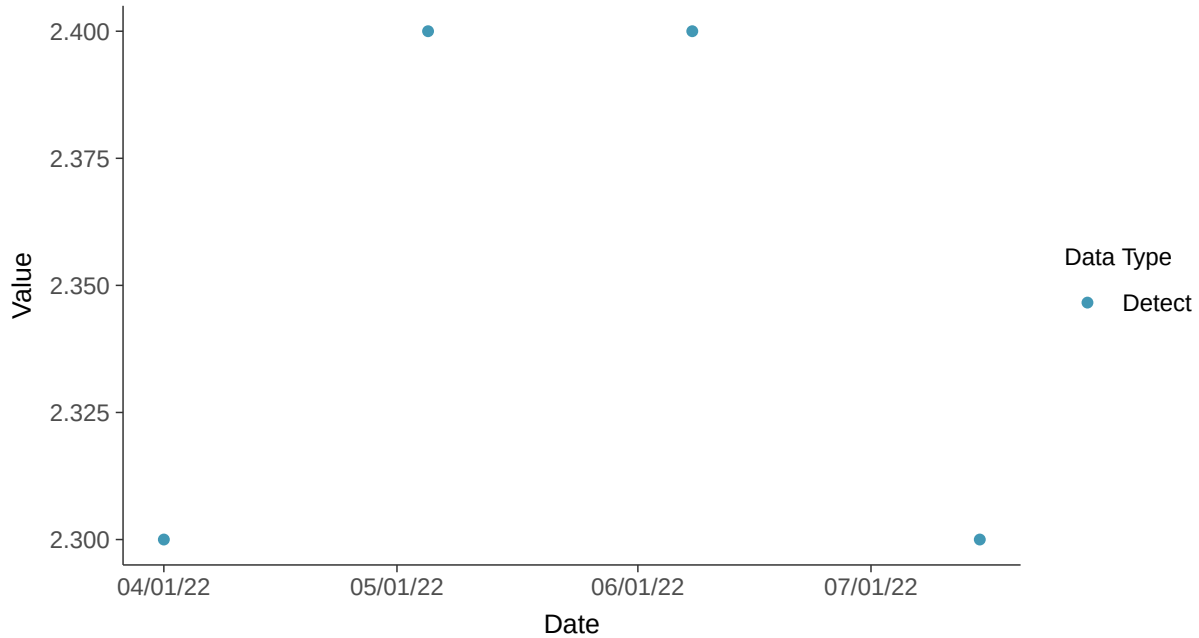


Appendix IV: Lithium, W-16

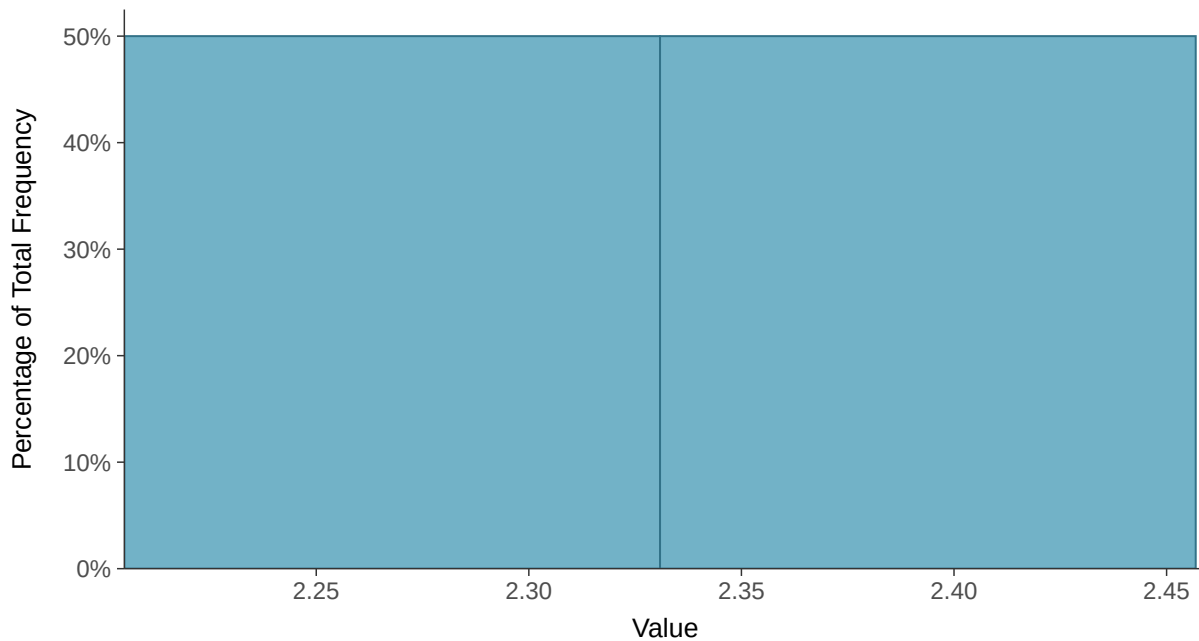
ID: 5_2_114

Scatter Plot

Lithium, W-16 (mg/l)

**Histogram**

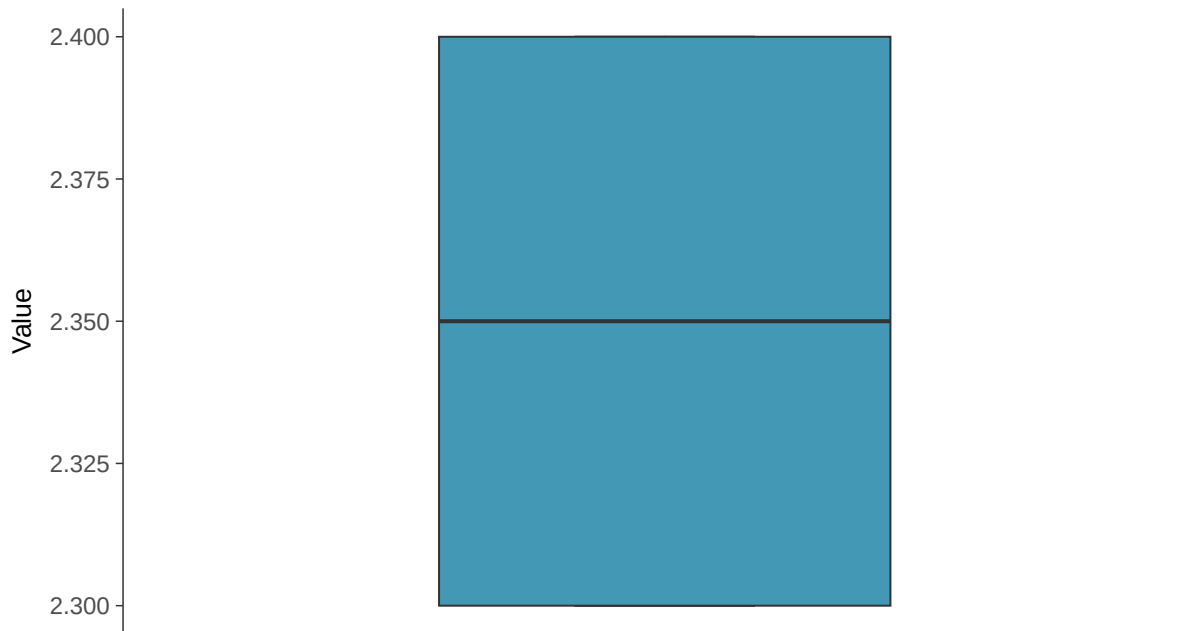
Lithium, W-16 (mg/l)





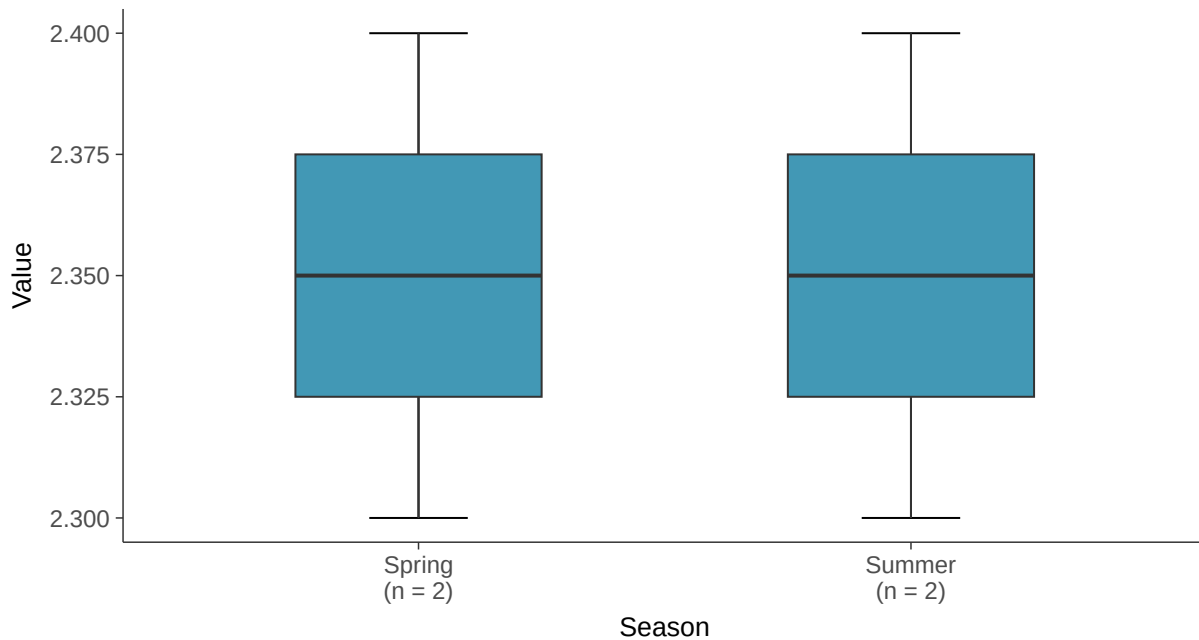
Boxplot

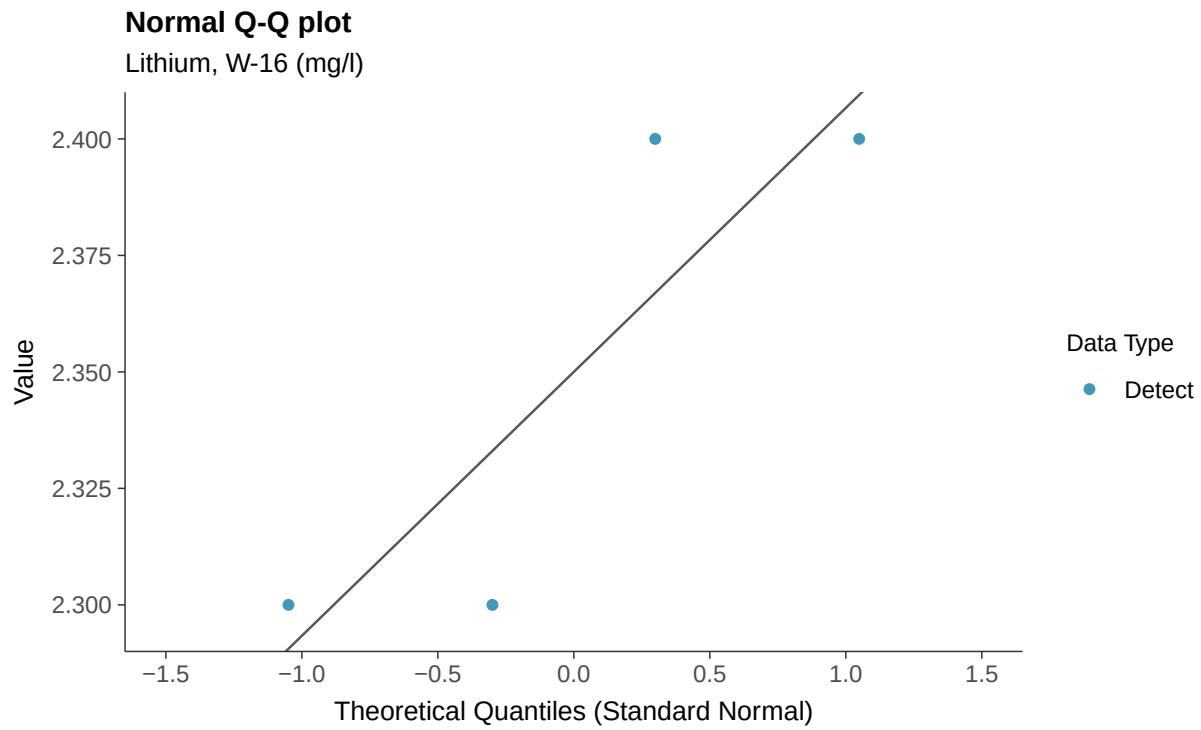
Lithium, W-16 (mg/l)



Boxplot by Season

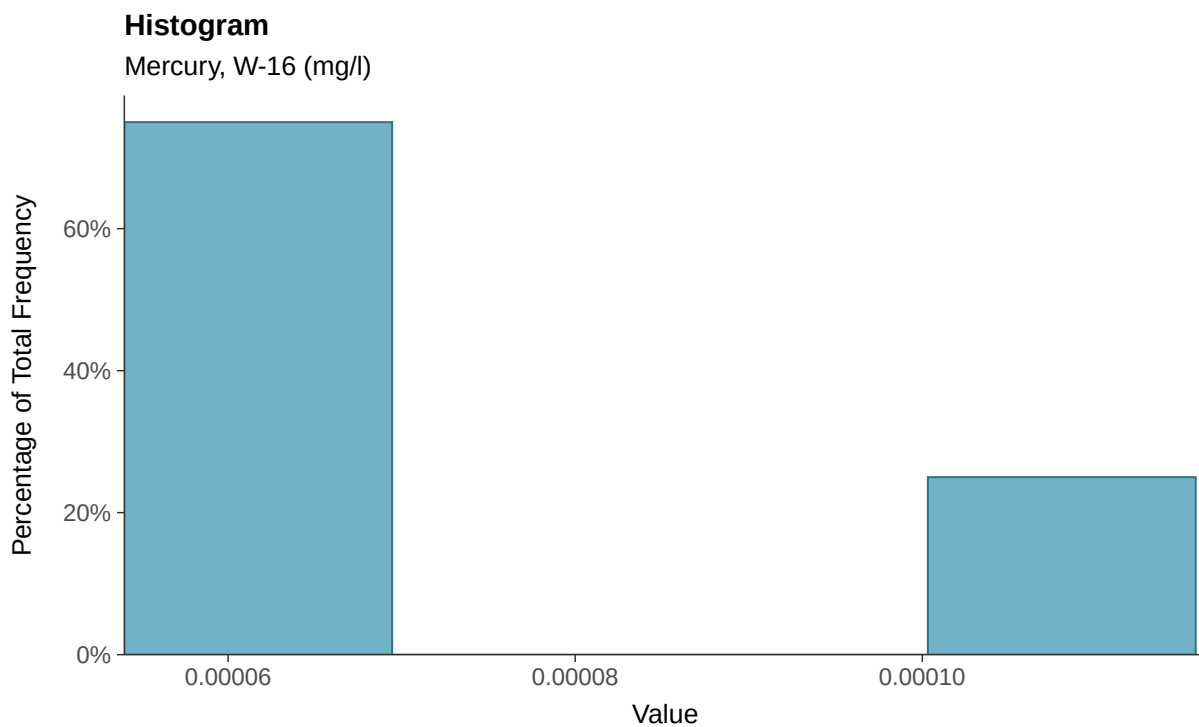
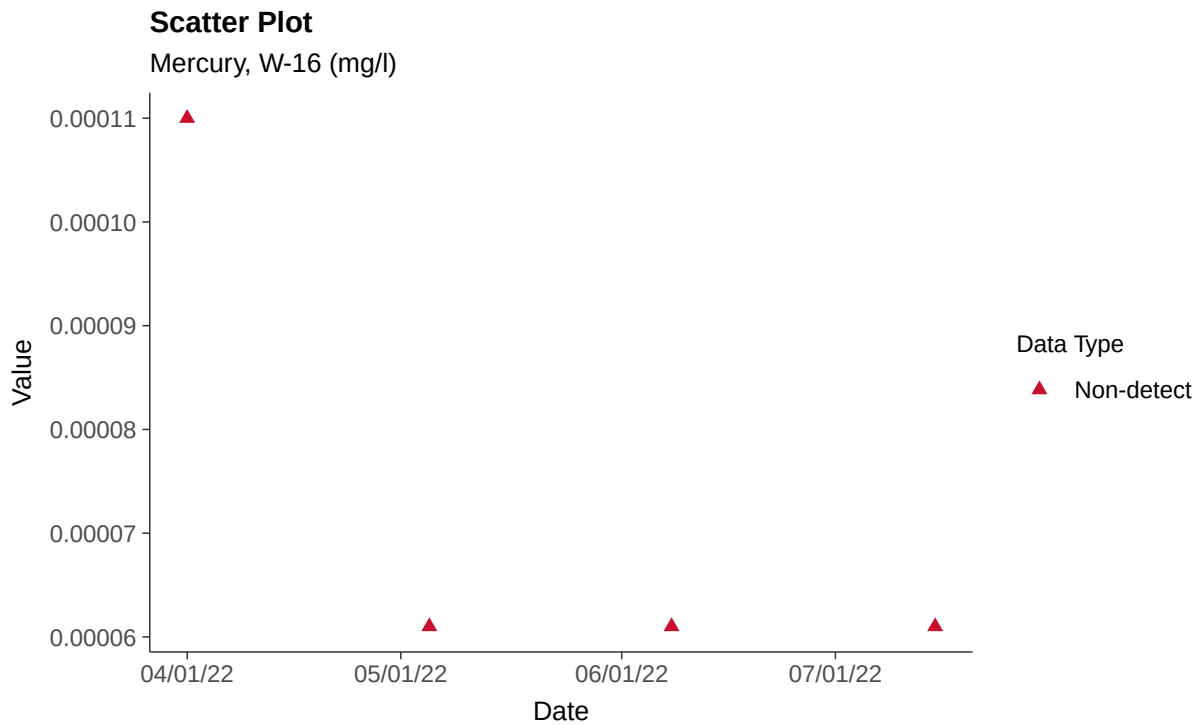
Lithium, W-16 (mg/l)





Appendix IV: Mercury, W-16

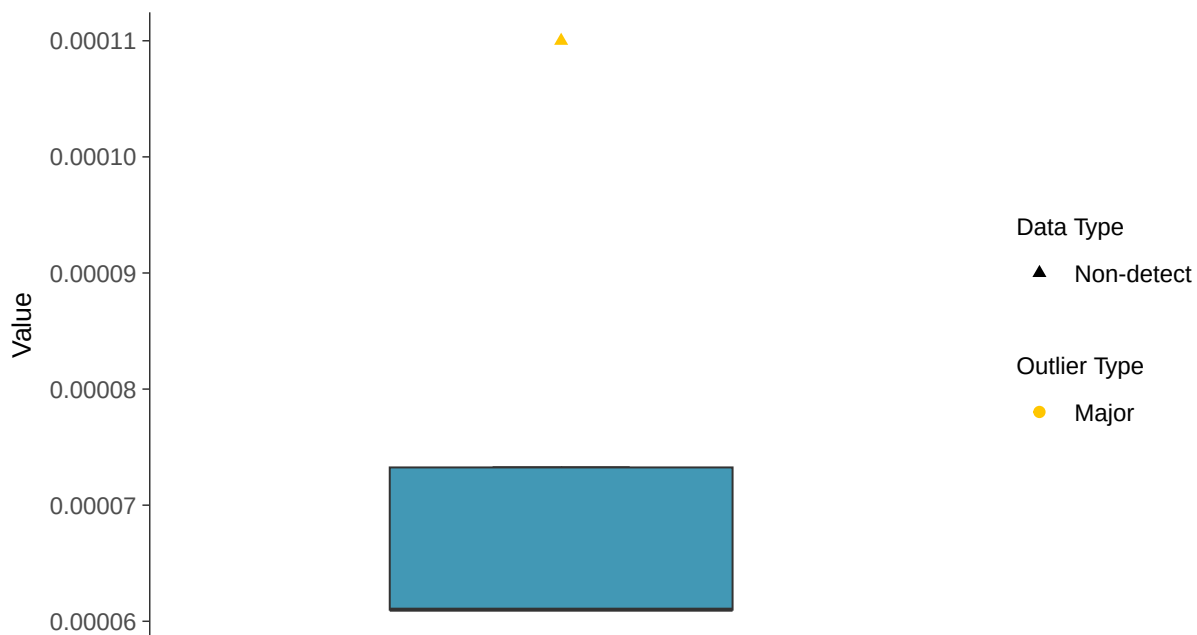
ID: 5_2_115





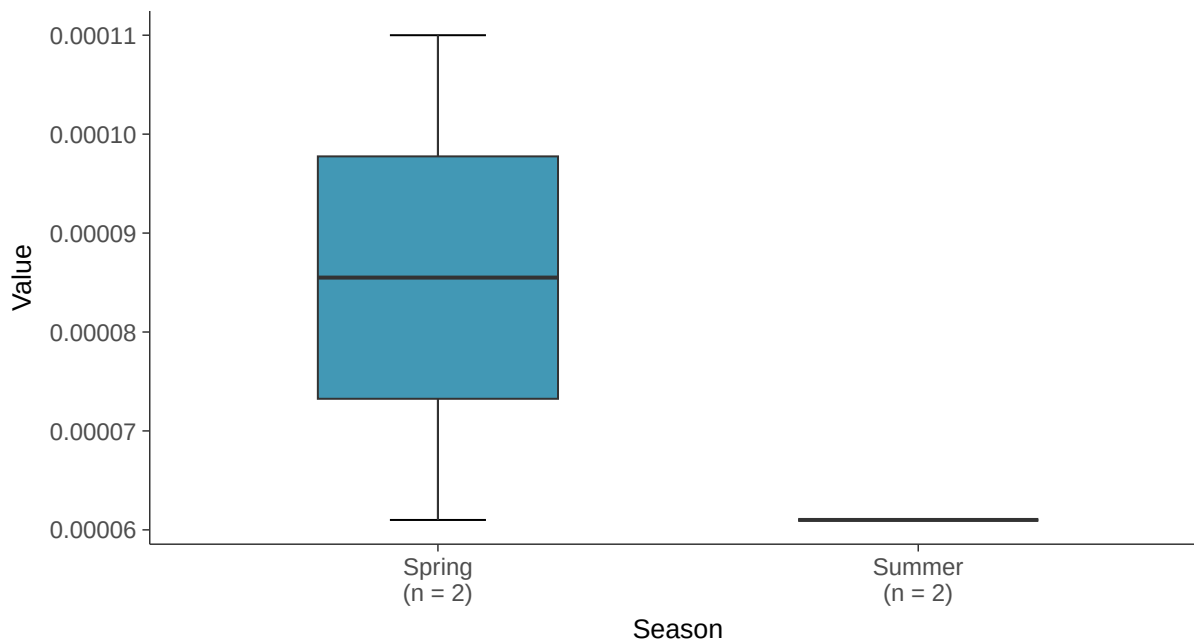
Boxplot

Mercury, W-16 (mg/l)



Boxplot by Season

Mercury, W-16 (mg/l)

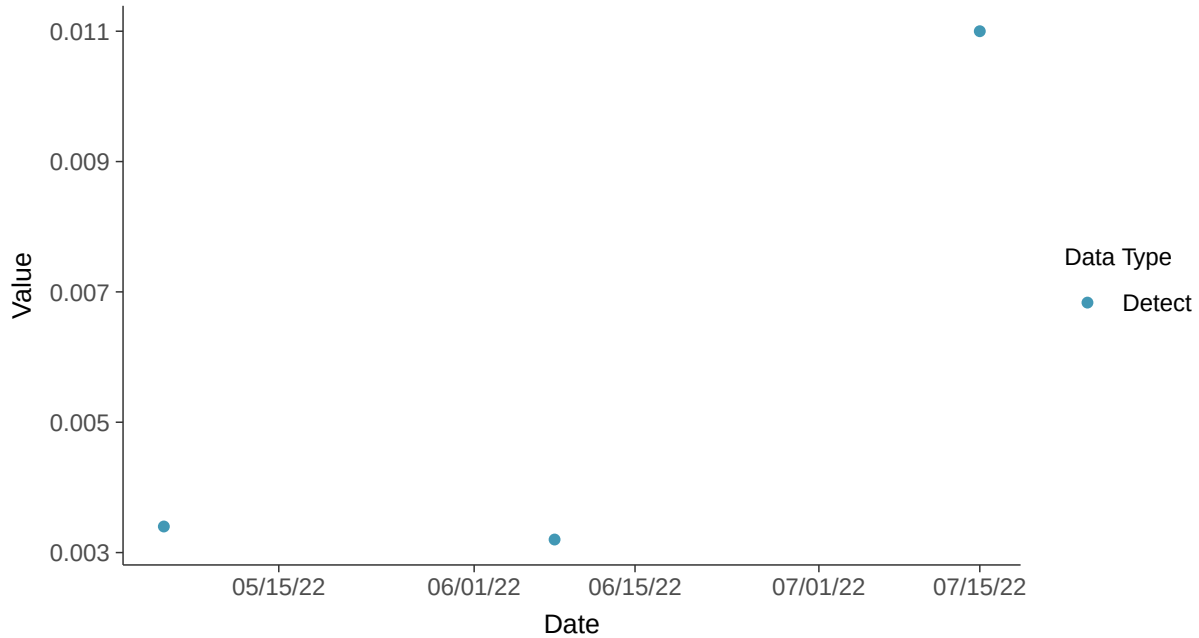


Appendix IV: Molybdenum, W-16

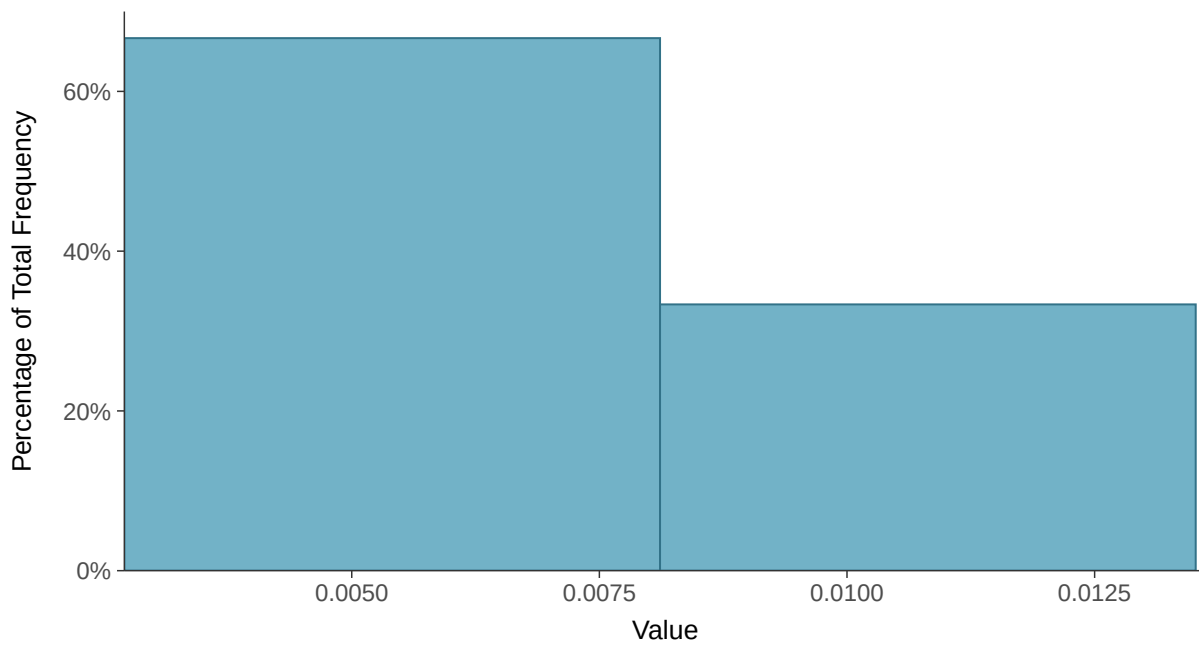
ID: 5_2_116

Scatter Plot

Molybdenum, W-16 (mg/l)

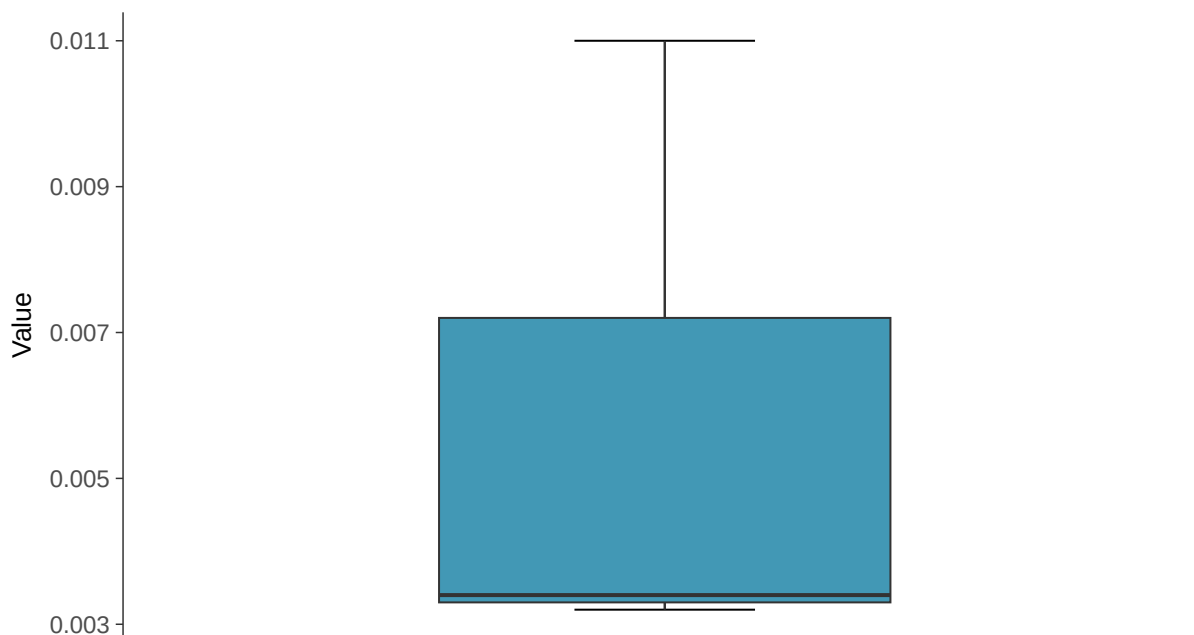
**Histogram**

Molybdenum, W-16 (mg/l)



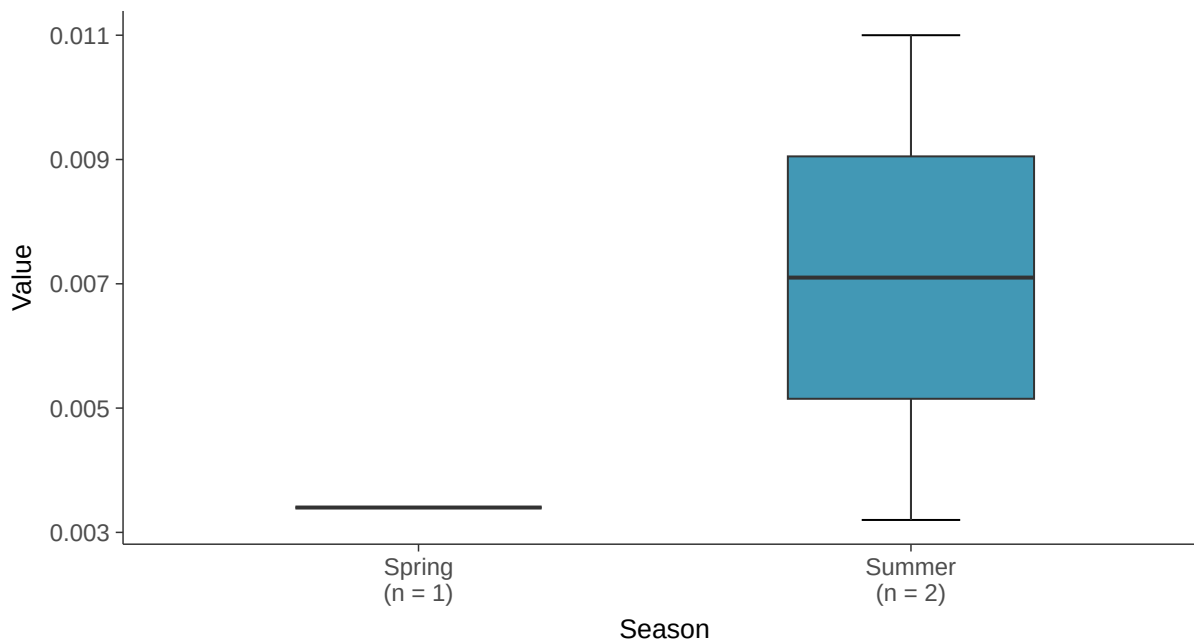
Boxplot

Molybdenum, W-16 (mg/l)



Boxplot by Season

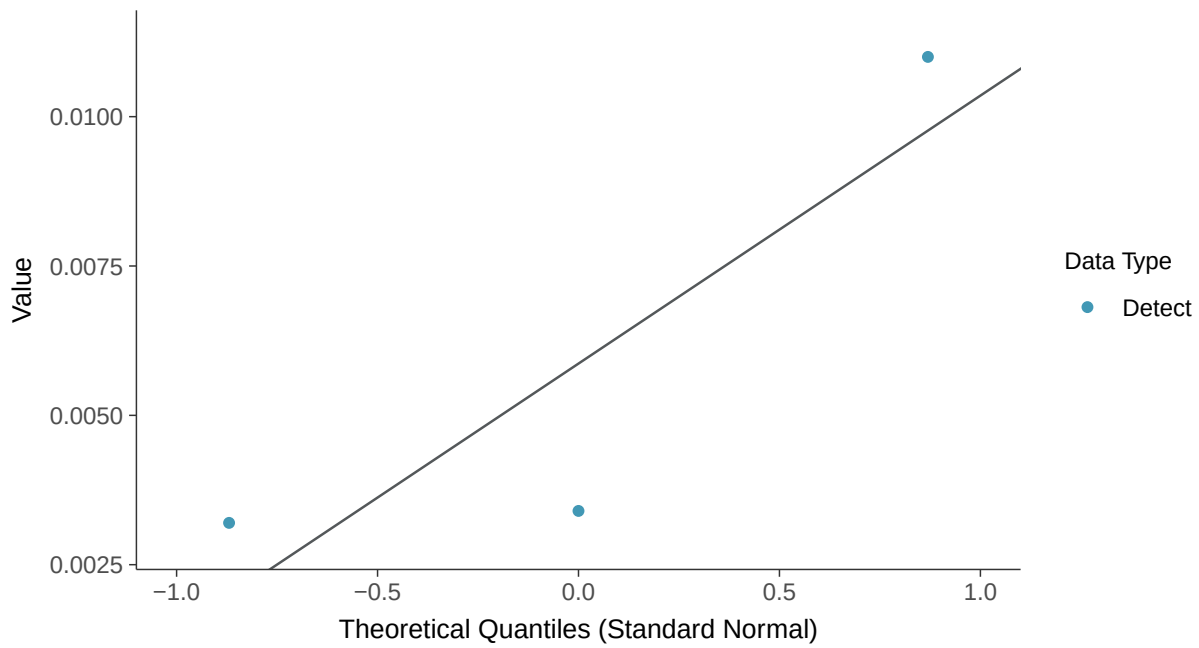
Molybdenum, W-16 (mg/l)



Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Normal Q-Q plot

Molybdenum, W-16 (mg/l)

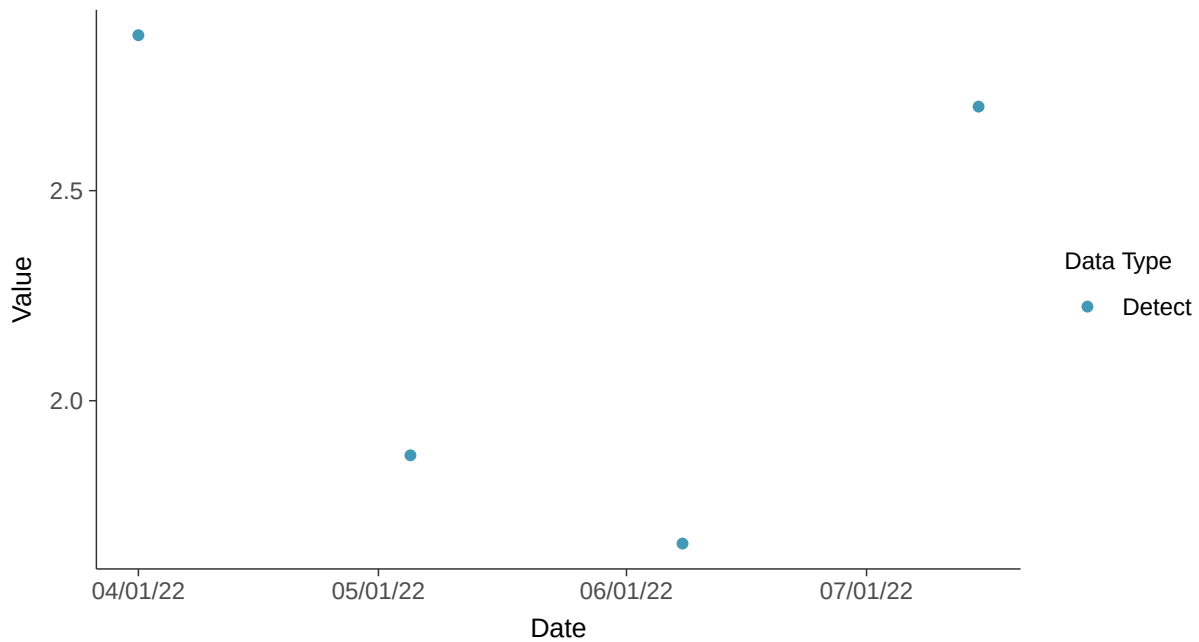


Appendix IV: Radium-226+228, W-16

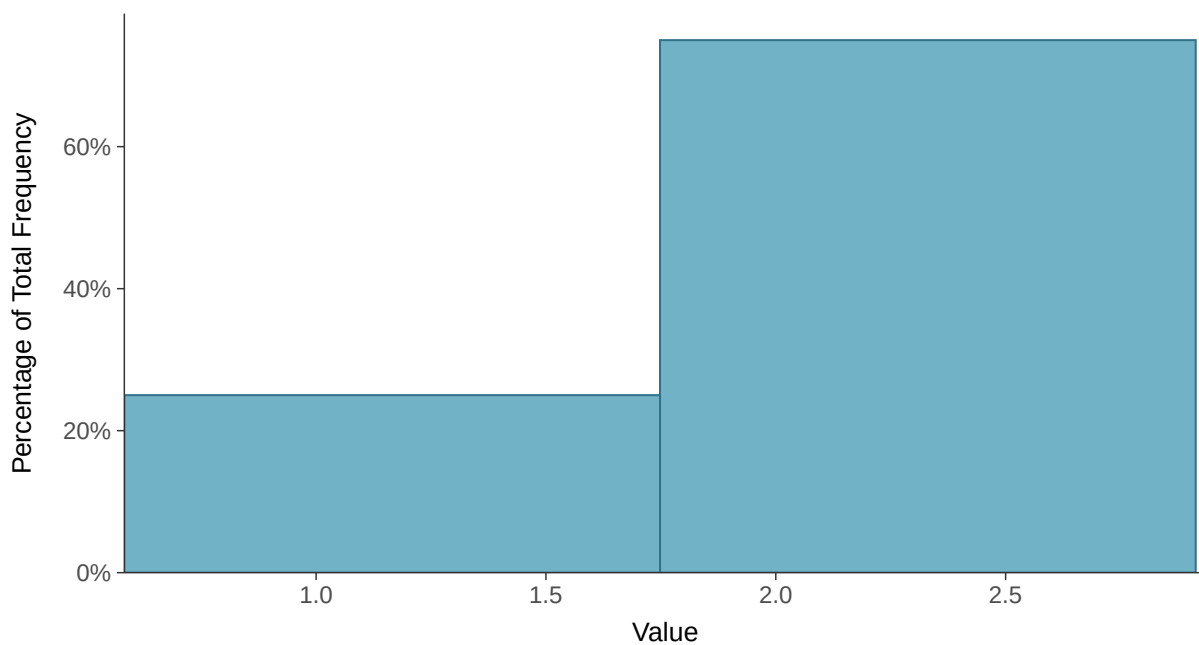
ID: 5_2_120

Scatter Plot

Radium-226+228, W-16 (pci/l)

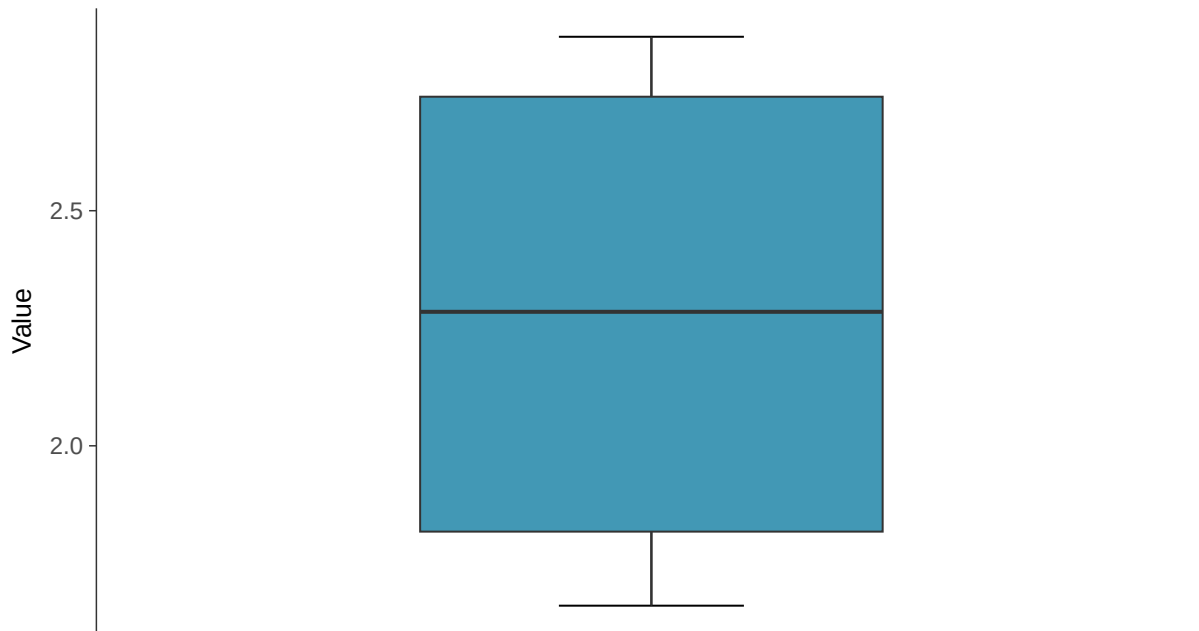
**Histogram**

Radium-226+228, W-16 (pci/l)



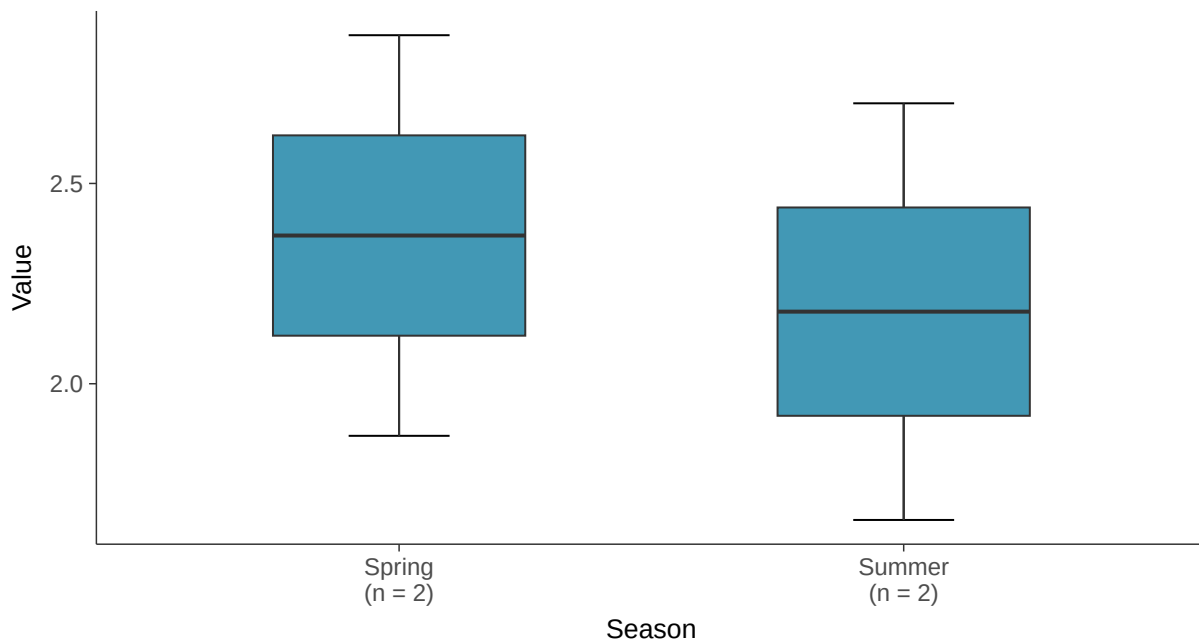
Boxplot

Radium-226+228, W-16 (pci/l)



Boxplot by Season

Radium-226+228, W-16 (pci/l)

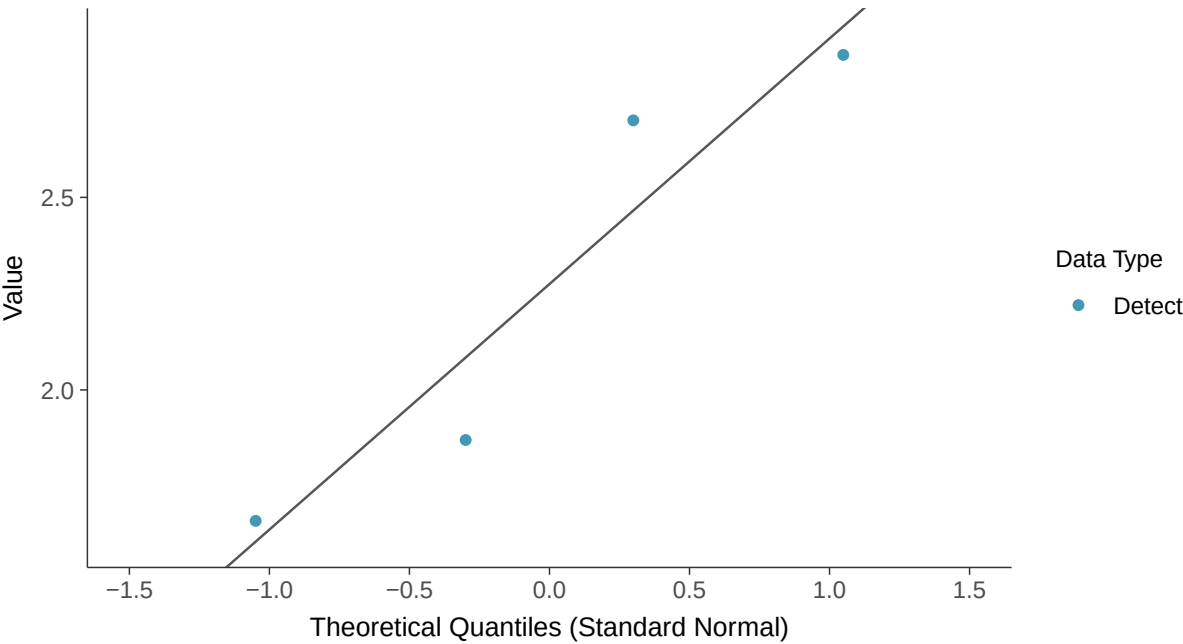




Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

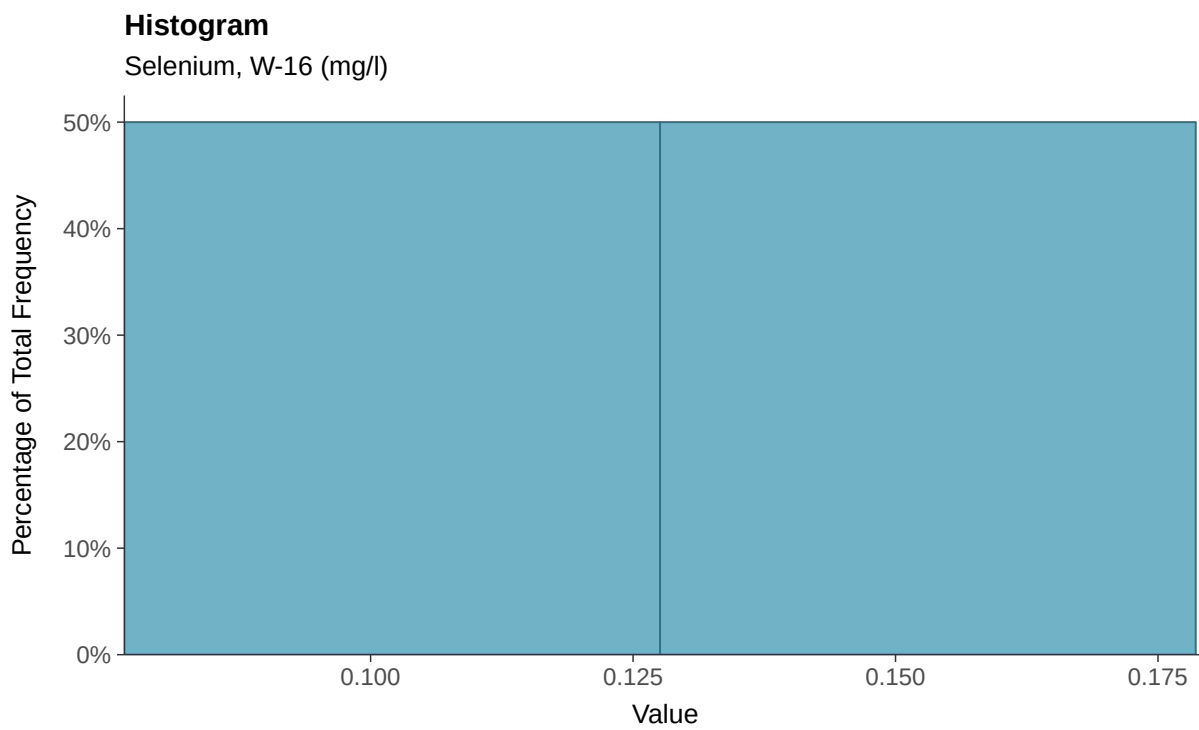
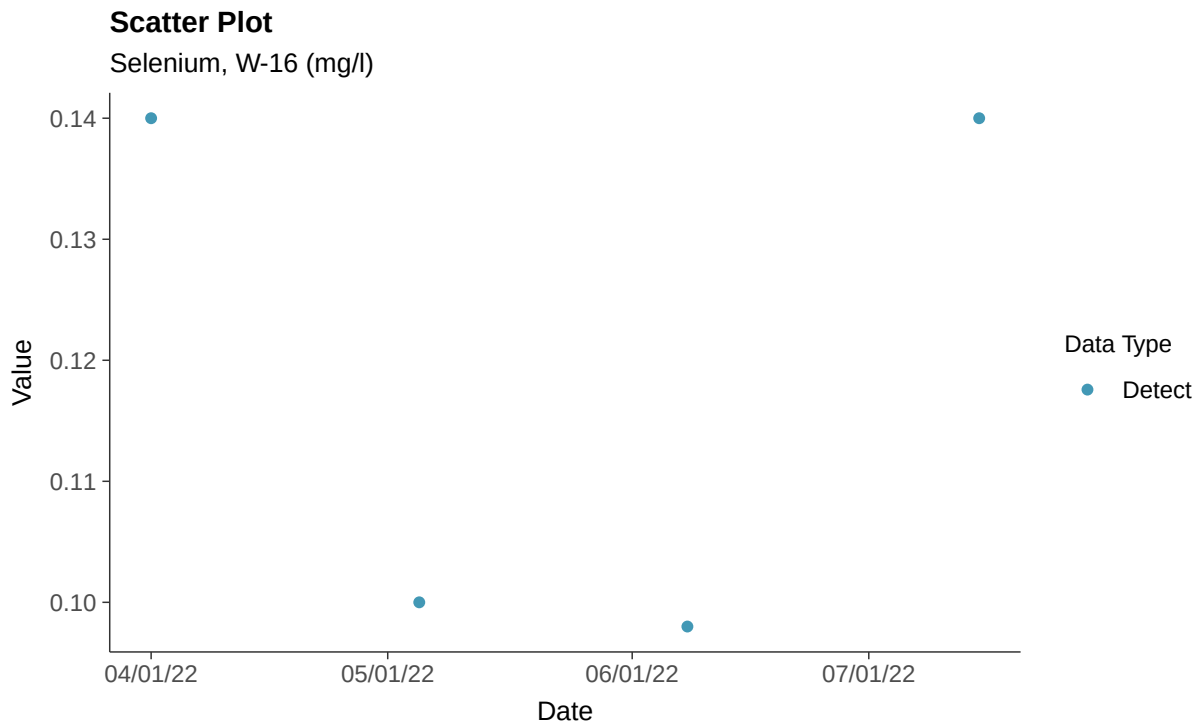
Normal Q-Q plot

Radium-226+228, W-16 (pci/l)



Appendix IV: Selenium, W-16

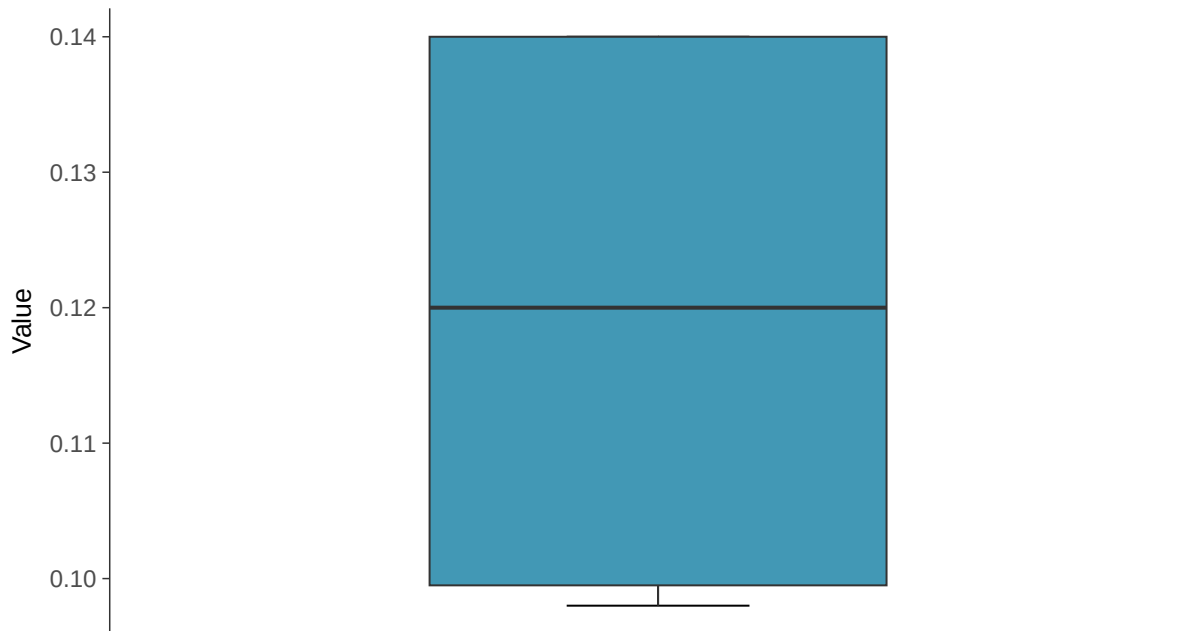
ID: 5_2_122





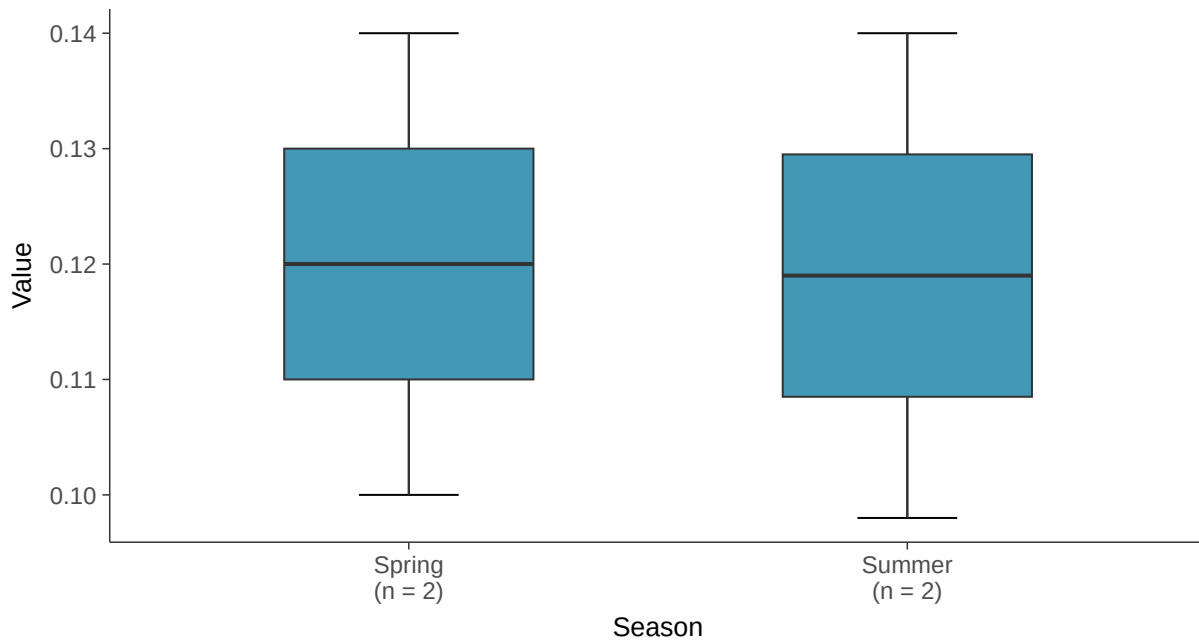
Boxplot

Selenium, W-16 (mg/l)



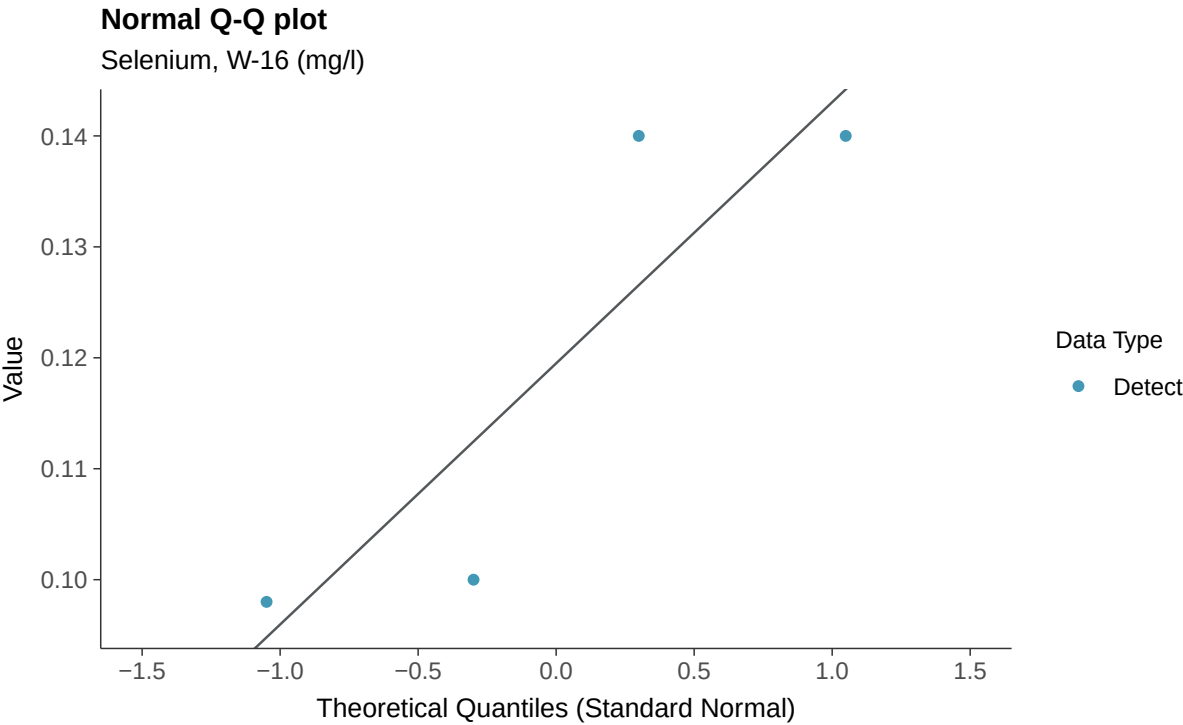
Boxplot by Season

Selenium, W-16 (mg/l)



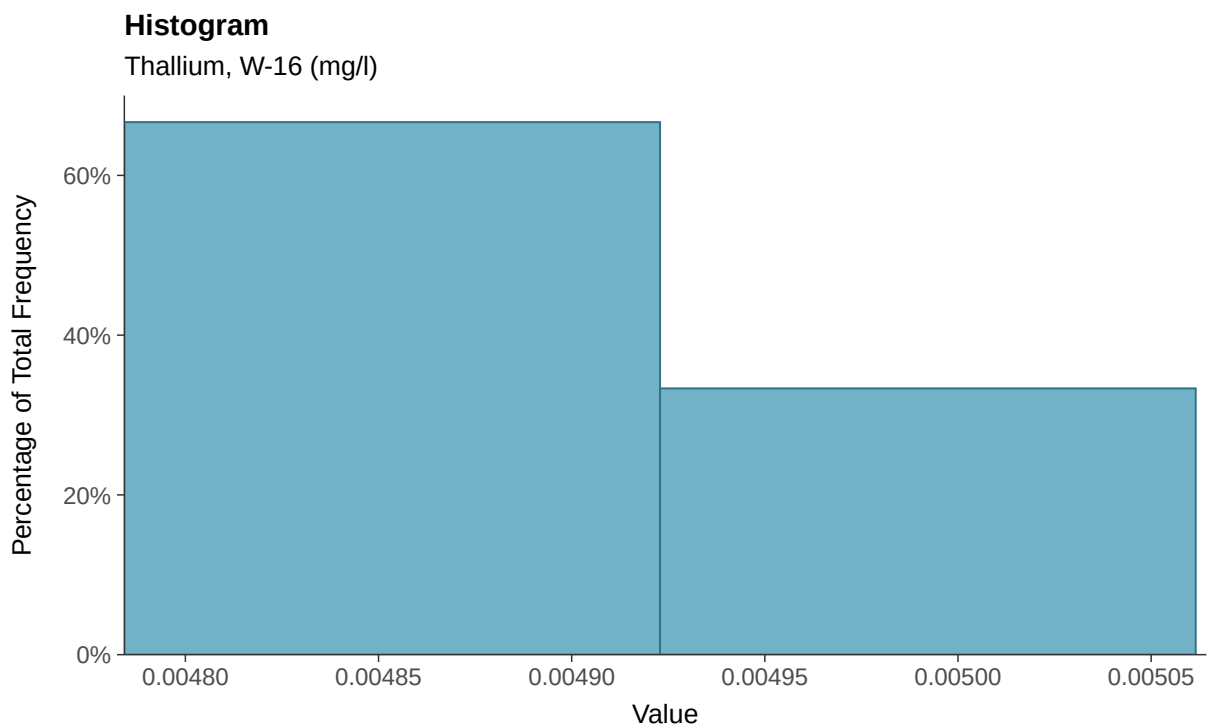
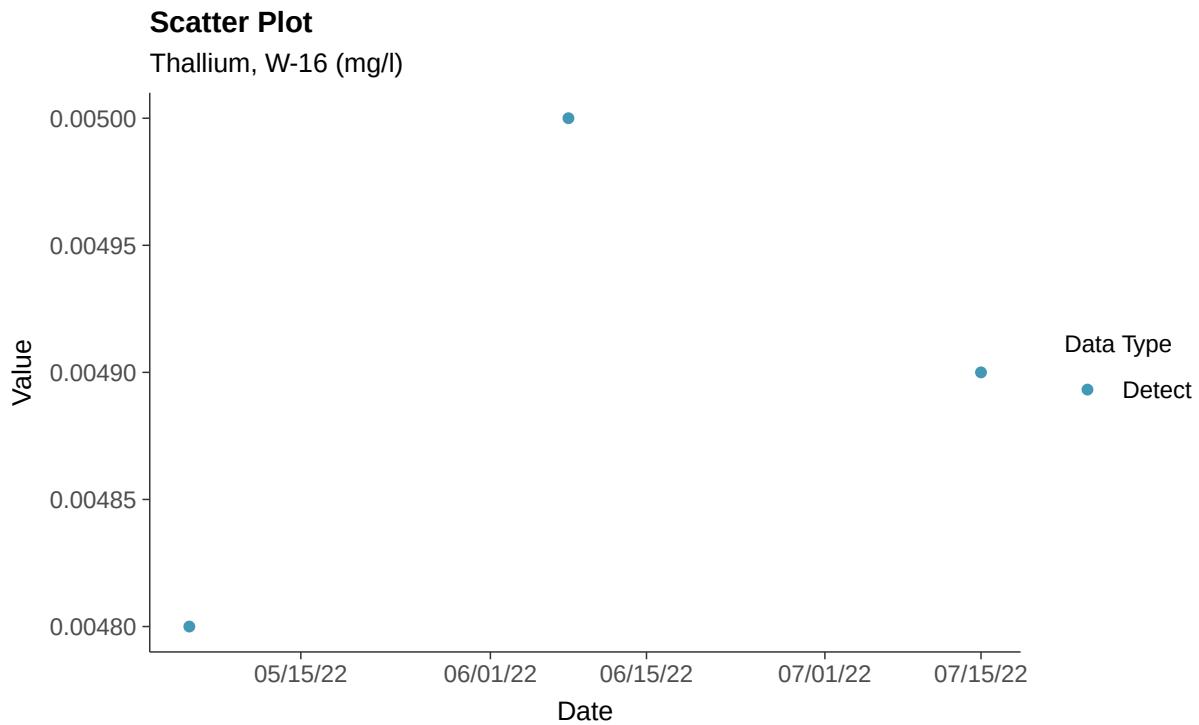


Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11



Appendix IV: Thallium, W-16

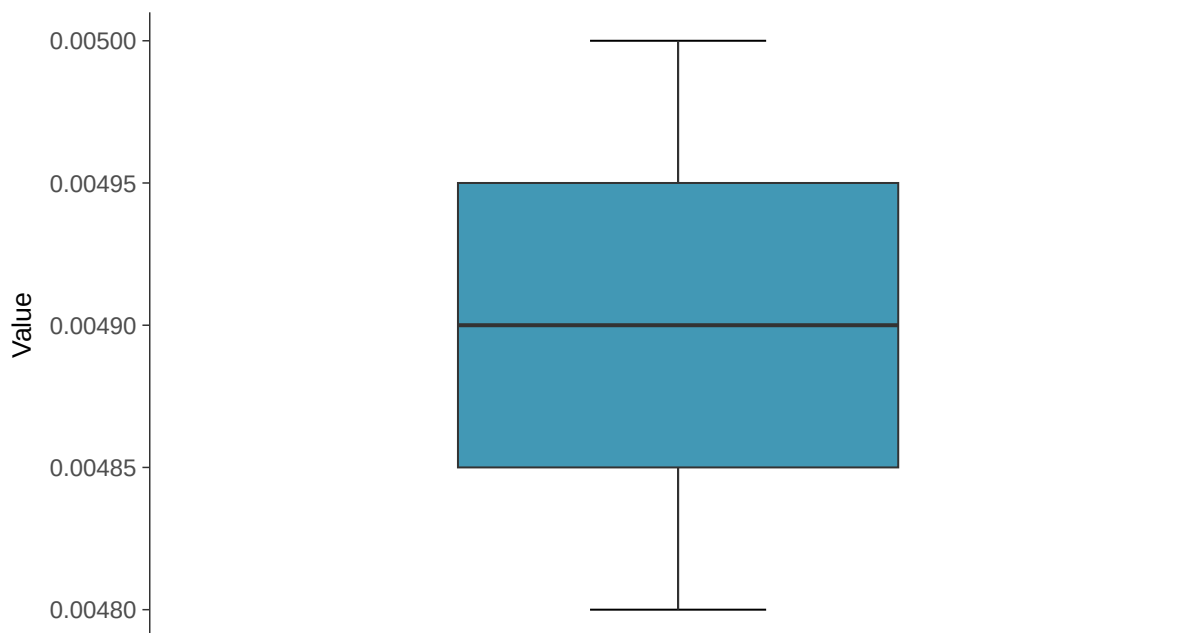
ID: 5_2_126





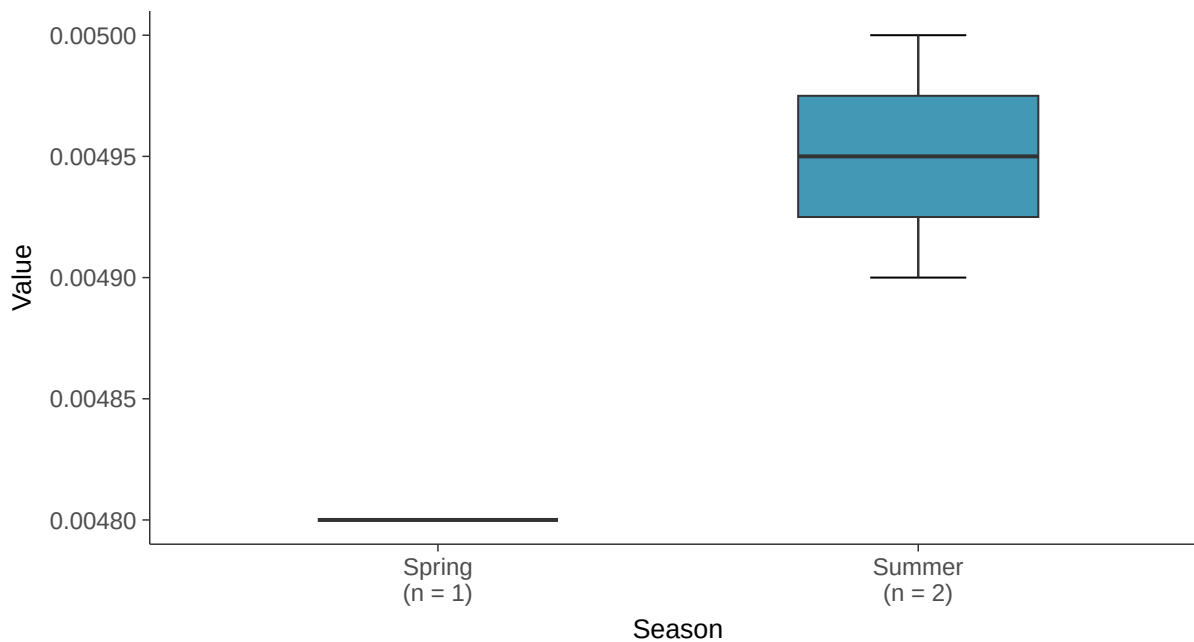
Boxplot

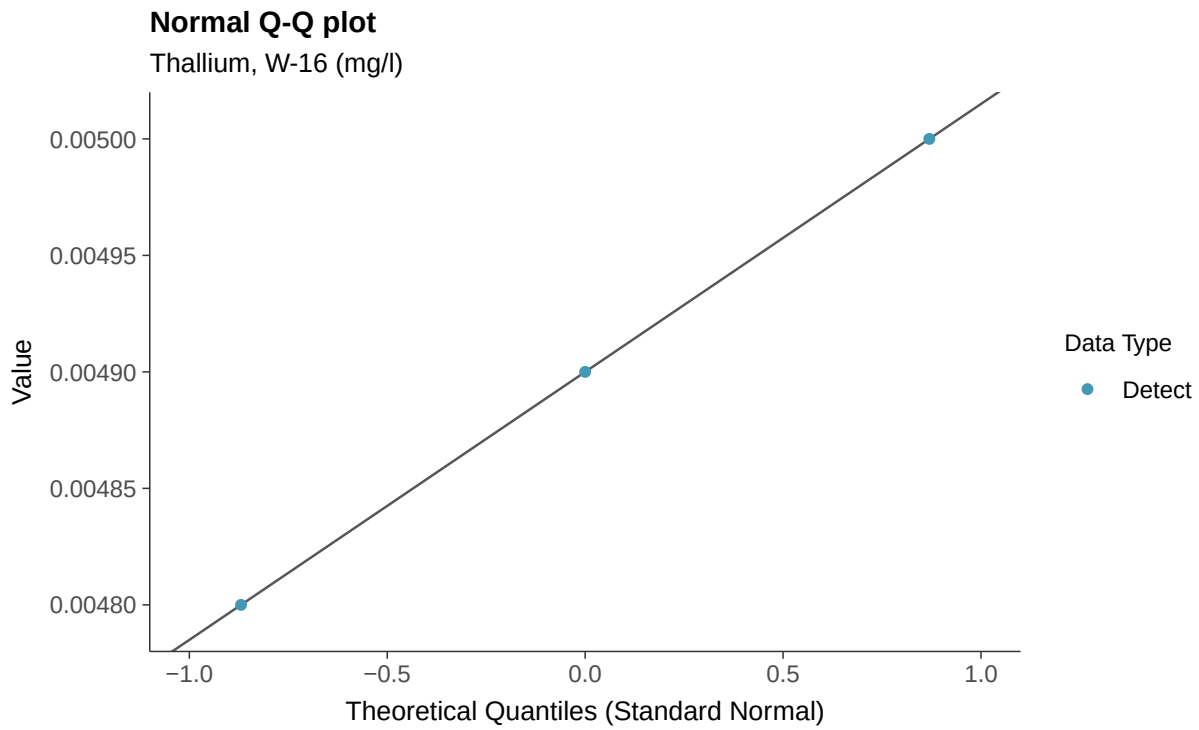
Thallium, W-16 (mg/l)



Boxplot by Season

Thallium, W-16 (mg/l)



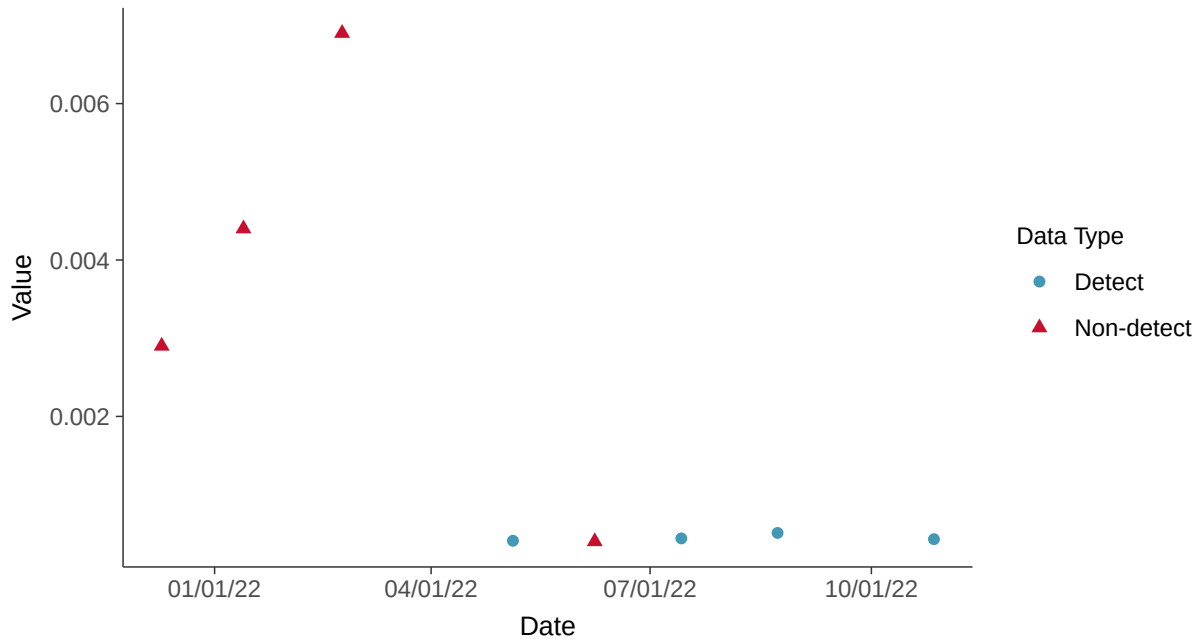


Appendix IV: Antimony, W-3B

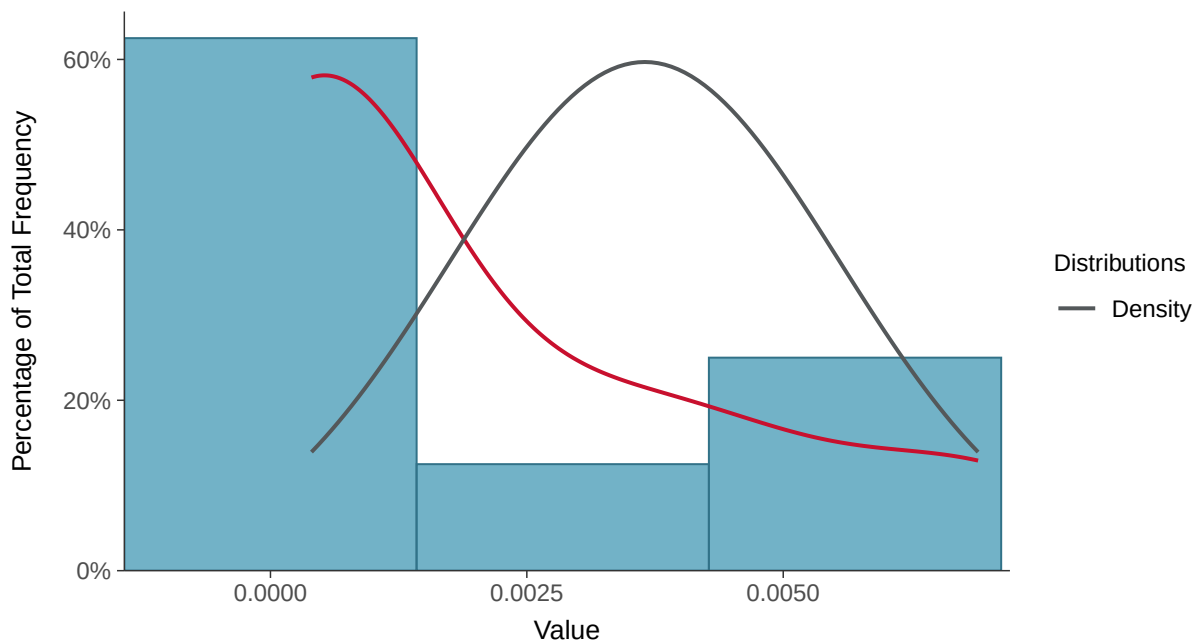
ID: 6_2_101

Scatter Plot

Antimony, W-3B (mg/l)

**Histogram**

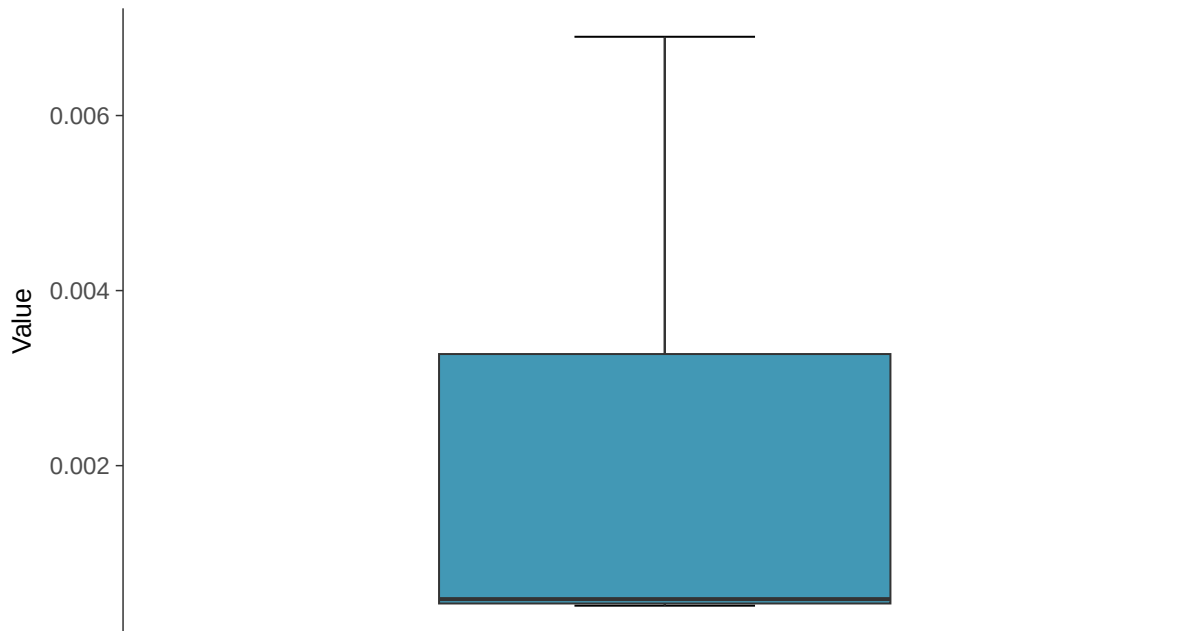
Antimony, W-3B (mg/l)



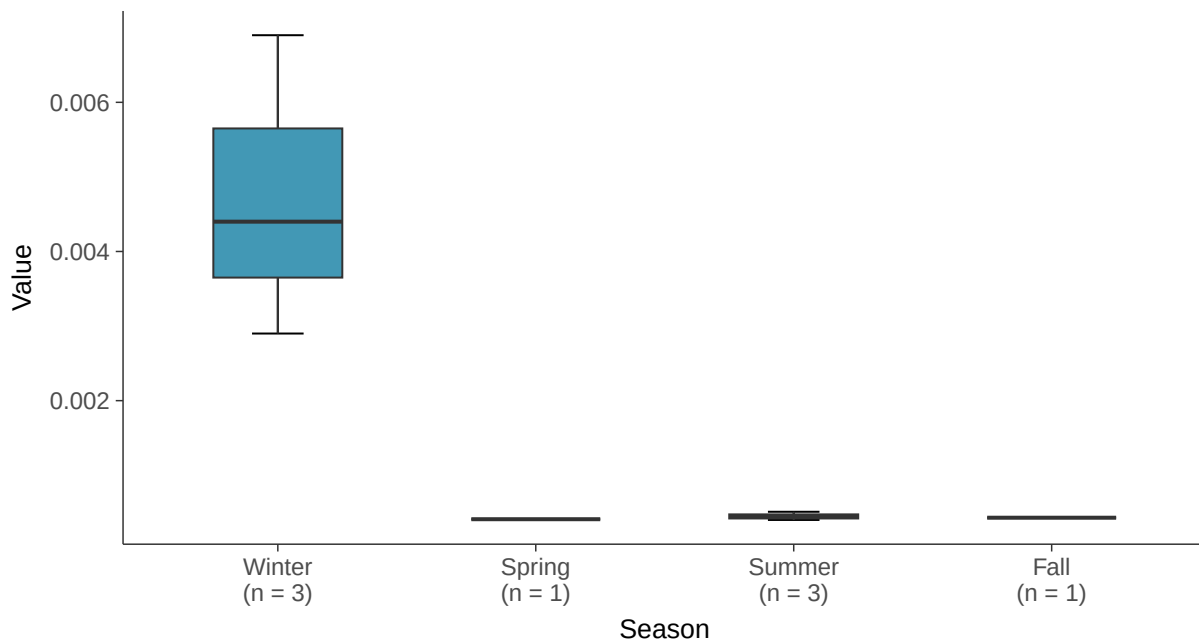
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Antimony, W-3B (mg/l)

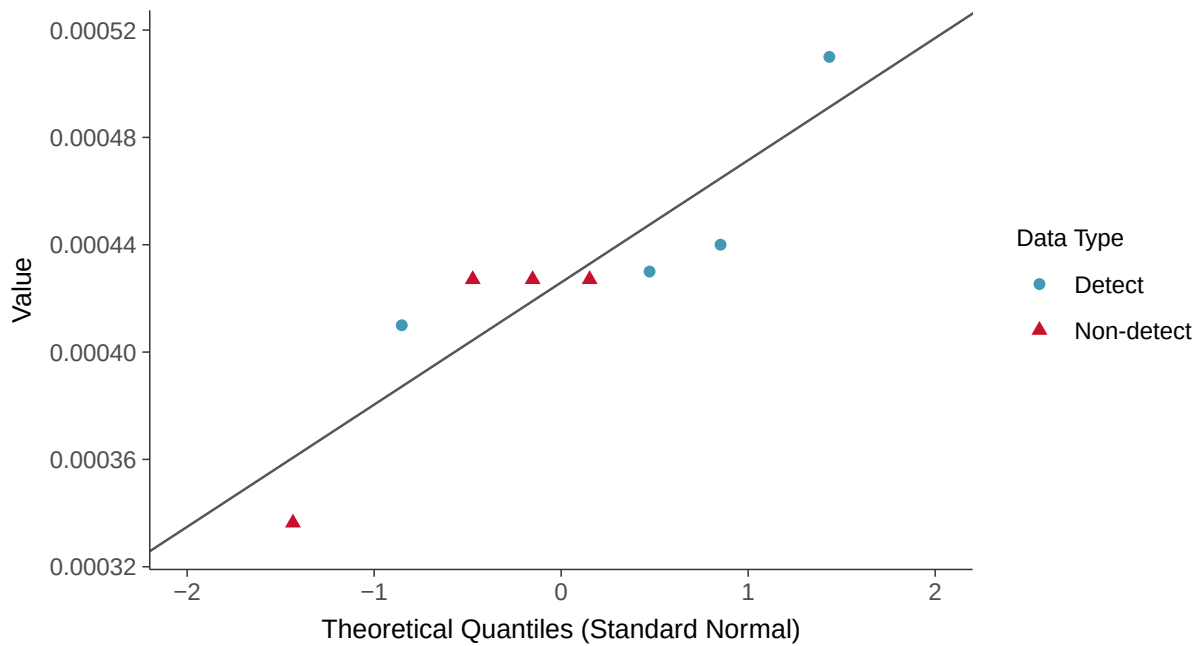
**Boxplot by Season**

Antimony, W-3B (mg/l)



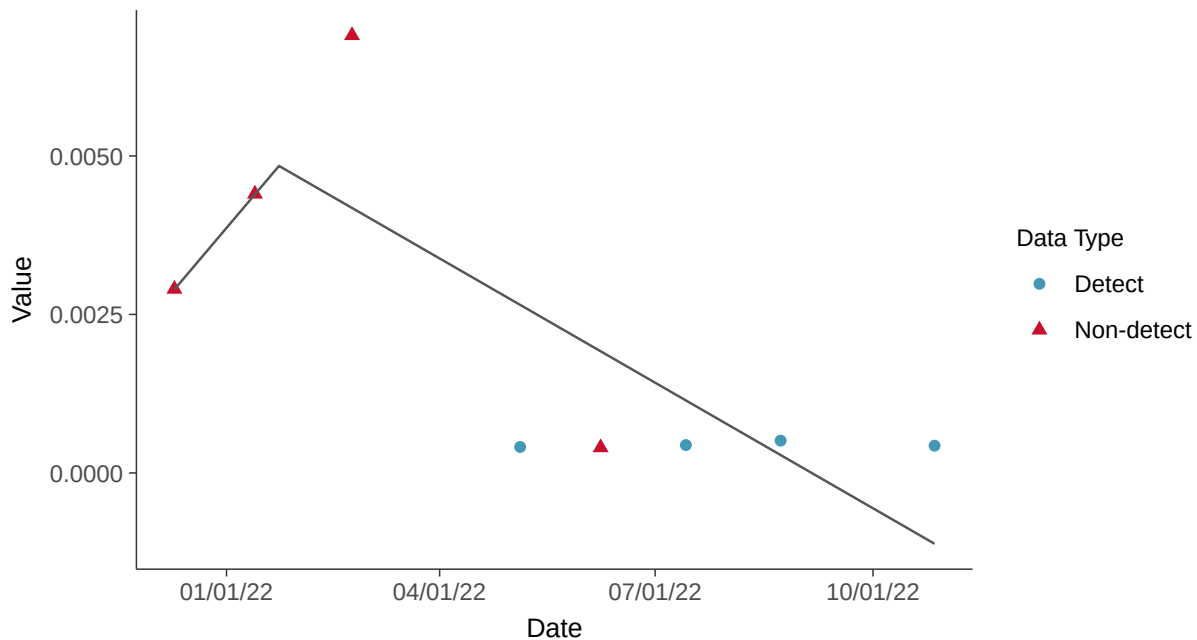
Normal Q-Q plot using ROS Imputed Estimates

Antimony, W-3B (mg/l)



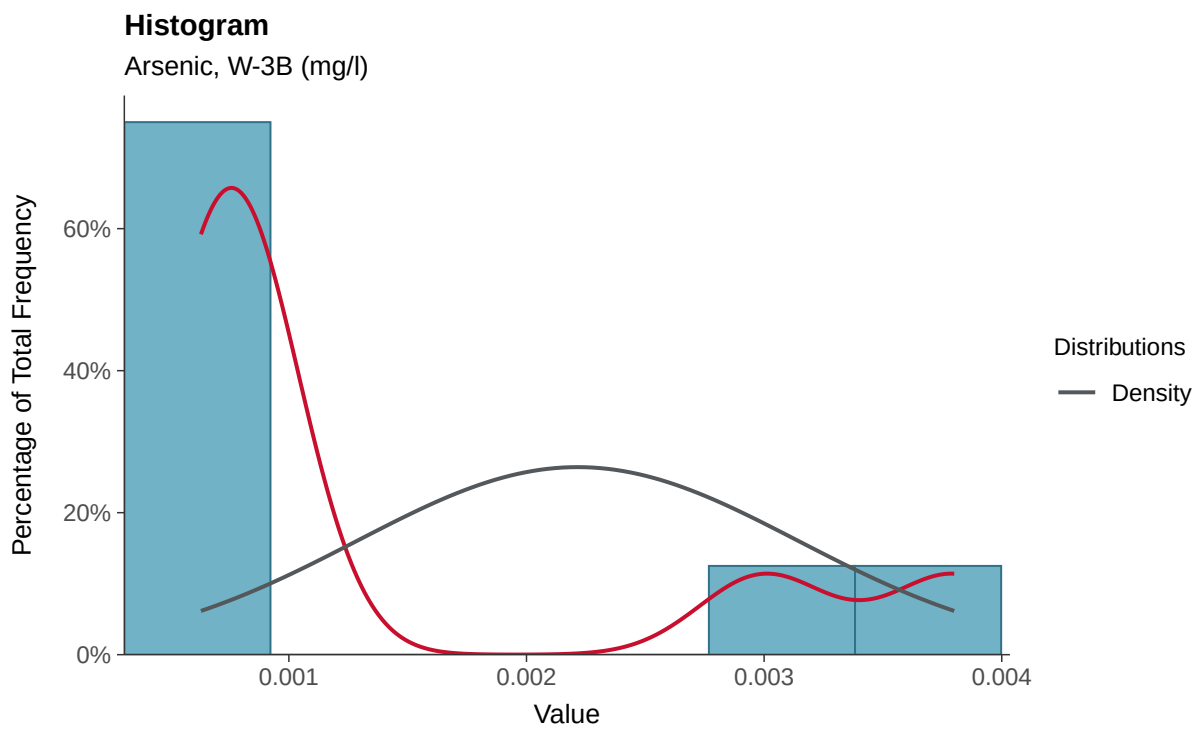
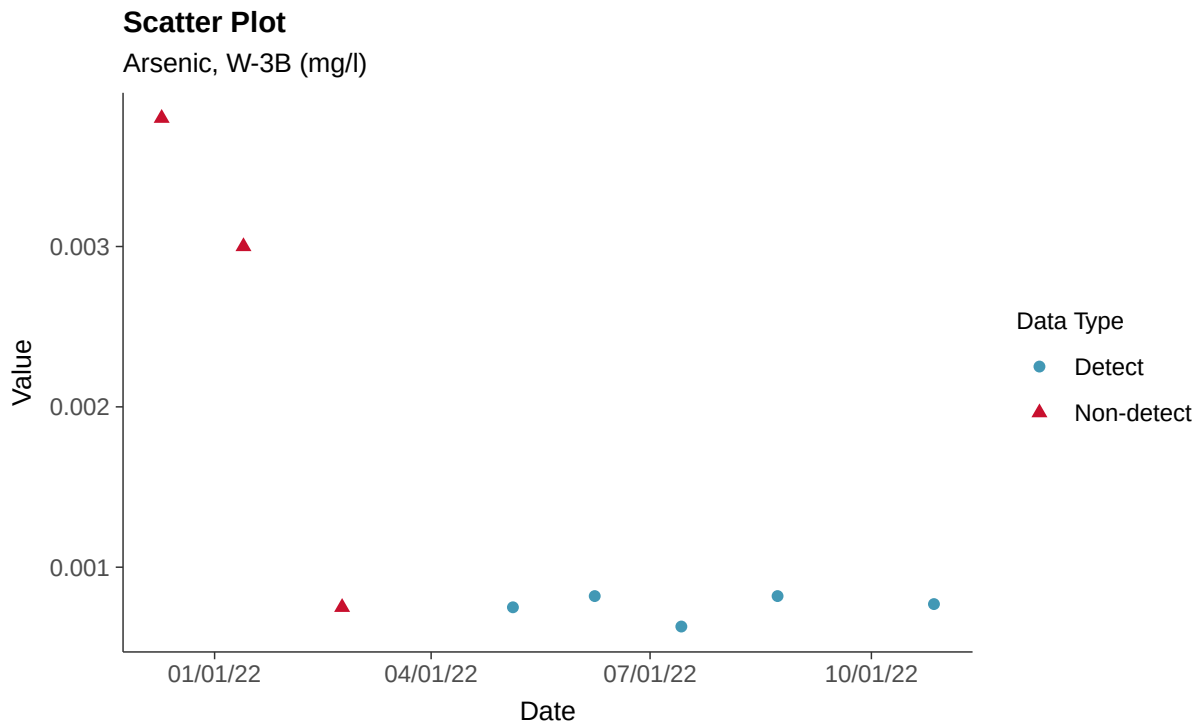
Trend Regression: Piecewise Linear-Linear

Antimony, W-3B (mg/l)



Appendix IV: Arsenic, W-3B

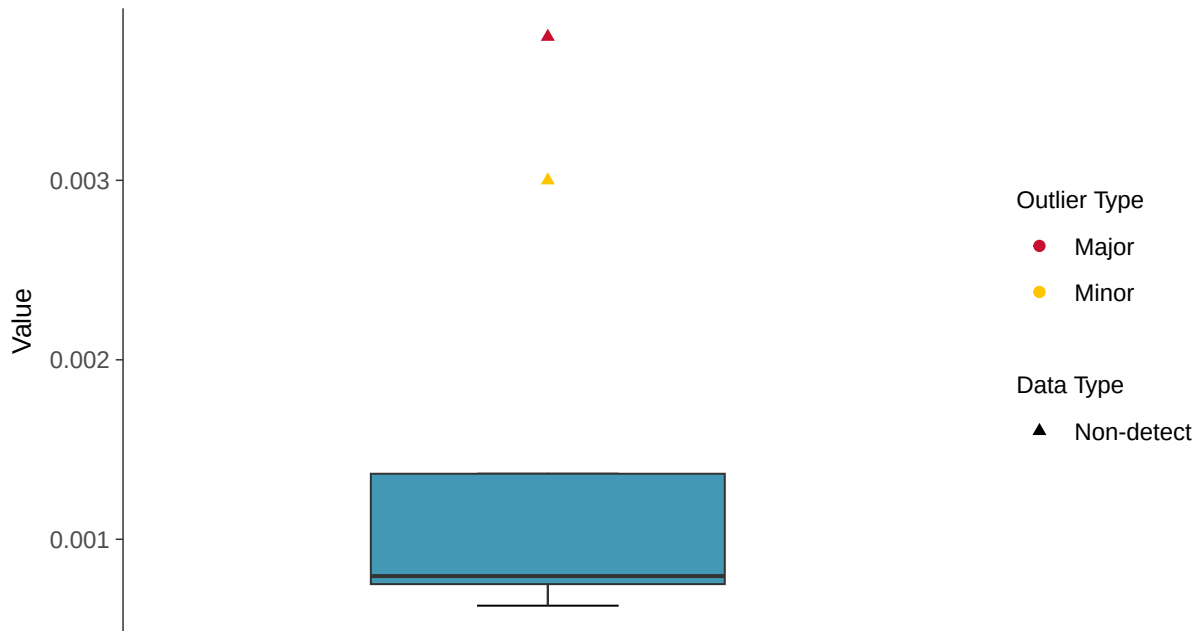
ID: 6_2_102



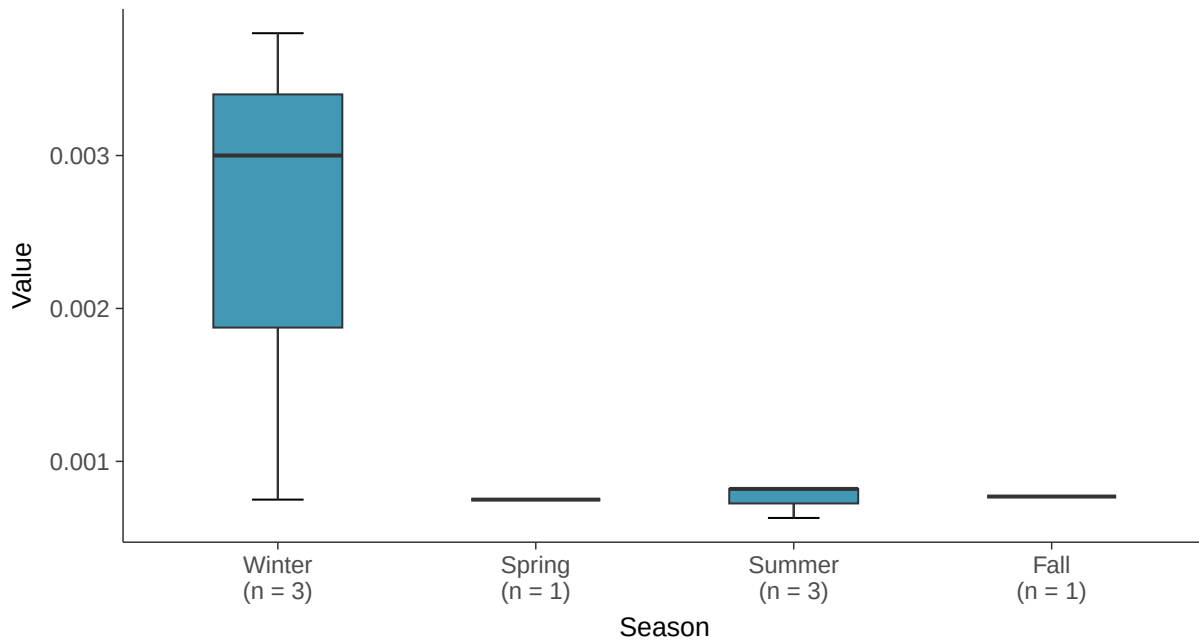
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Arsenic, W-3B (mg/l)

**Boxplot by Season**

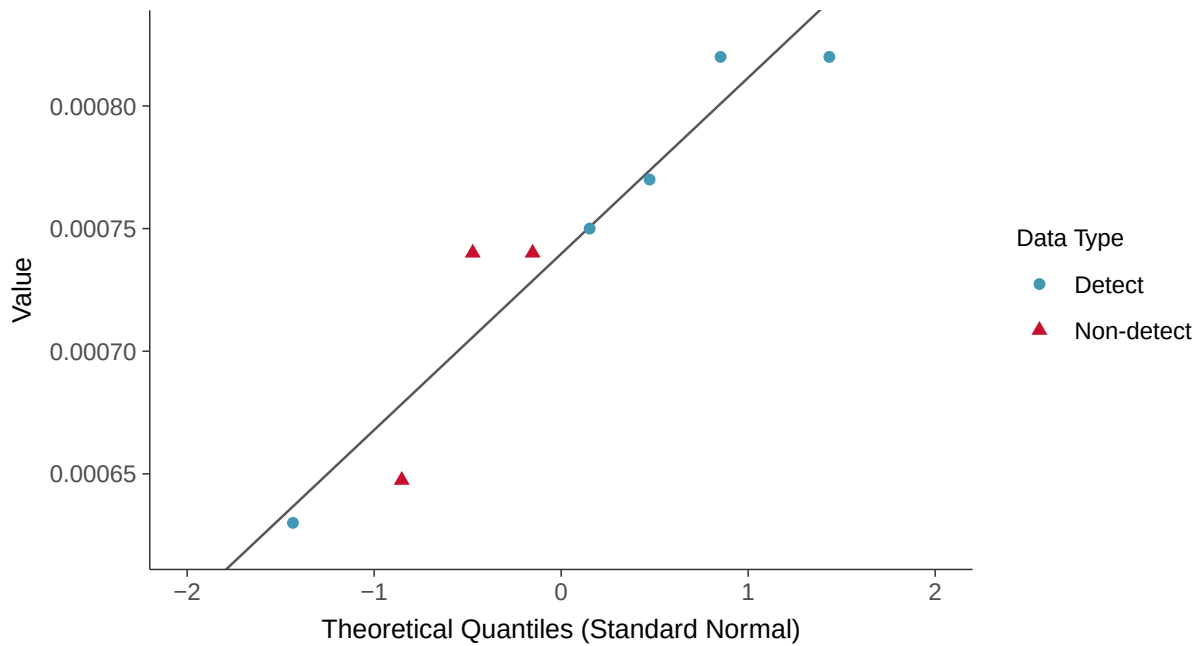
Arsenic, W-3B (mg/l)



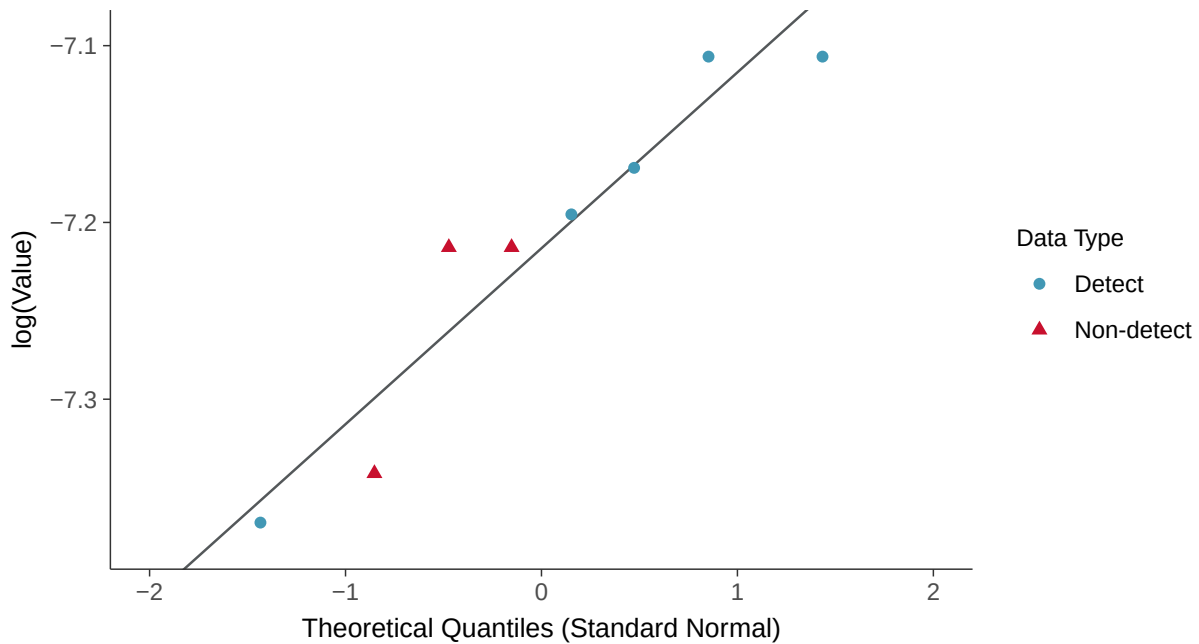
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Normal Q-Q plot using ROS Imputed Estimates

Arsenic, W-3B (mg/l)

**Lognormal Q-Q plot using ROS Imputed Estimates**

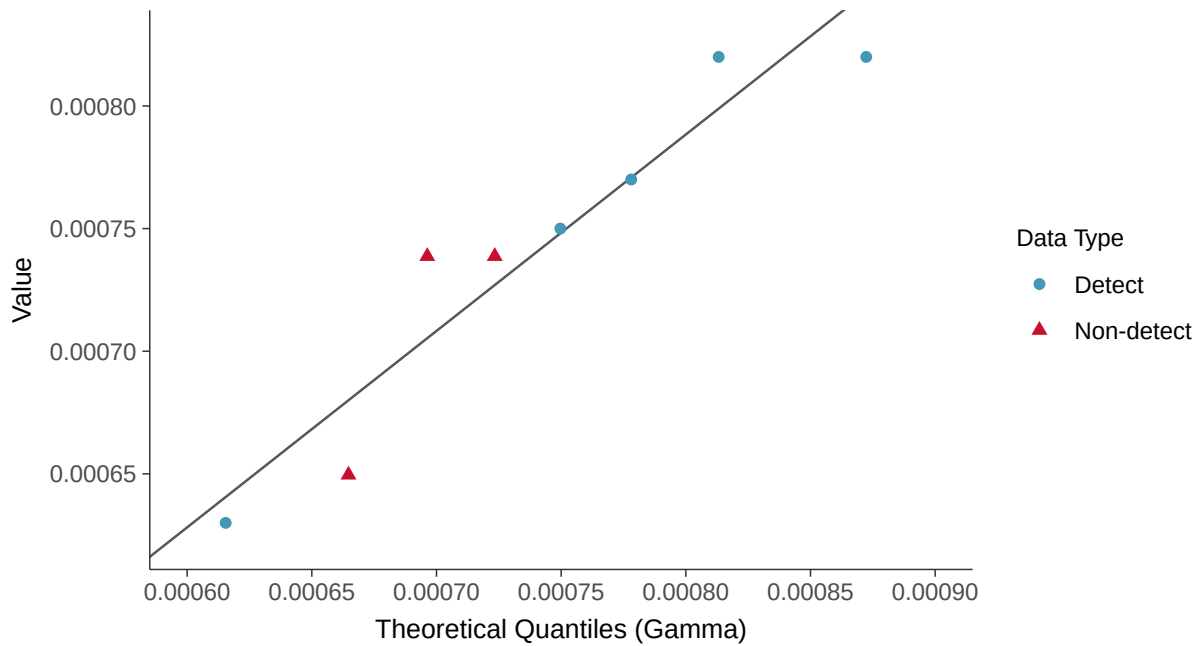
Arsenic, W-3B (mg/l)





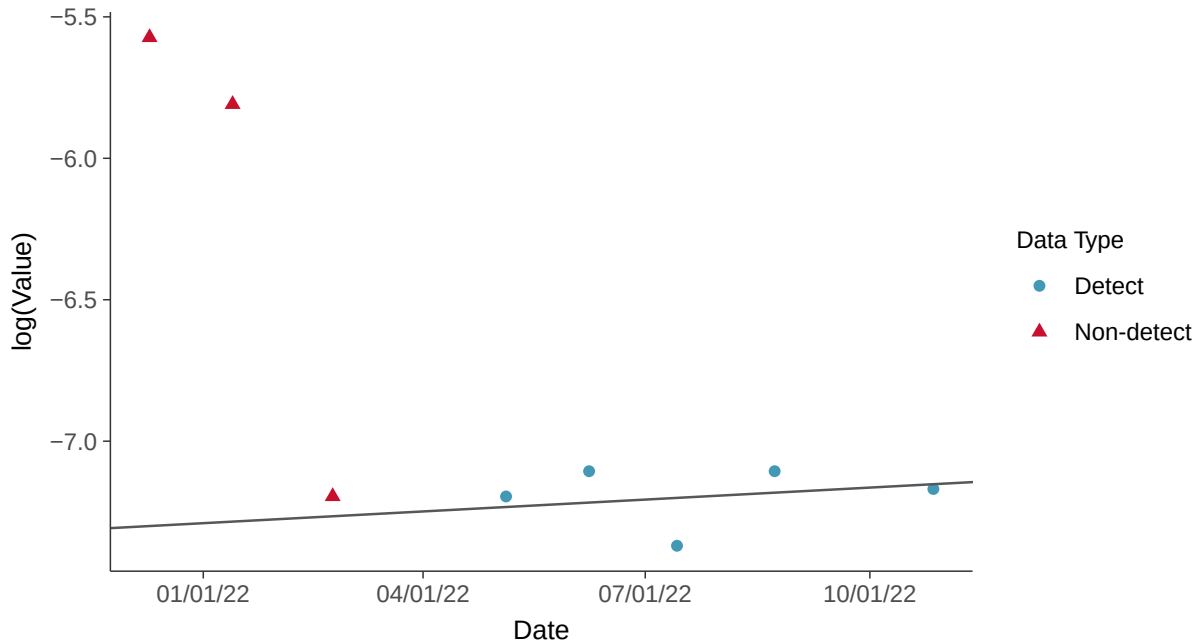
Gamma Q-Q plot using ROS Imputed Estimates

Arsenic, W-3B (mg/l)



Trend Regression: Lognormal MLE

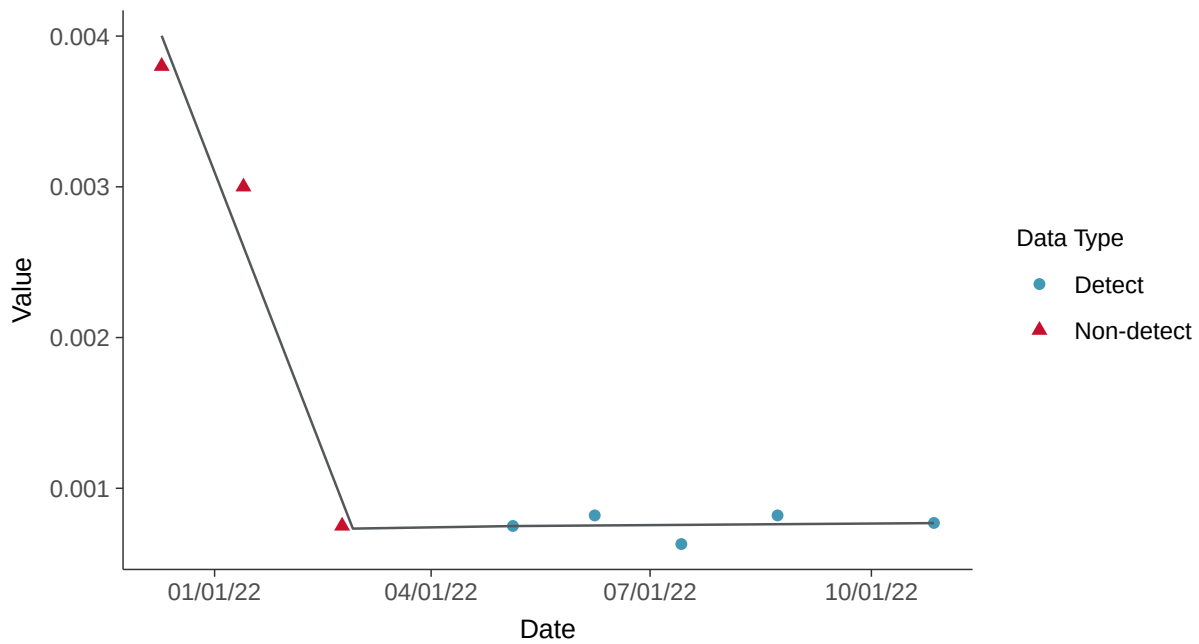
Arsenic, W-3B (mg/l)





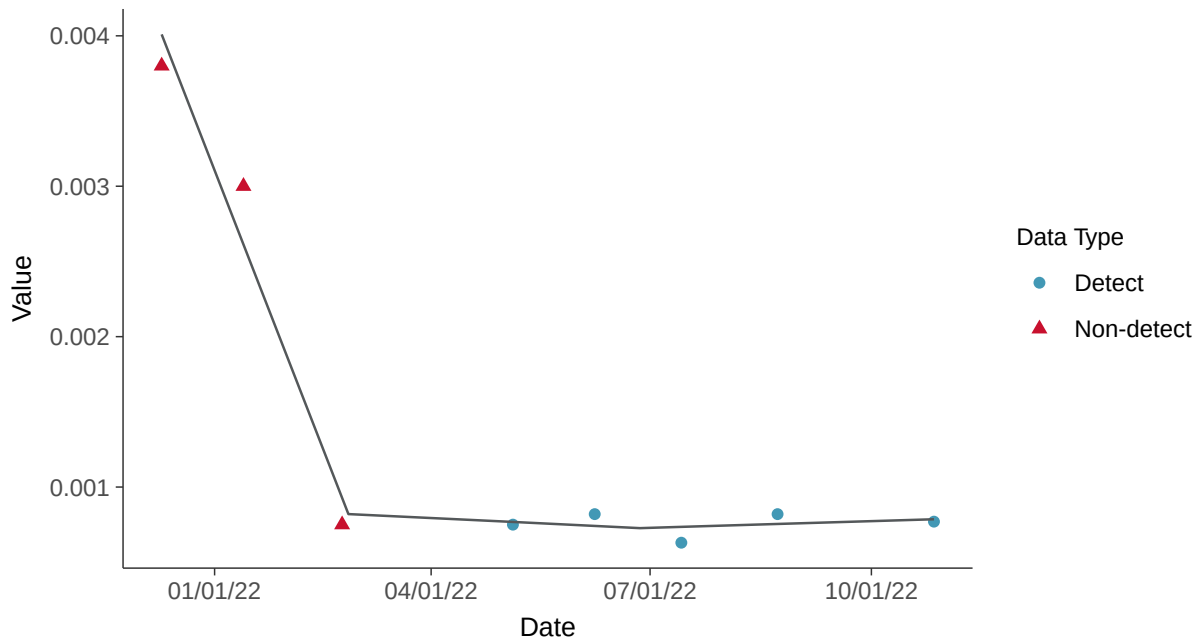
Trend Regression: Piecewise Linear-Linear

Arsenic, W-3B (mg/l)



Trend Regression: Piecewise Linear-Linear-Linear

Arsenic, W-3B (mg/l)

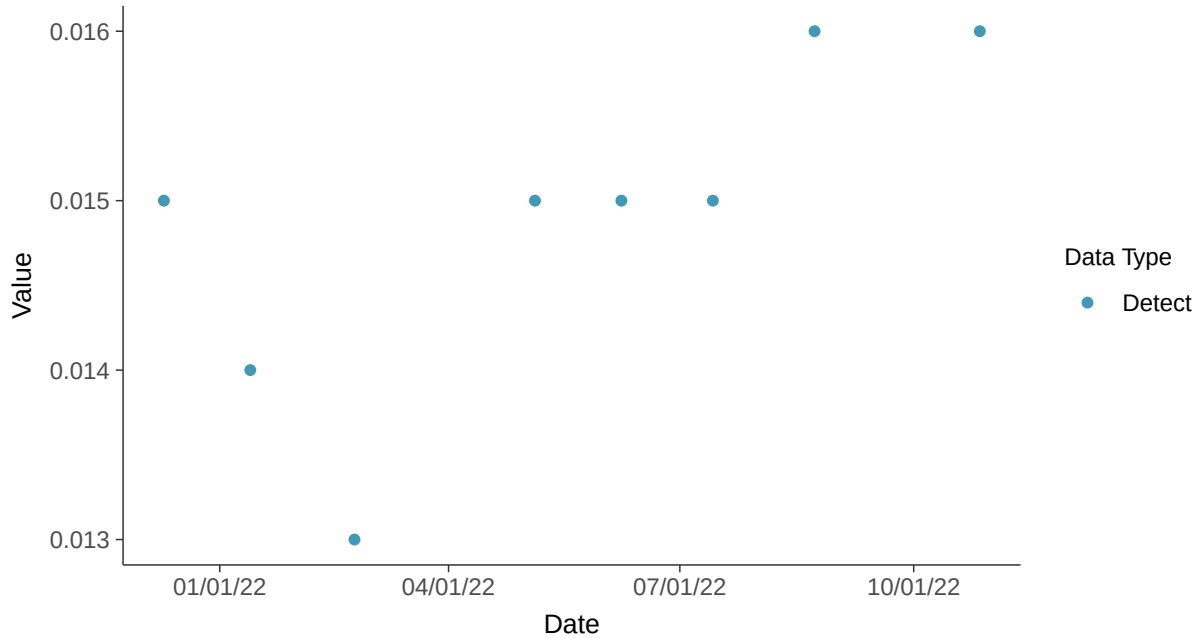


Appendix IV: Barium, W-3B

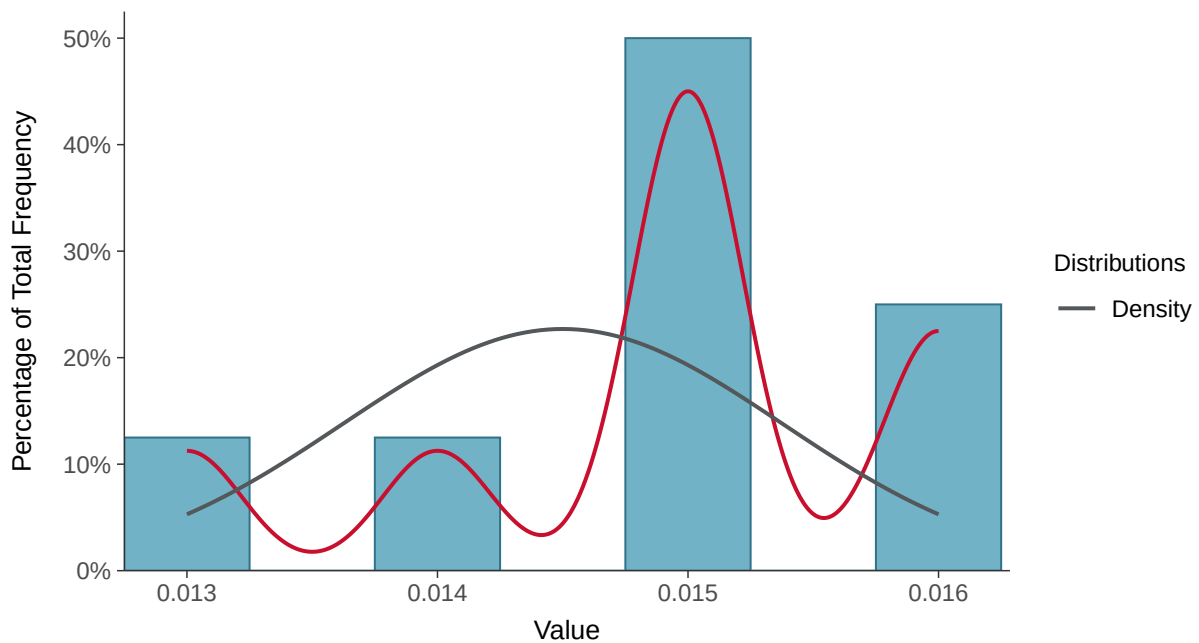
ID: 6_2_103

Scatter Plot

Barium, W-3B (mg/l)

**Histogram**

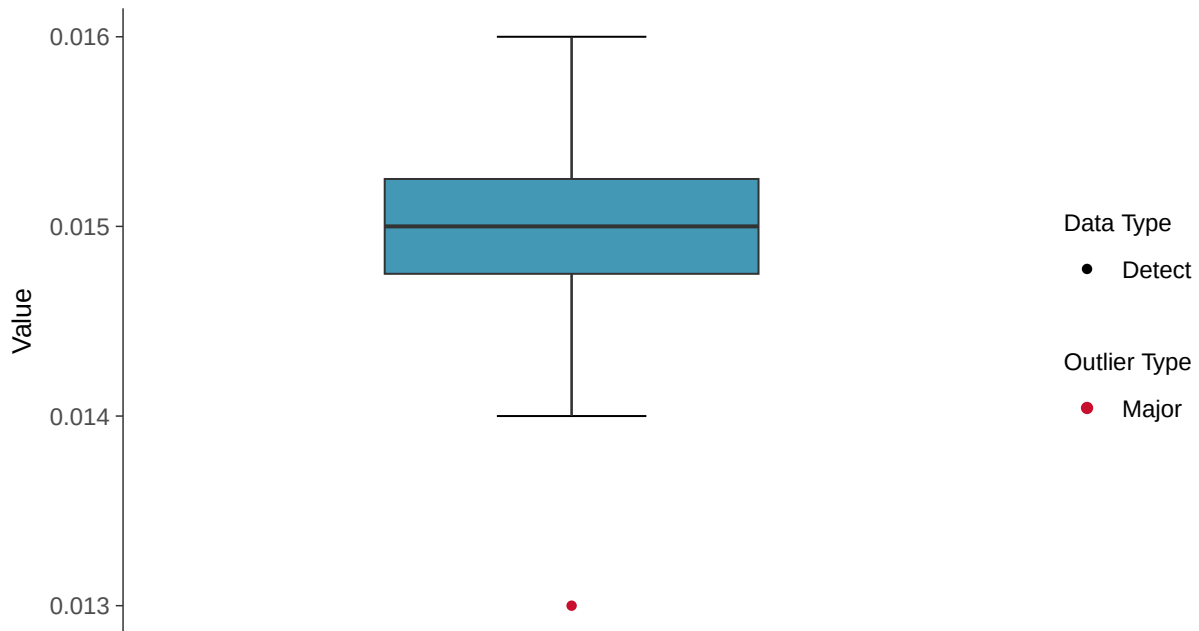
Barium, W-3B (mg/l)





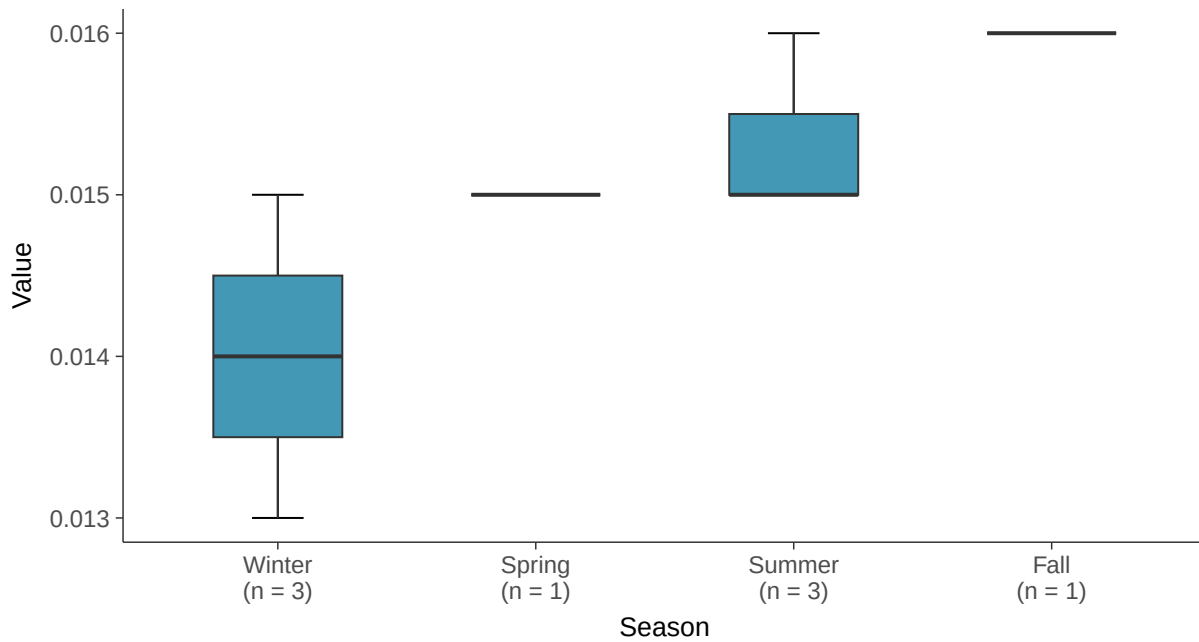
Boxplot

Barium, W-3B (mg/l)



Boxplot by Season

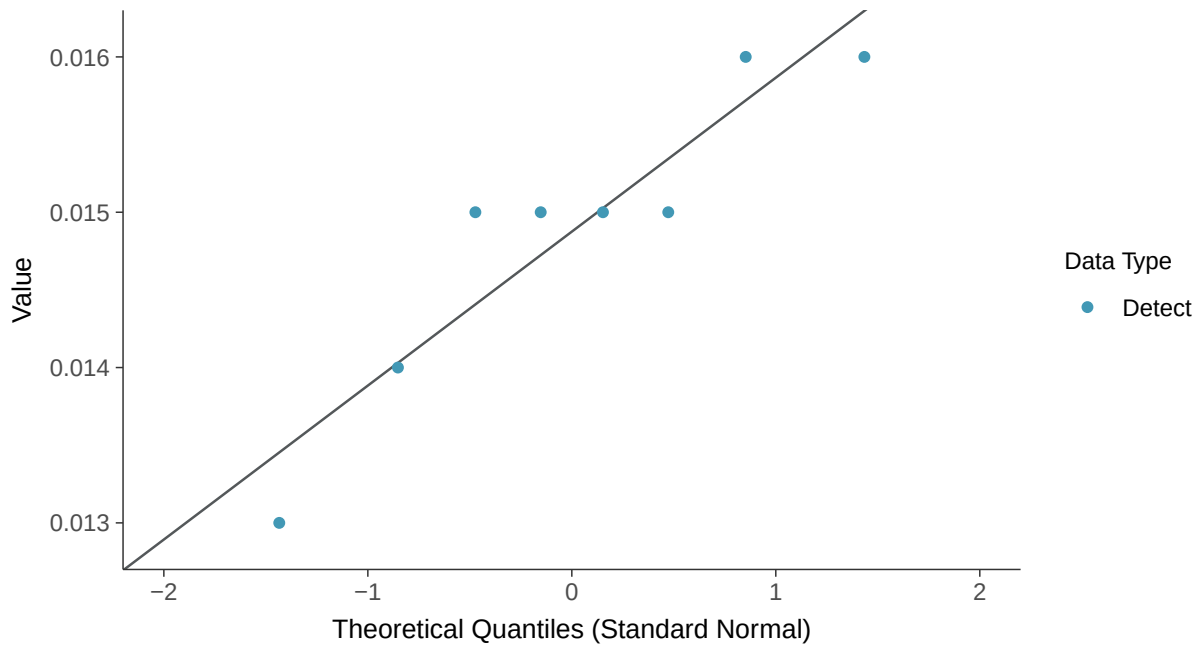
Barium, W-3B (mg/l)



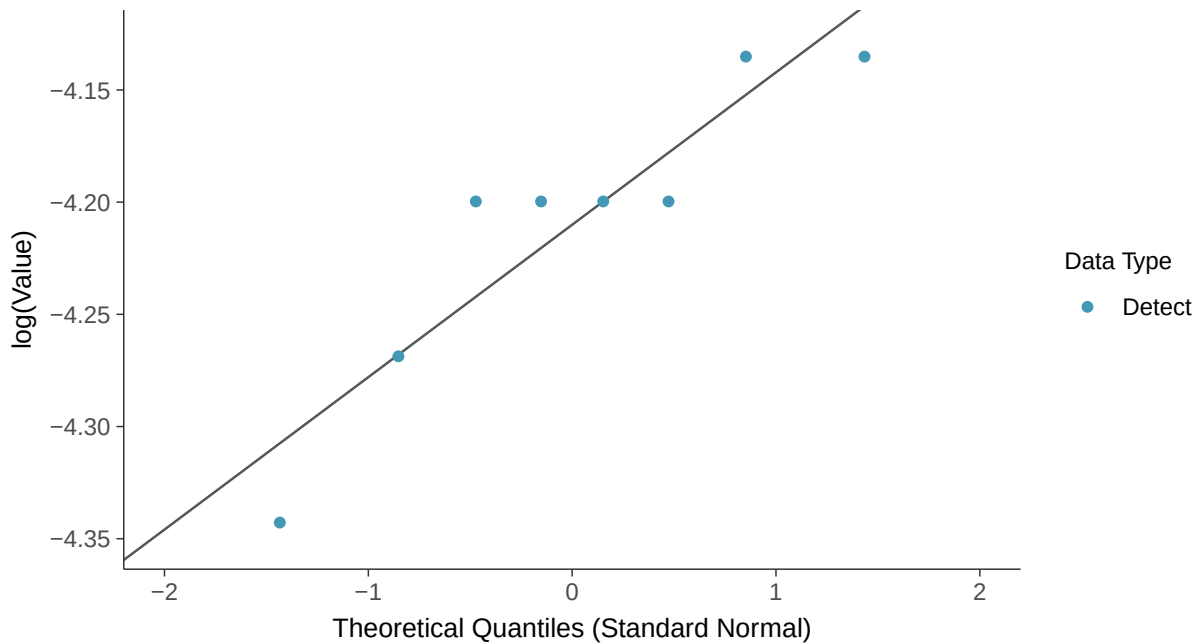
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Normal Q-Q plot

Barium, W-3B (mg/l)

**Lognormal Q-Q plot**

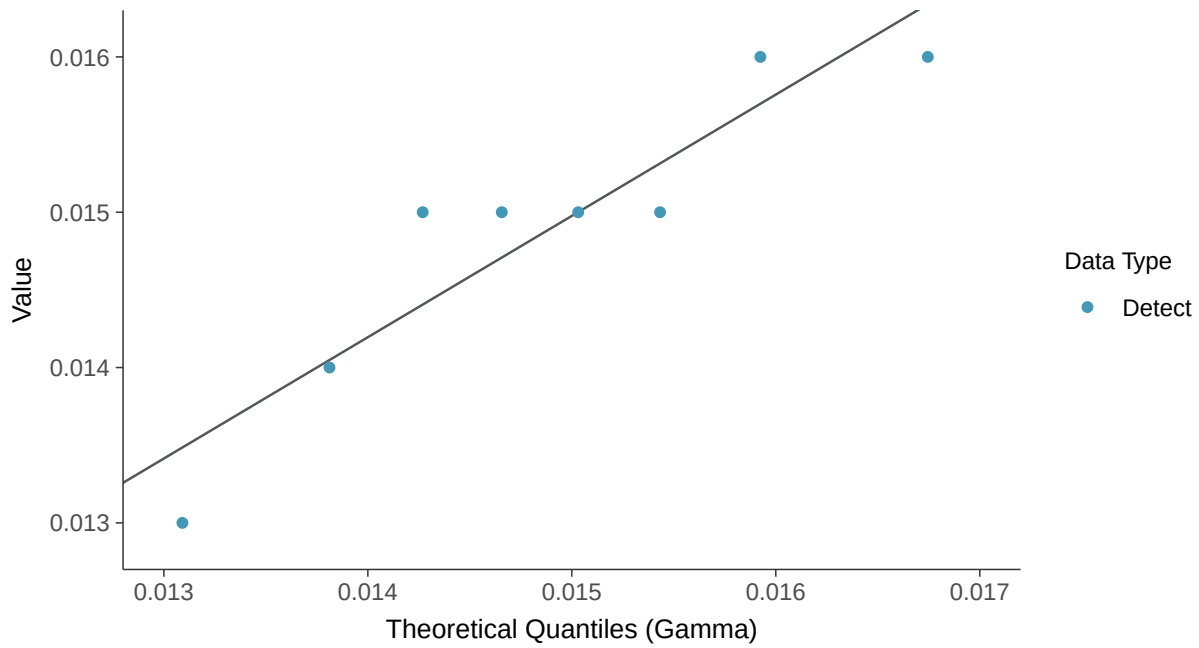
Barium, W-3B (mg/l)



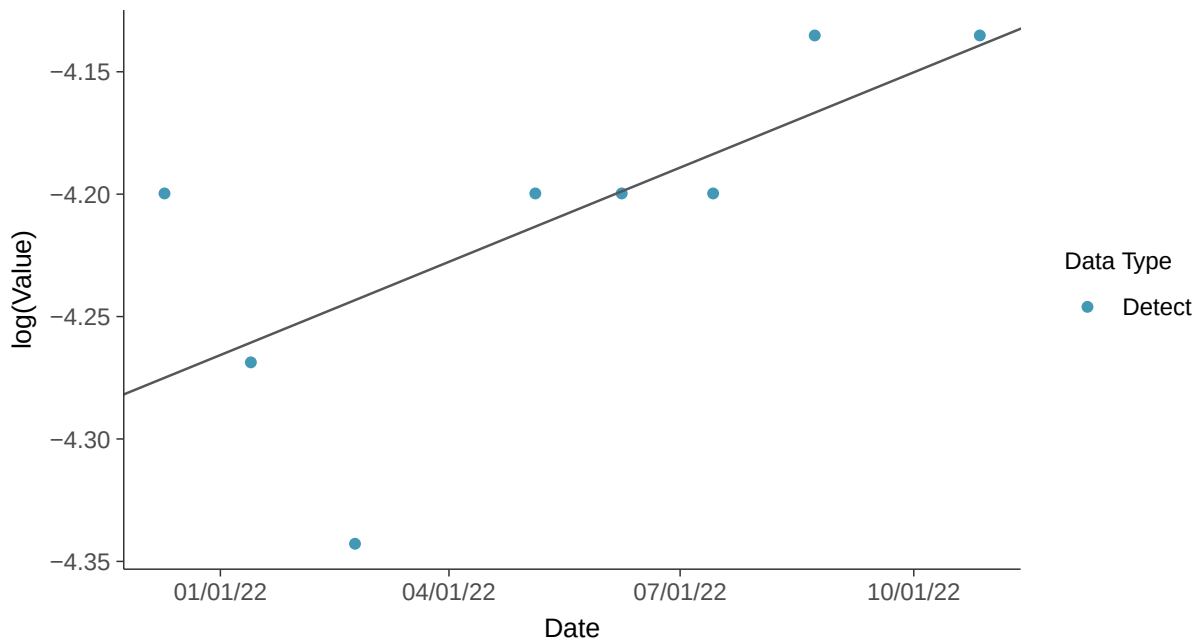
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Gamma Q-Q plot

Barium, W-3B (mg/l)

**Trend Regression: Lognormal MLE**

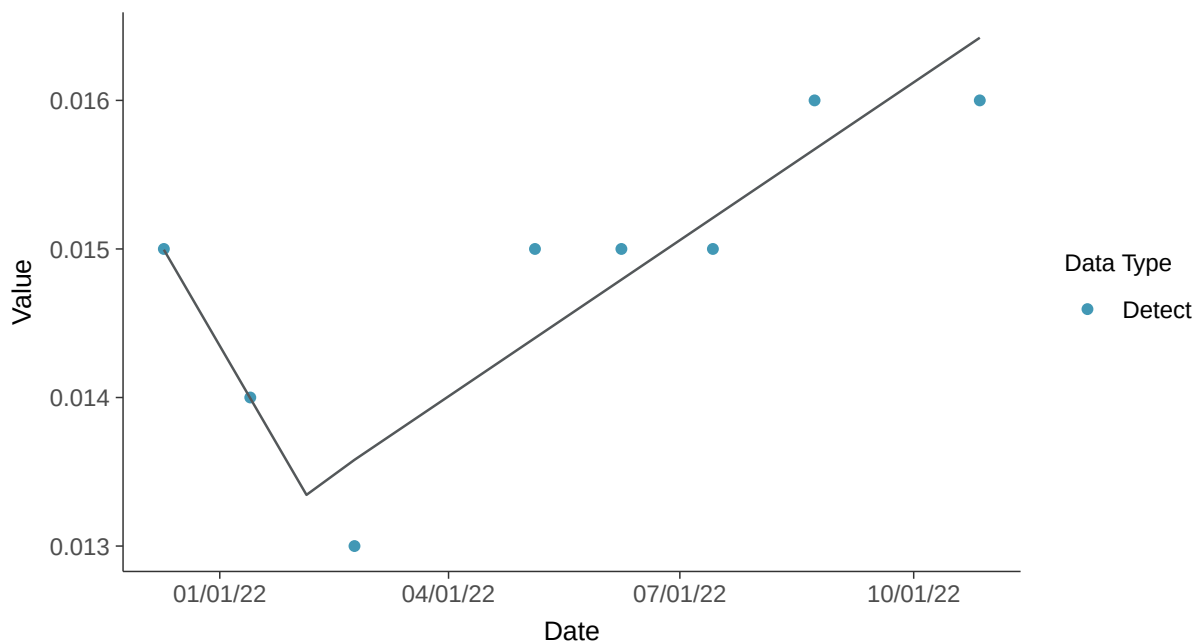
Barium, W-3B (mg/l)





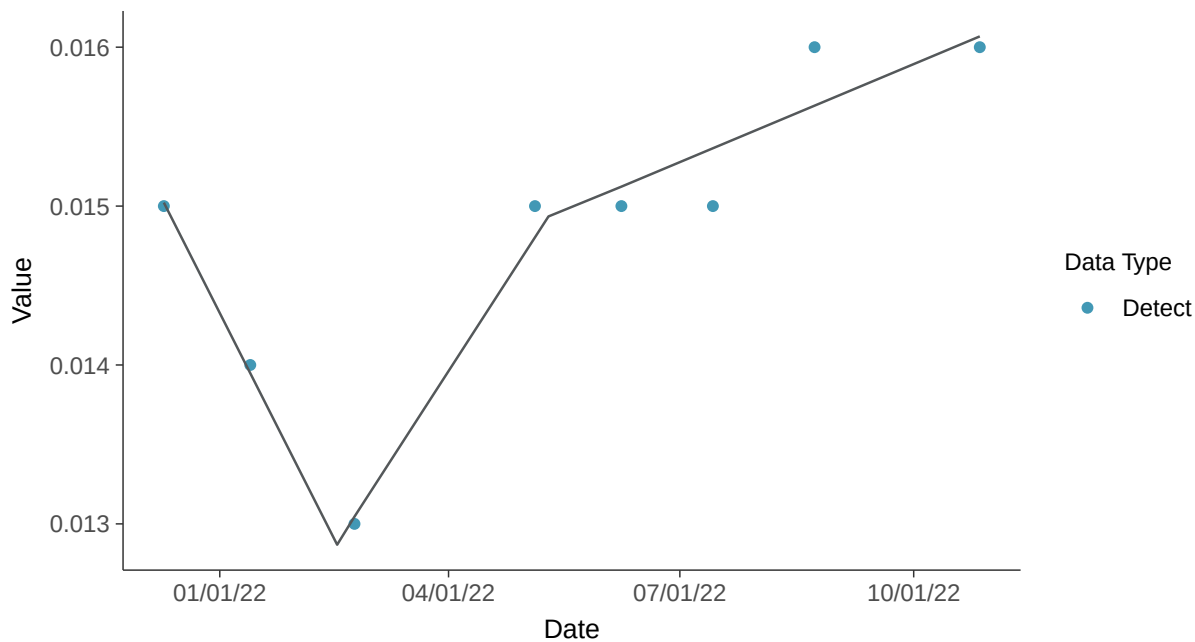
Trend Regression: Piecewise Linear-Linear

Barium, W-3B (mg/l)



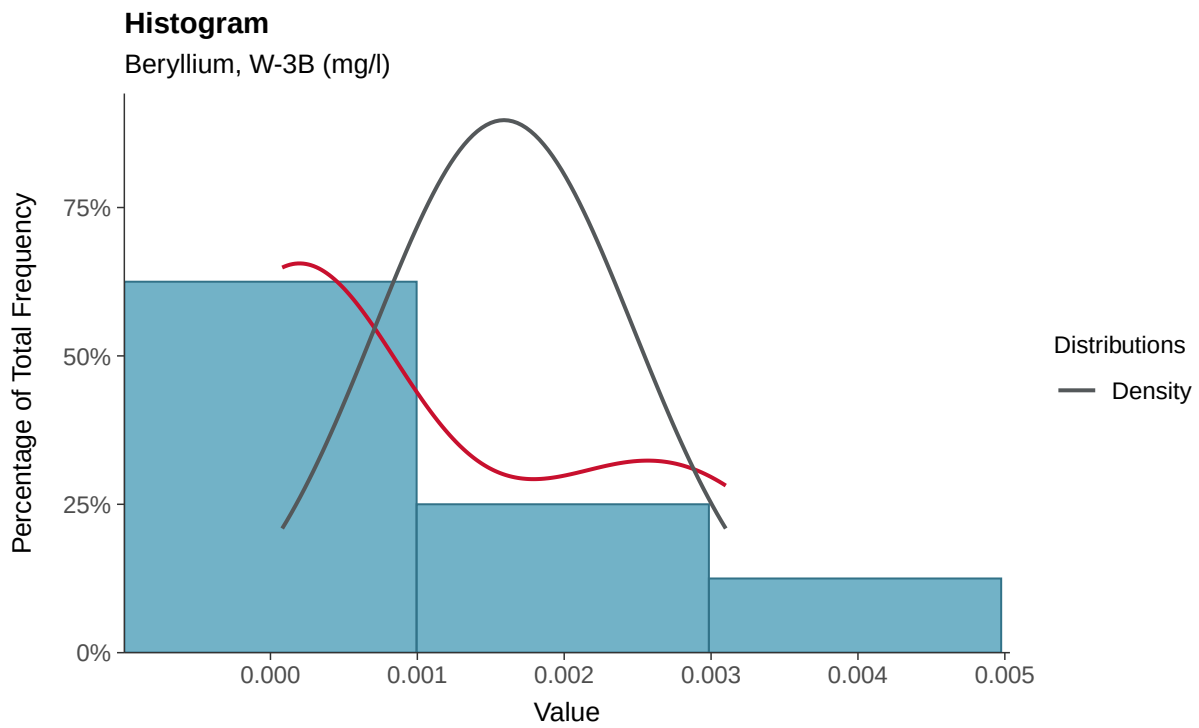
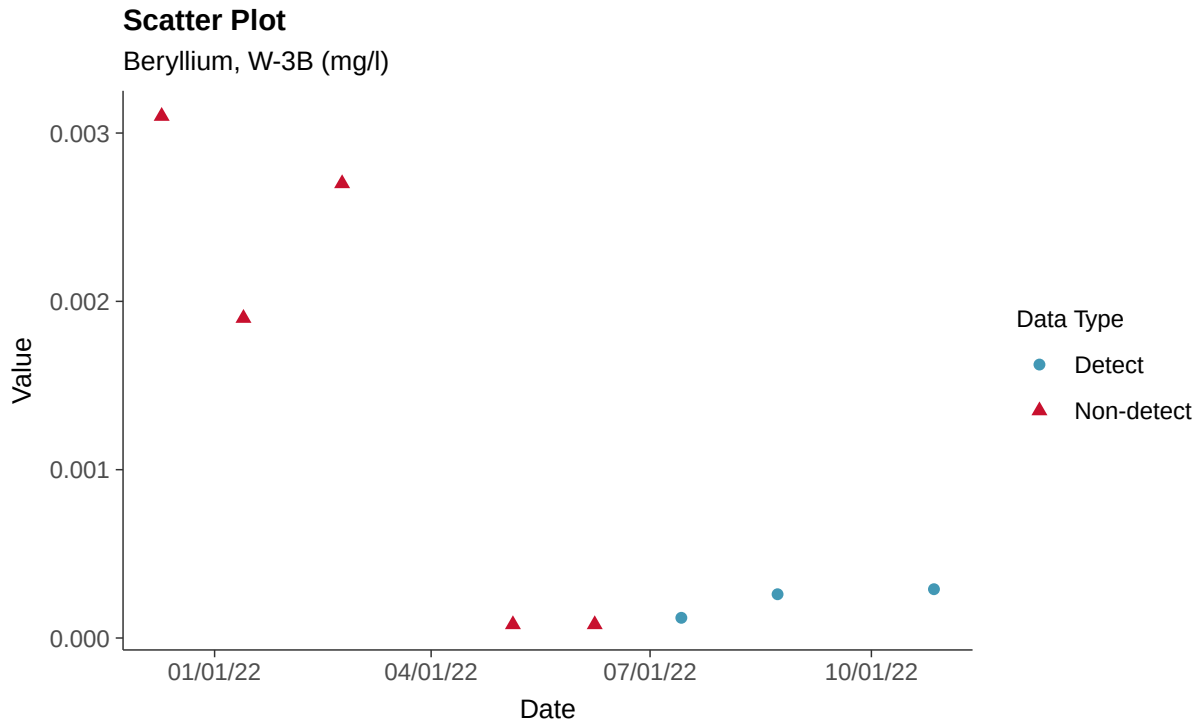
Trend Regression: Piecewise Linear-Linear-Linear

Barium, W-3B (mg/l)



Appendix IV: Beryllium, W-3B

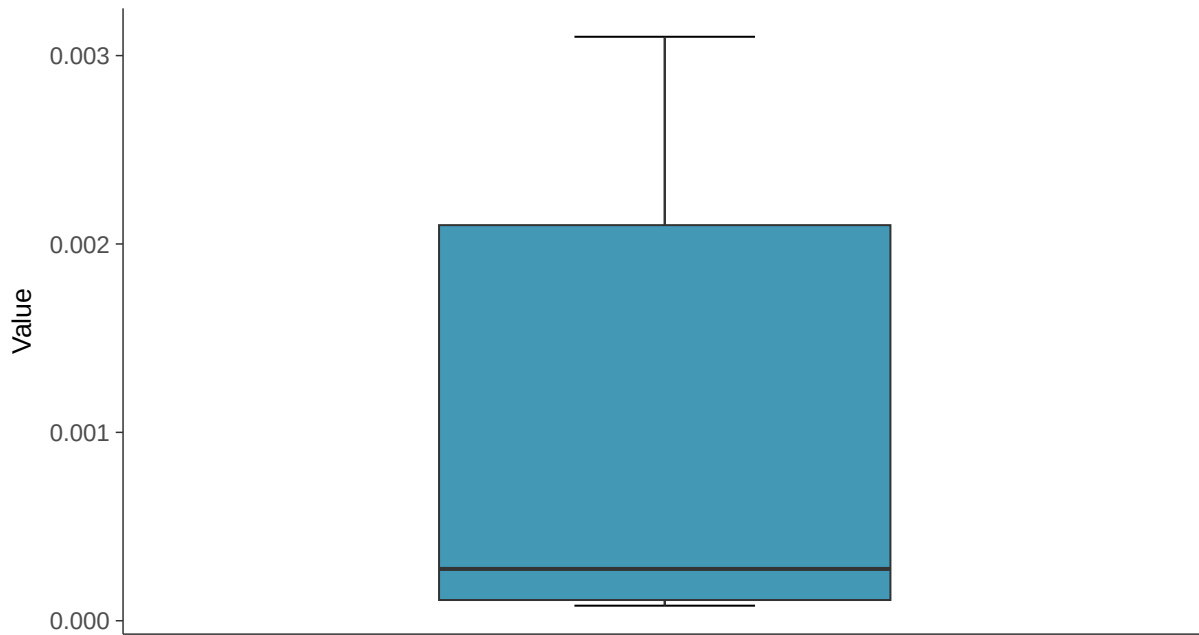
ID: 6_2_104



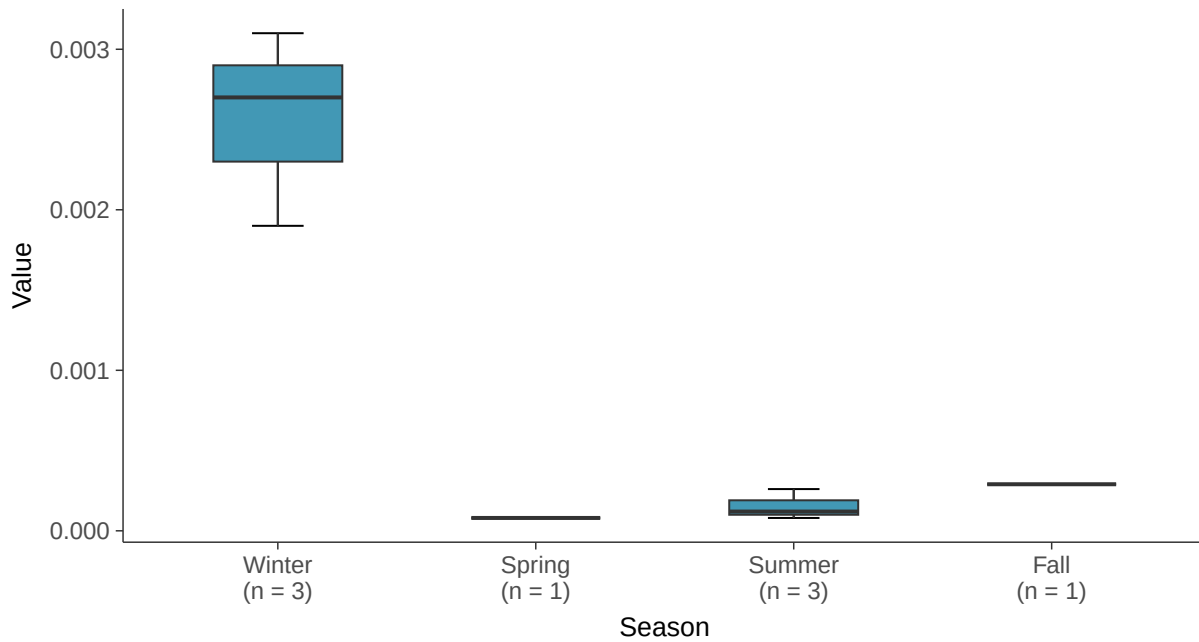
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Beryllium, W-3B (mg/l)

**Boxplot by Season**

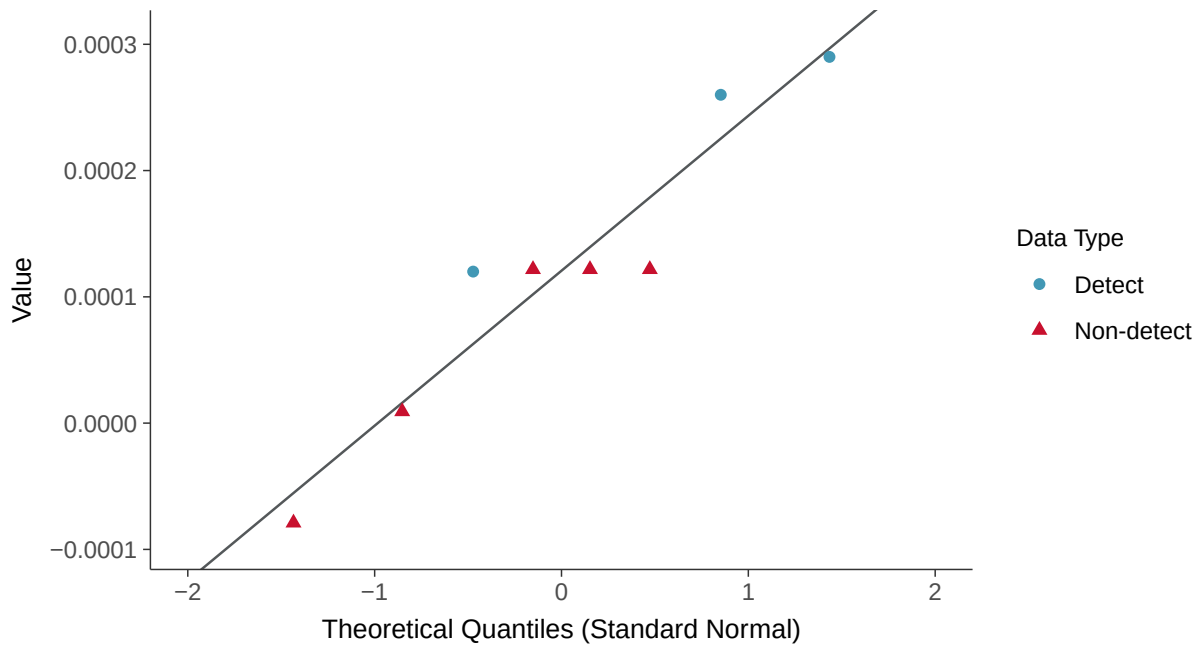
Beryllium, W-3B (mg/l)





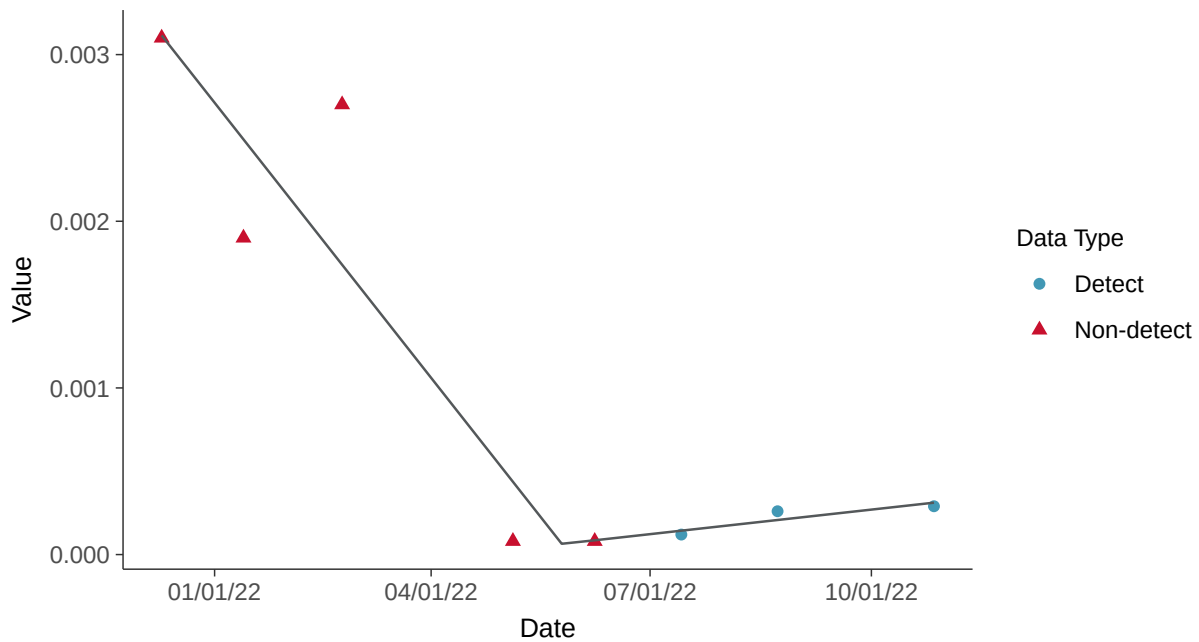
Normal Q-Q plot using ROS Imputed Estimates

Beryllium, W-3B (mg/l)



Trend Regression: Piecewise Linear-Linear

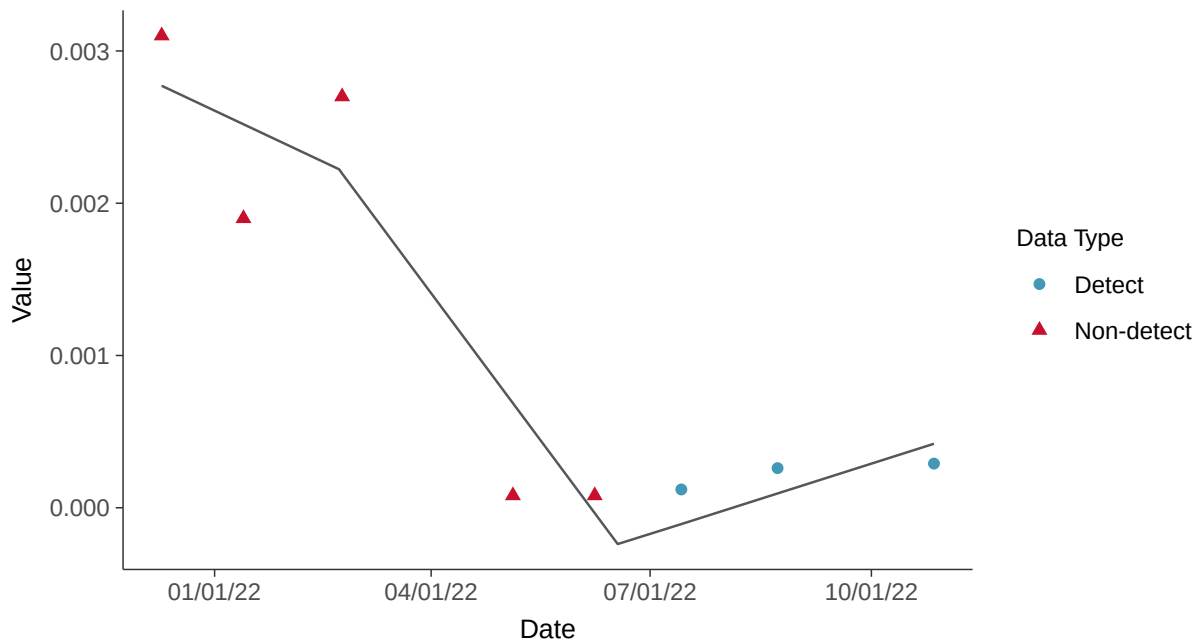
Beryllium, W-3B (mg/l)



Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Trend Regression: Piecewise Linear-Linear-Linear

Beryllium, W-3B (mg/l)

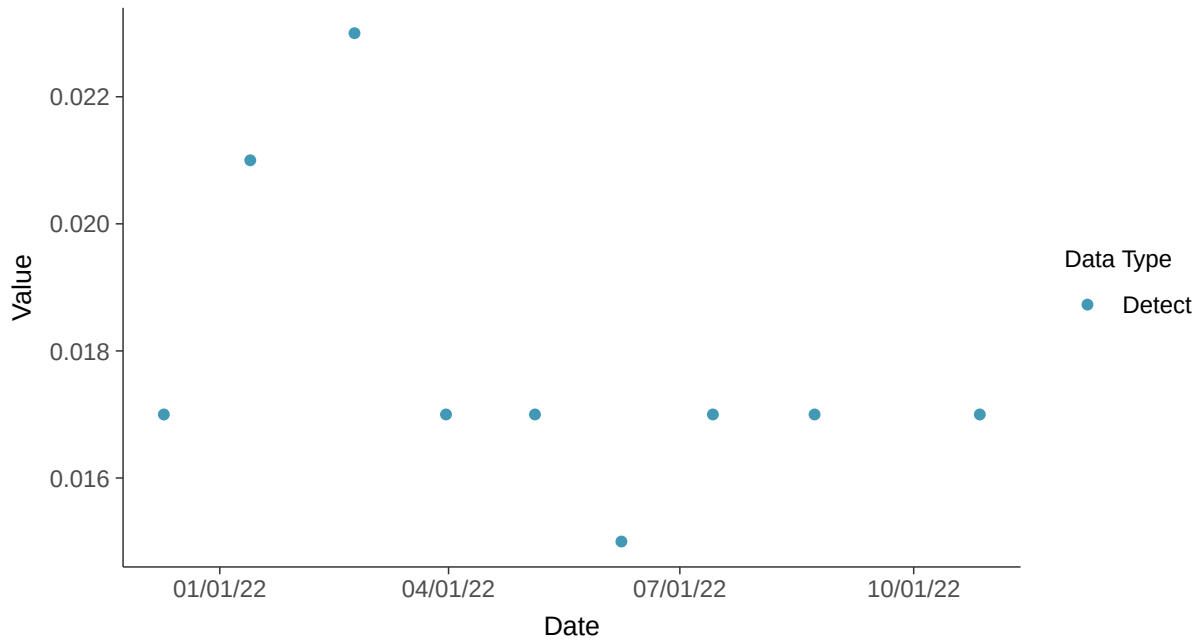


Appendix IV: Cadmium, W-3B

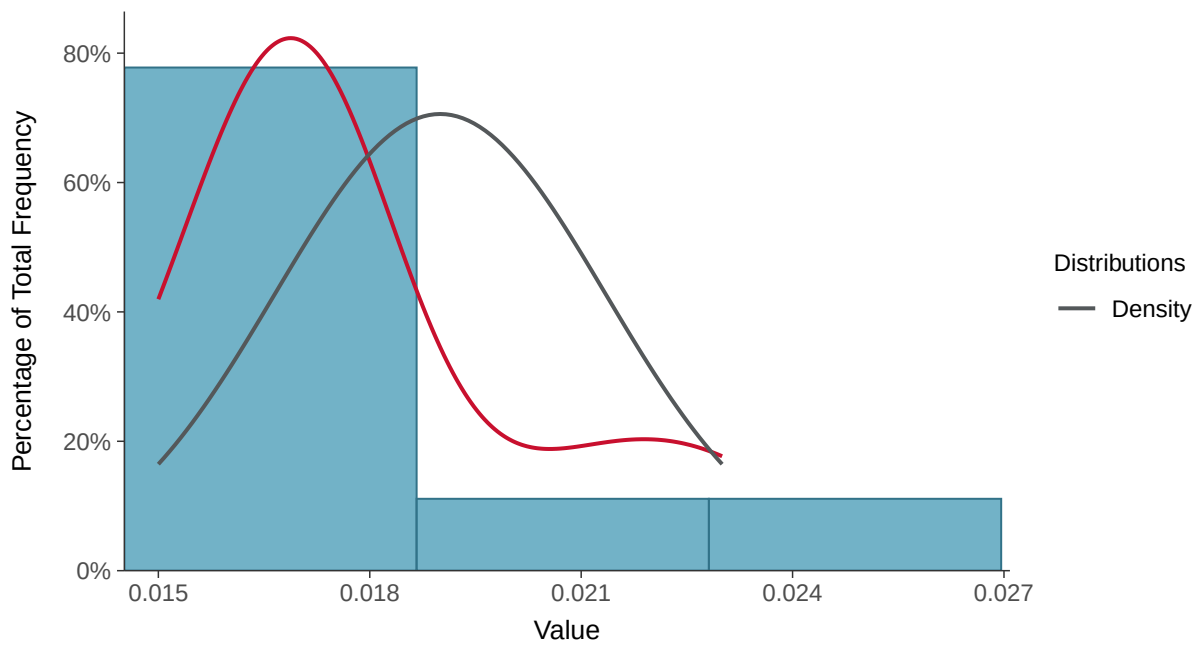
ID: 6_2_106

Scatter Plot

Cadmium, W-3B (mg/l)

**Histogram**

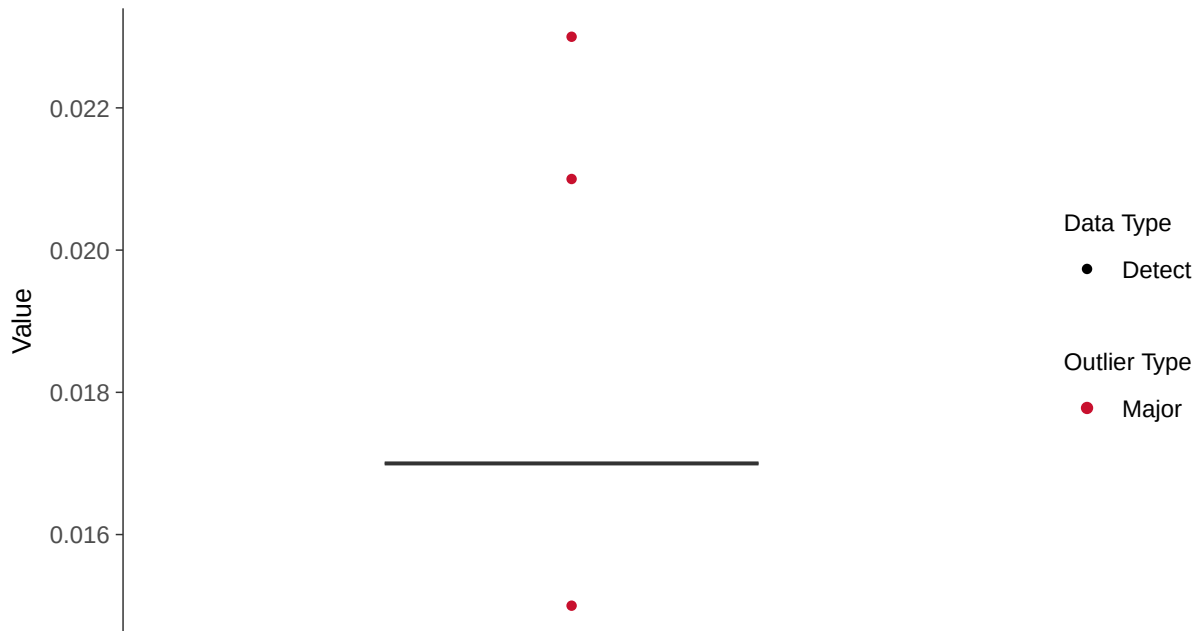
Cadmium, W-3B (mg/l)



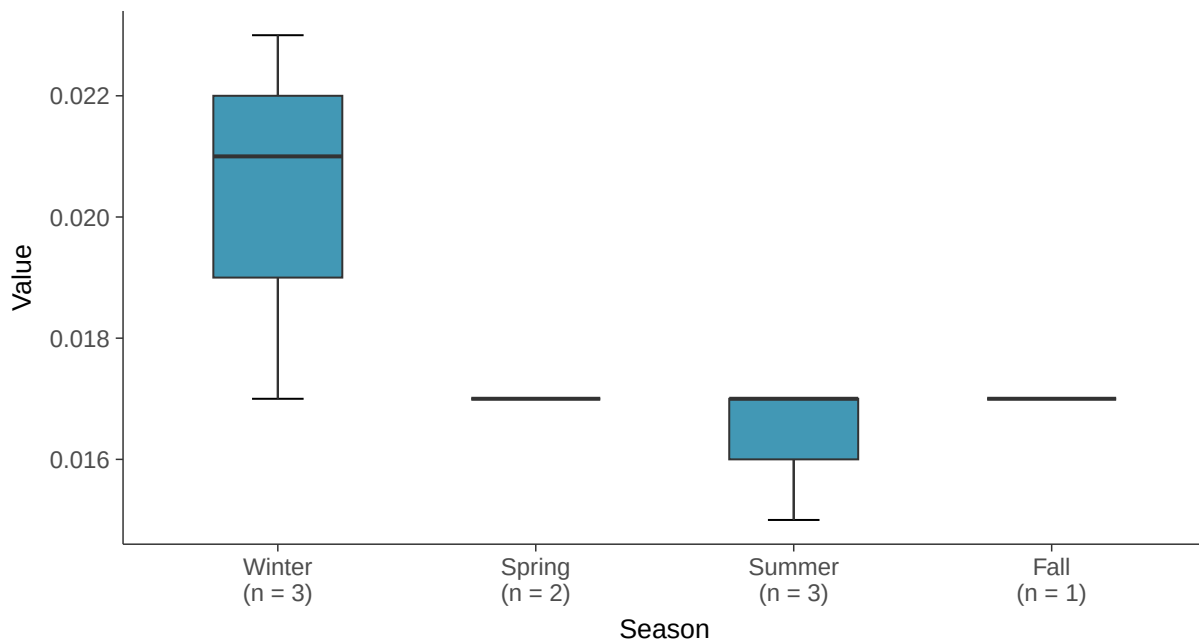
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Cadmium, W-3B (mg/l)

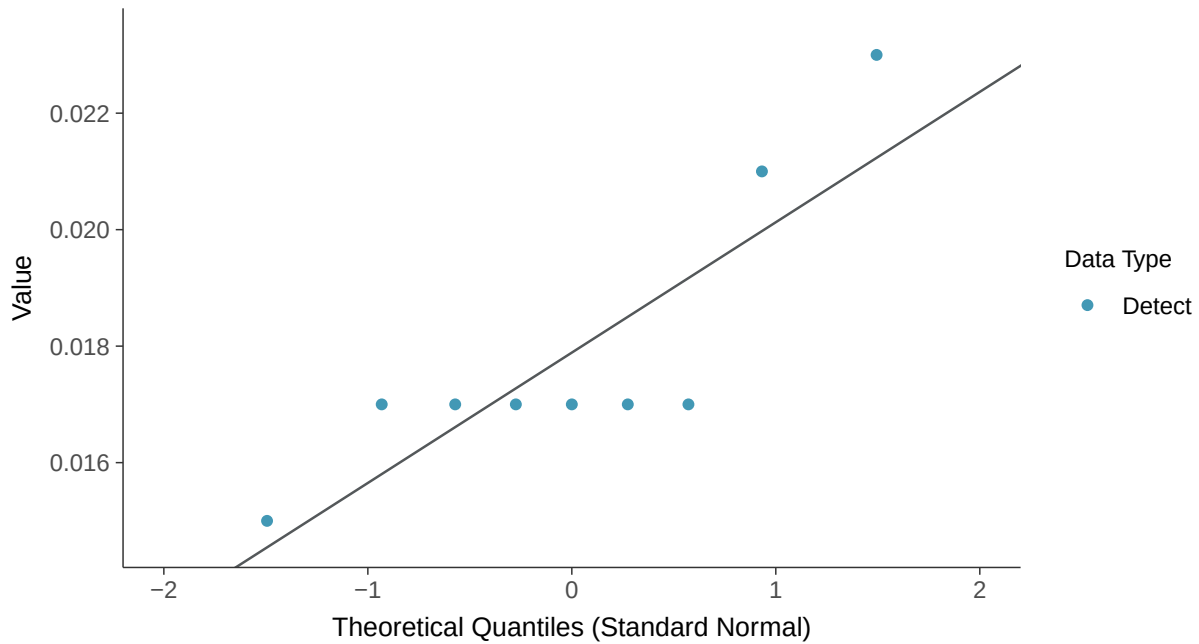
**Boxplot by Season**

Cadmium, W-3B (mg/l)

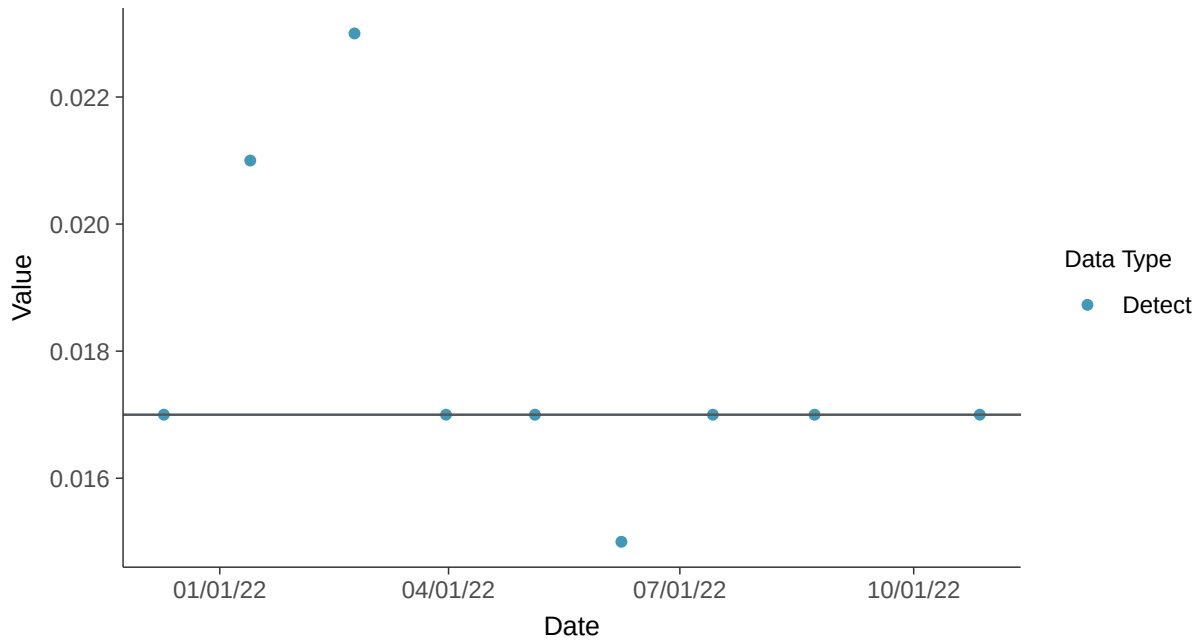


**Normal Q-Q plot**

Cadmium, W-3B (mg/l)

**Trend Regression: Mann-Kendall/Theil-Sen Estimate**

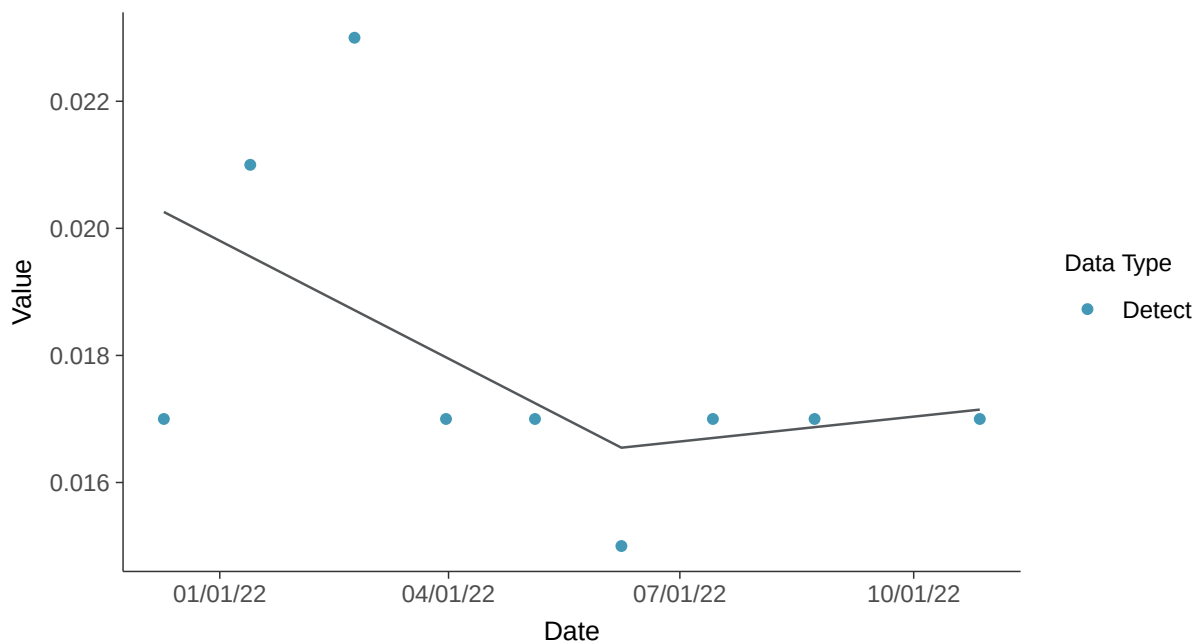
Cadmium, W-3B (mg/l)





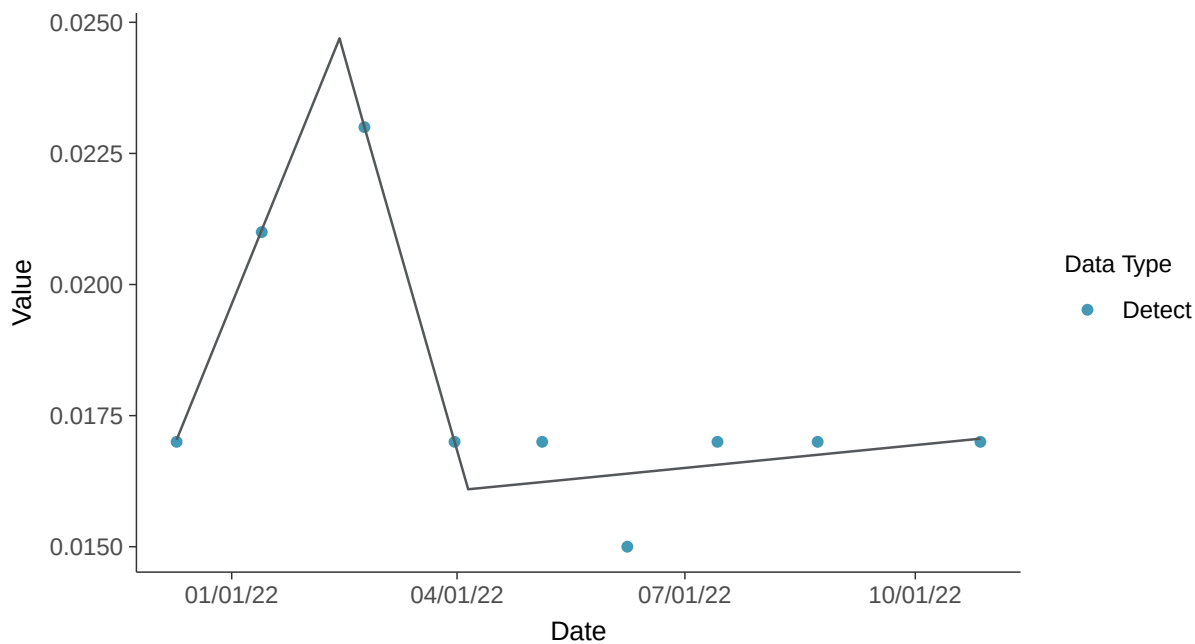
Trend Regression: Piecewise Linear-Linear

Cadmium, W-3B (mg/l)



Trend Regression: Piecewise Linear-Linear-Linear

Cadmium, W-3B (mg/l)

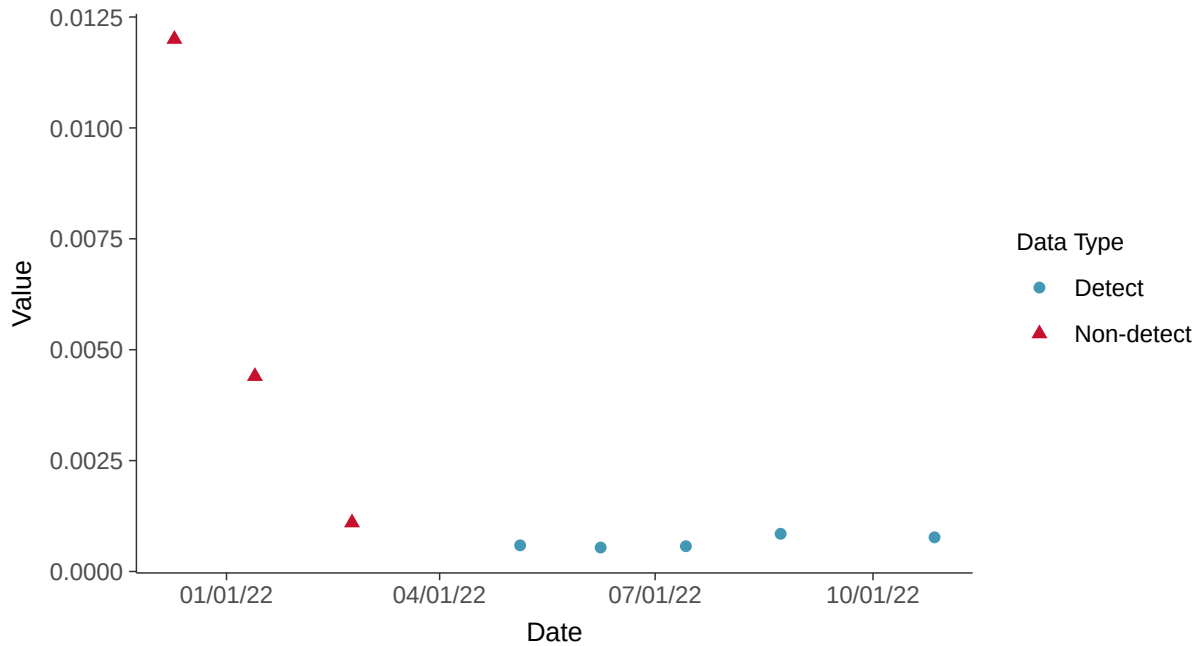


Appendix IV: Chromium, Total, W-3B

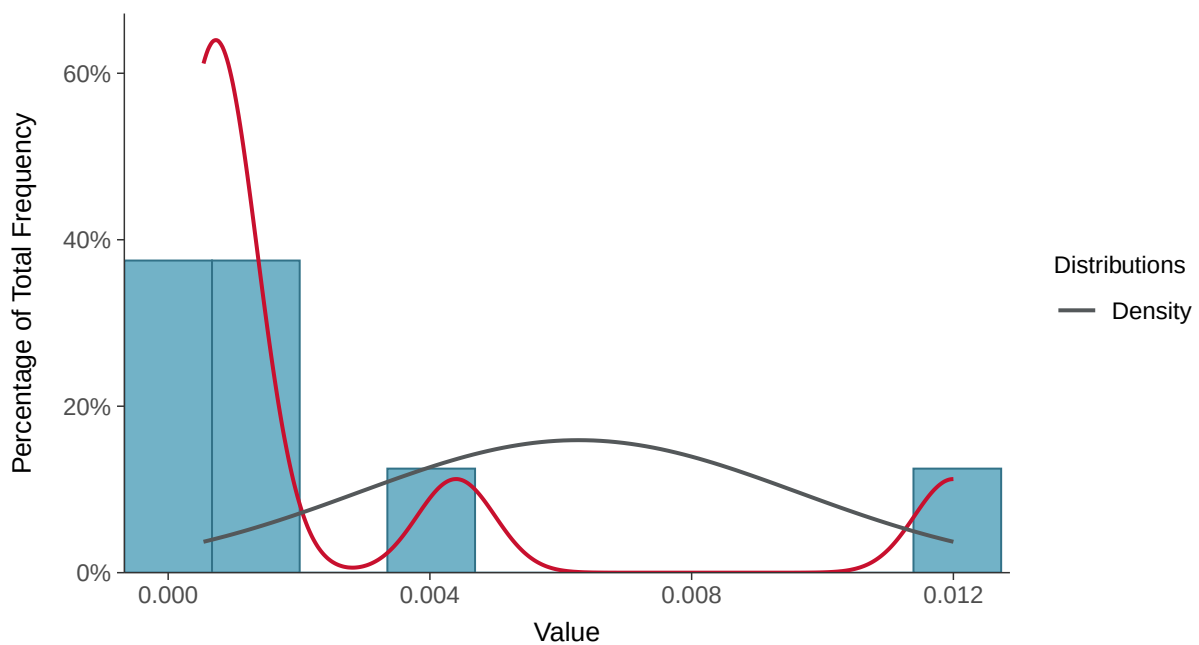
ID: 6_2_109

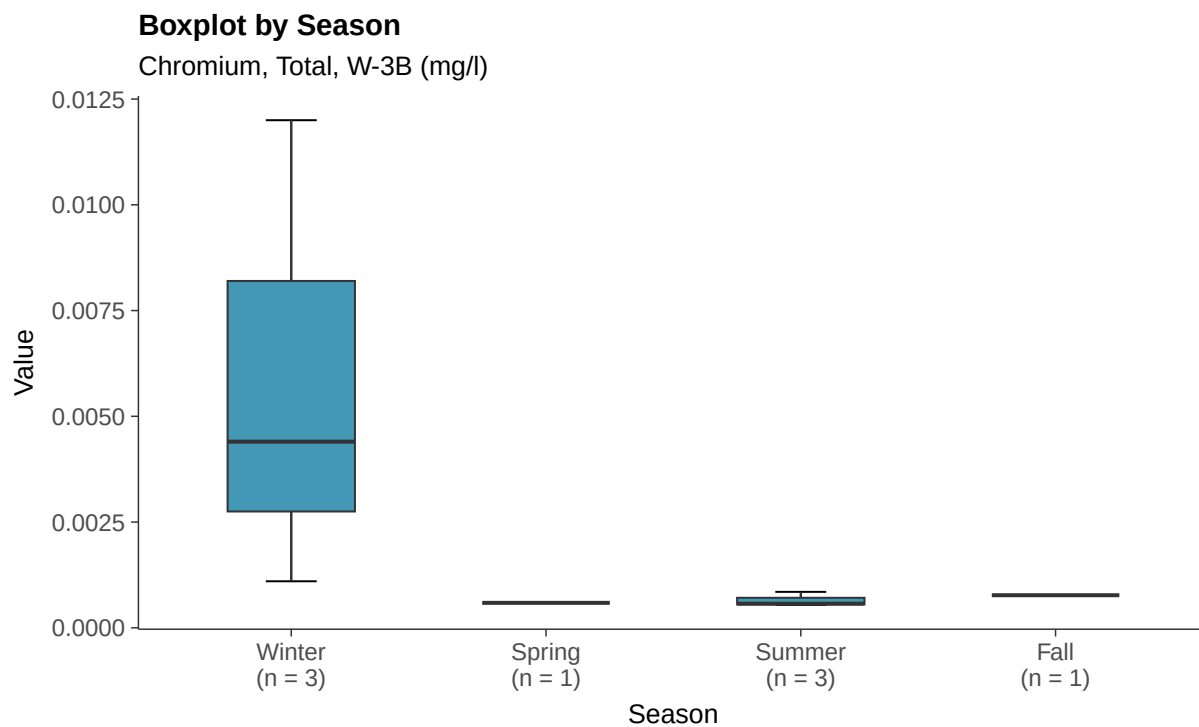
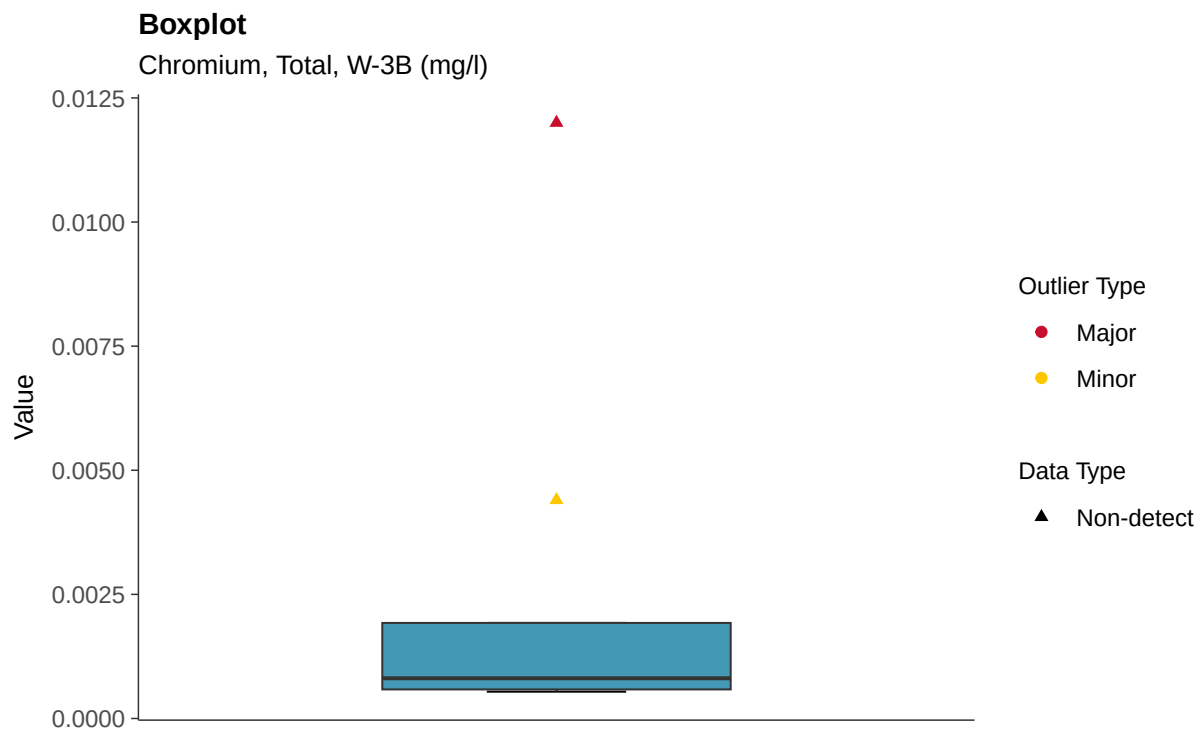
Scatter Plot

Chromium, Total, W-3B (mg/l)

**Histogram**

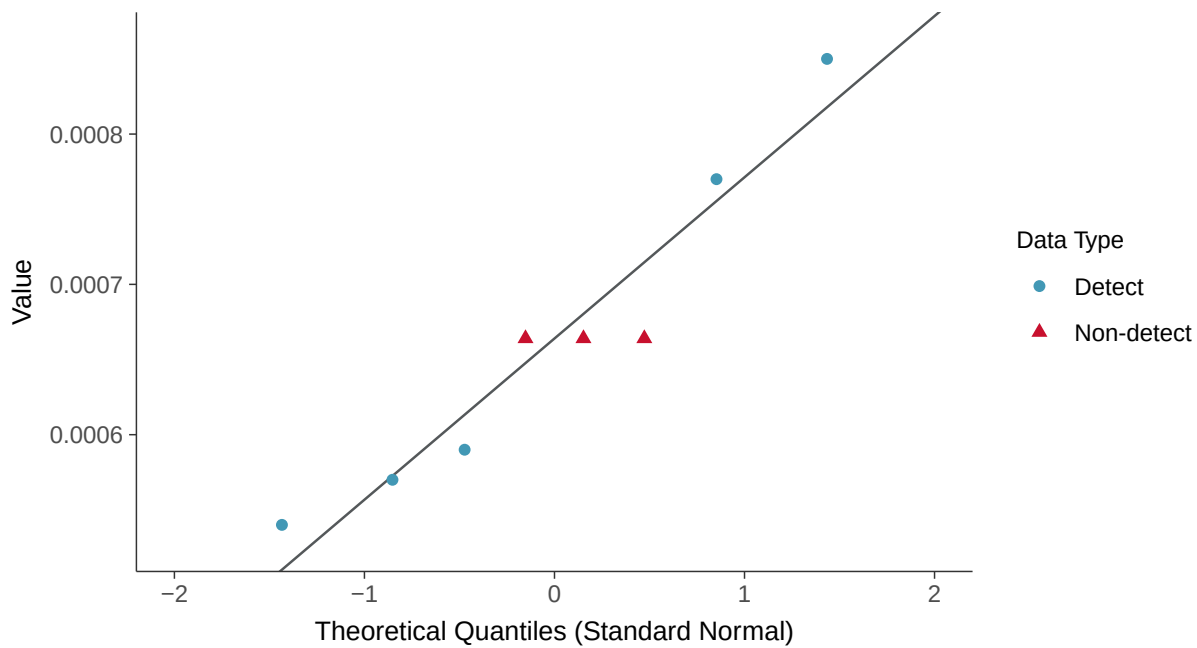
Chromium, Total, W-3B (mg/l)





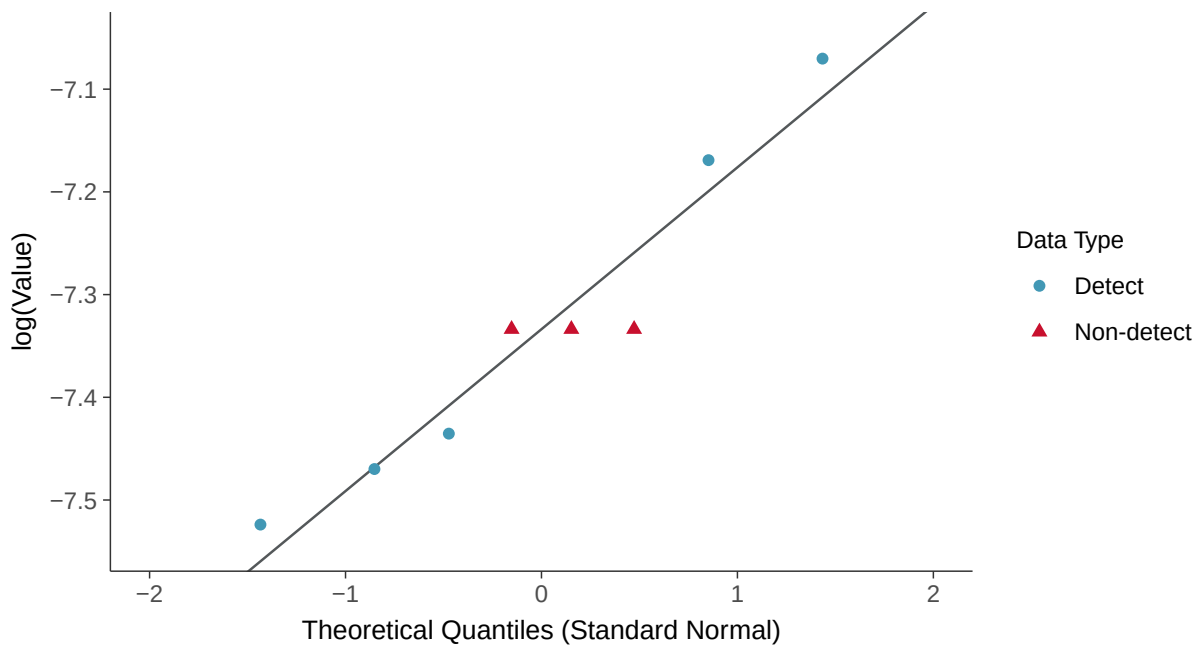
Normal Q-Q plot using ROS Imputed Estimates

Chromium, Total, W-3B (mg/l)



Lognormal Q-Q plot using ROS Imputed Estimates

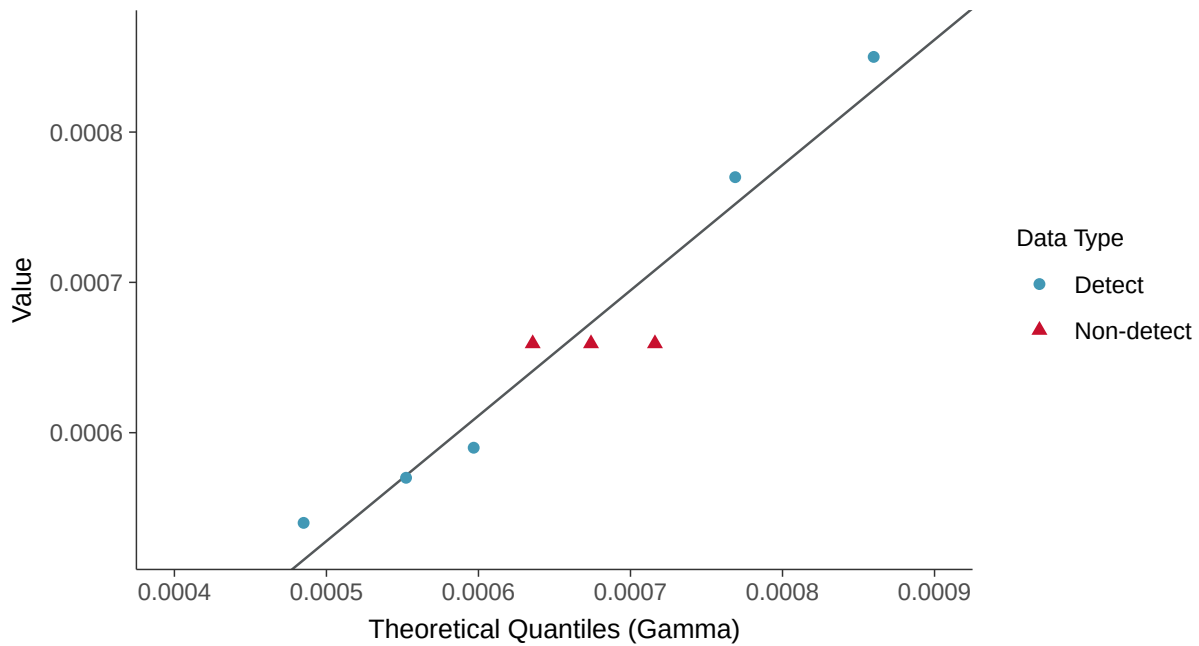
Chromium, Total, W-3B (mg/l)





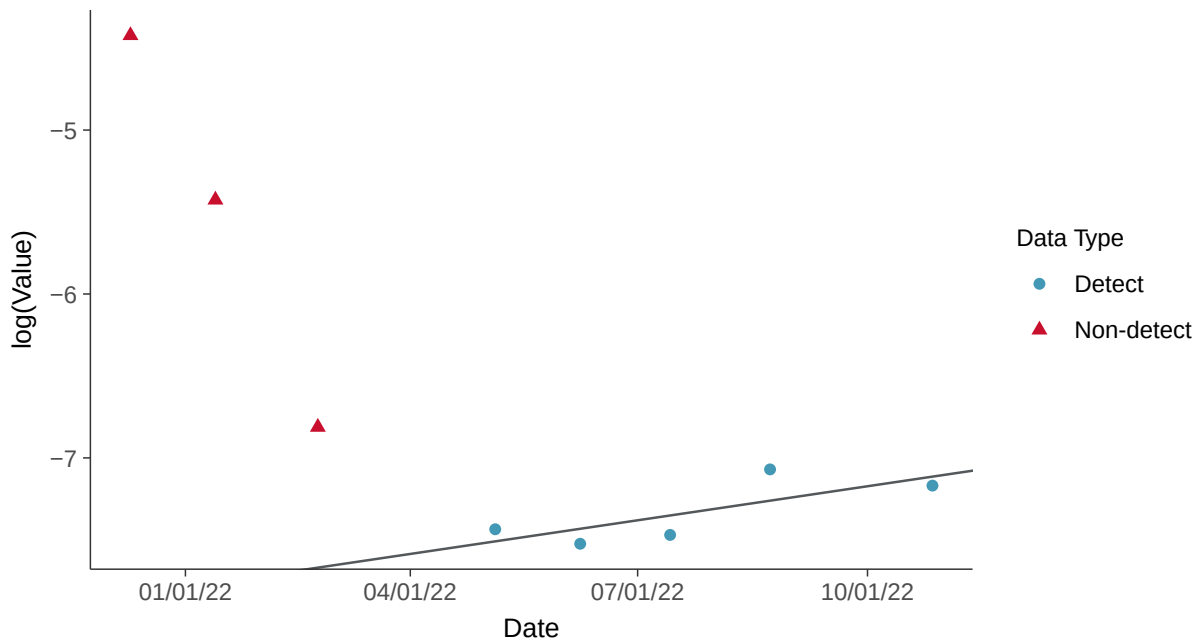
Gamma Q-Q plot using ROS Imputed Estimates

Chromium, Total, W-3B (mg/l)



Trend Regression: Lognormal MLE

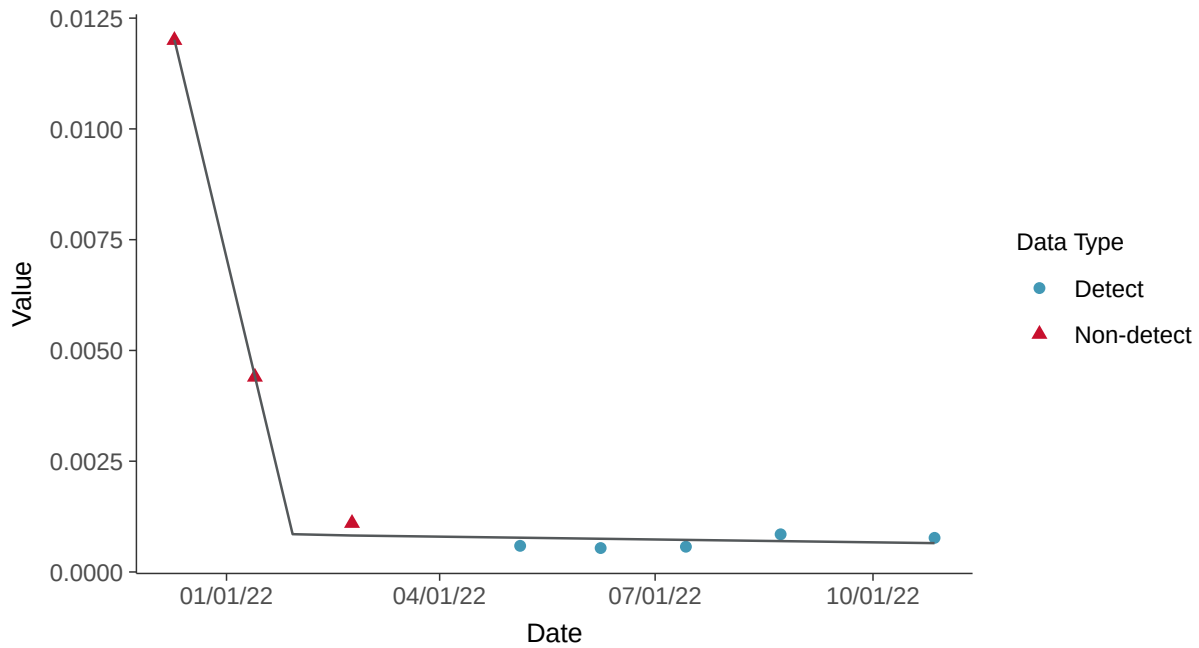
Chromium, Total, W-3B (mg/l)



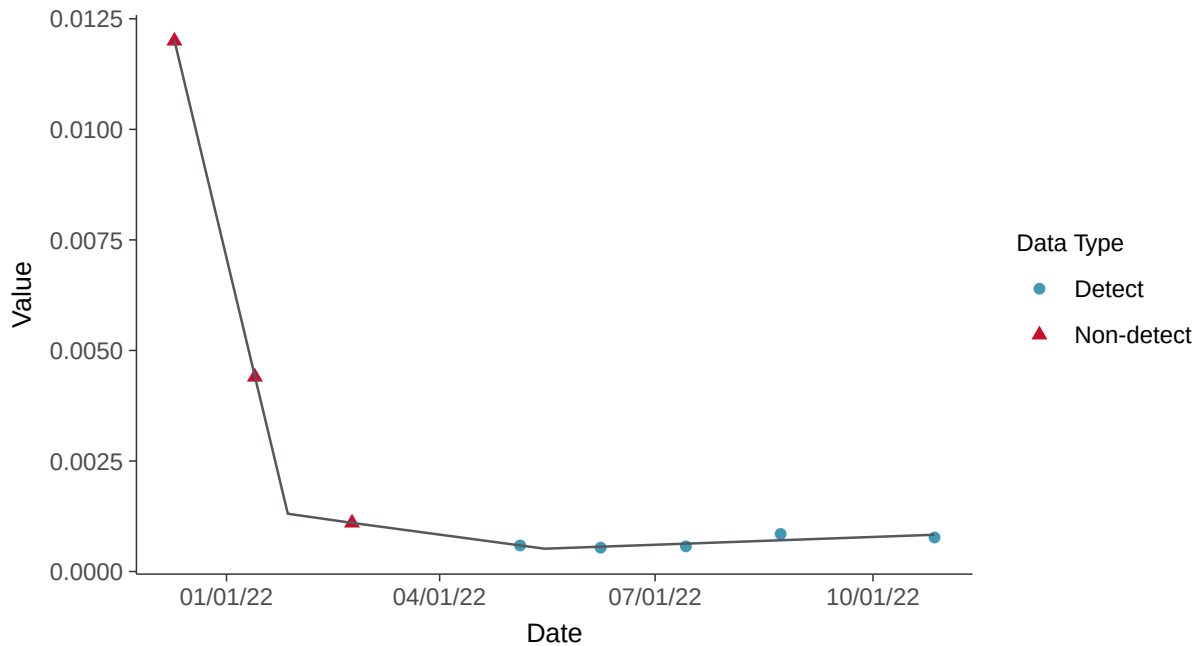
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Trend Regression: Piecewise Linear-Linear

Chromium, Total, W-3B (mg/l)

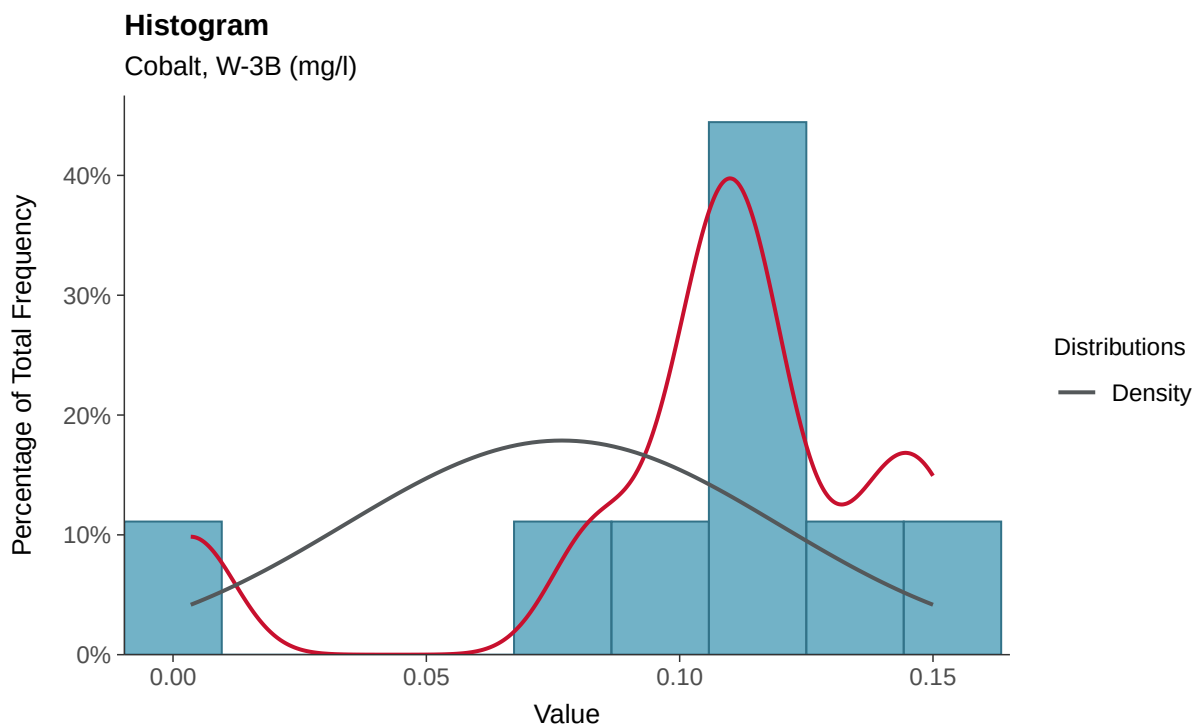
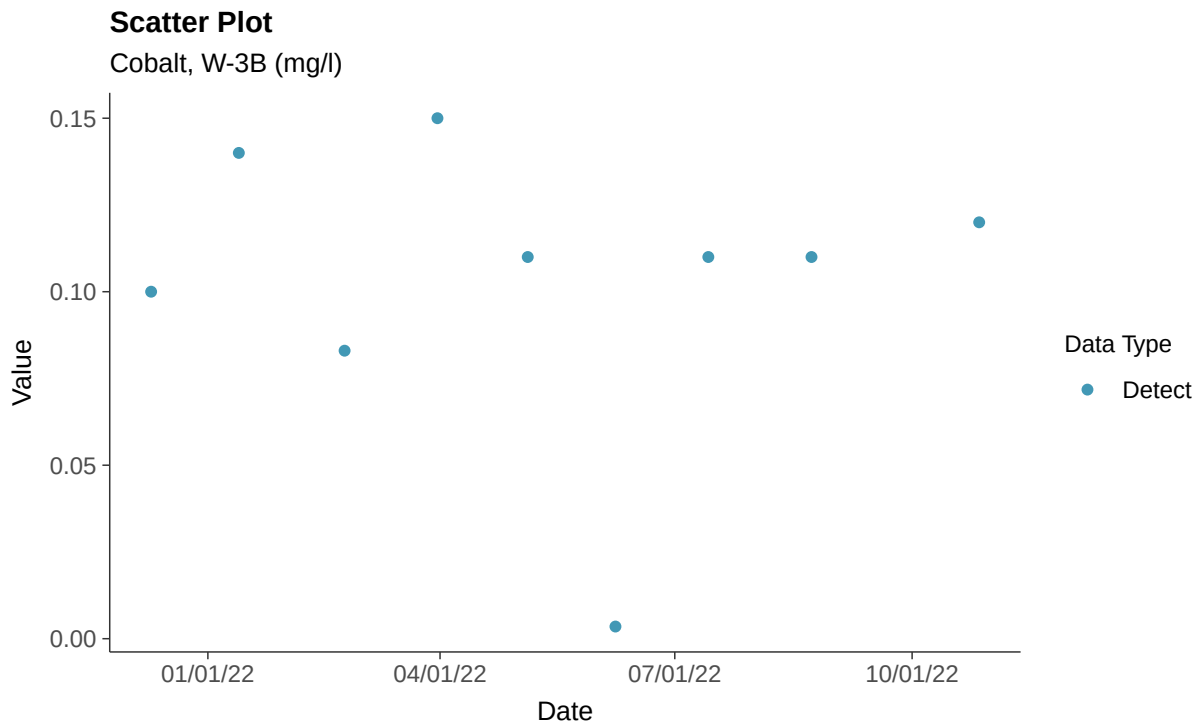
**Trend Regression: Piecewise Linear-Linear-Linear**

Chromium, Total, W-3B (mg/l)



Appendix IV: Cobalt, W-3B

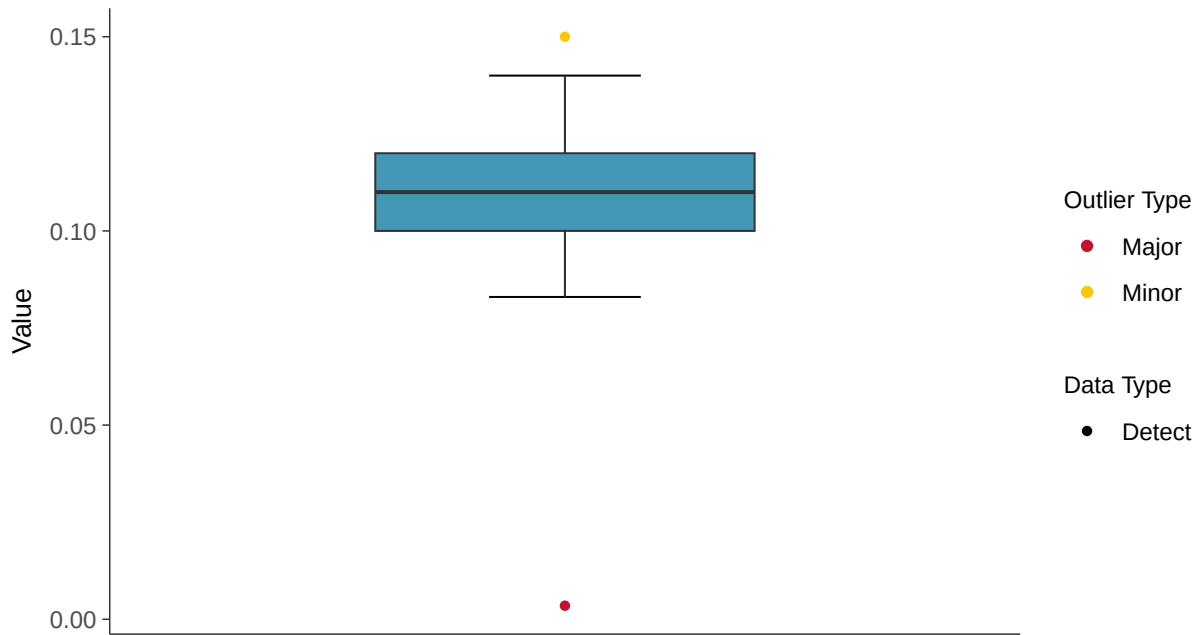
ID: 6_2_110



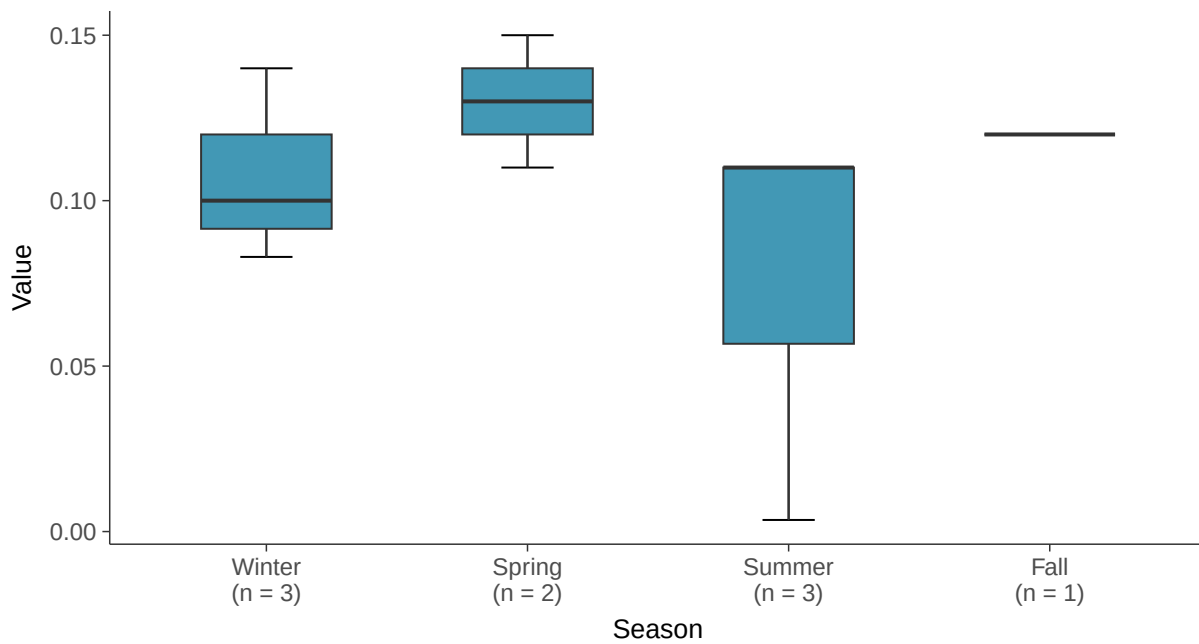
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Cobalt, W-3B (mg/l)

**Boxplot by Season**

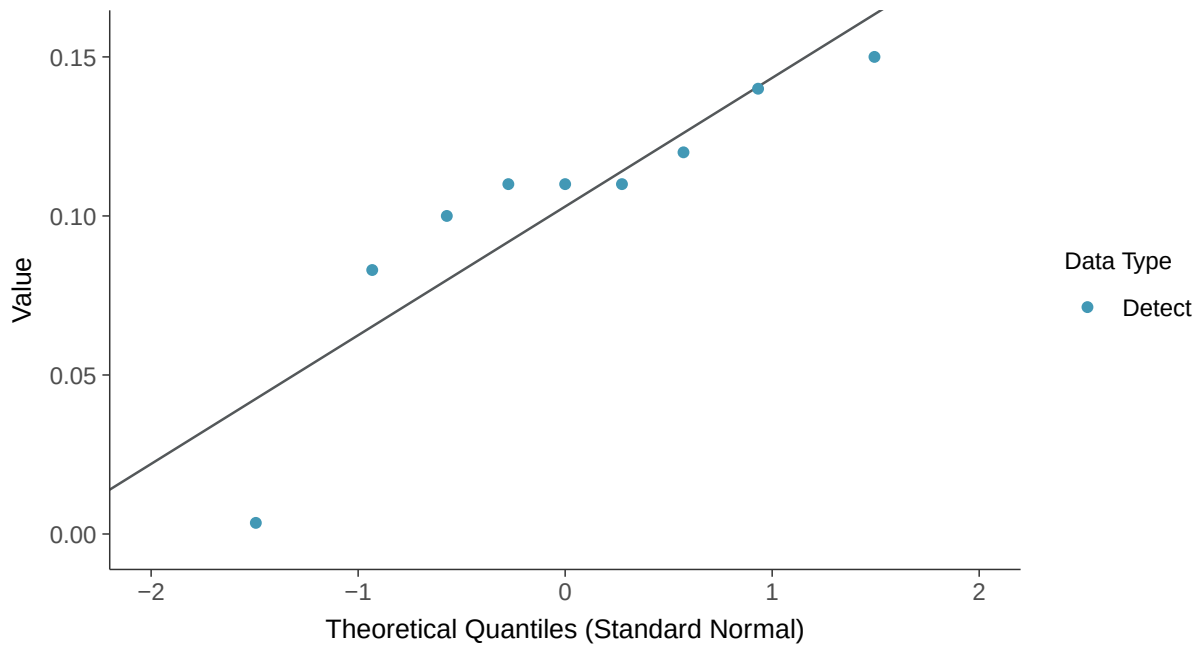
Cobalt, W-3B (mg/l)



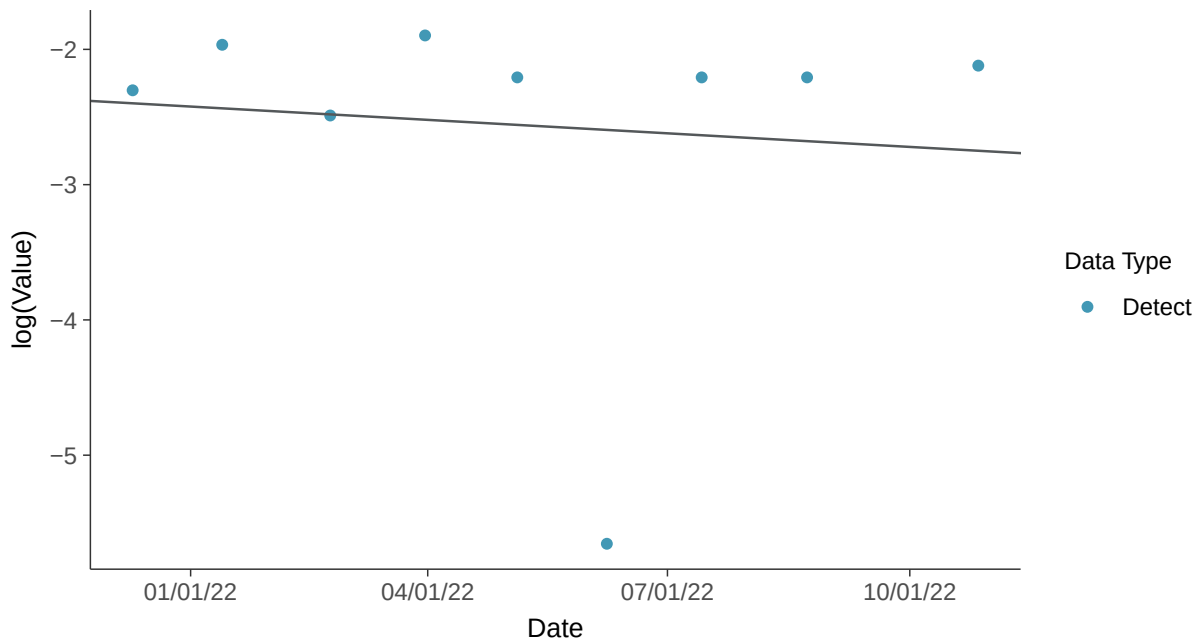
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Normal Q-Q plot

Cobalt, W-3B (mg/l)

**Trend Regression: Lognormal MLE**

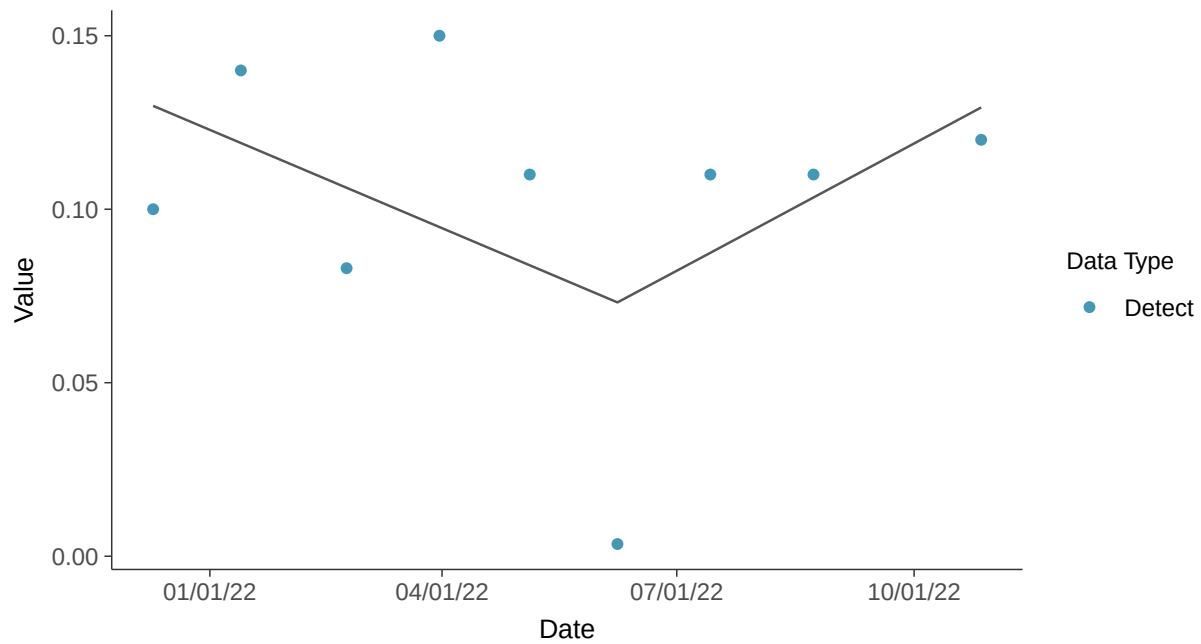
Cobalt, W-3B (mg/l)





Trend Regression: Piecewise Linear-Linear

Cobalt, W-3B (mg/l)

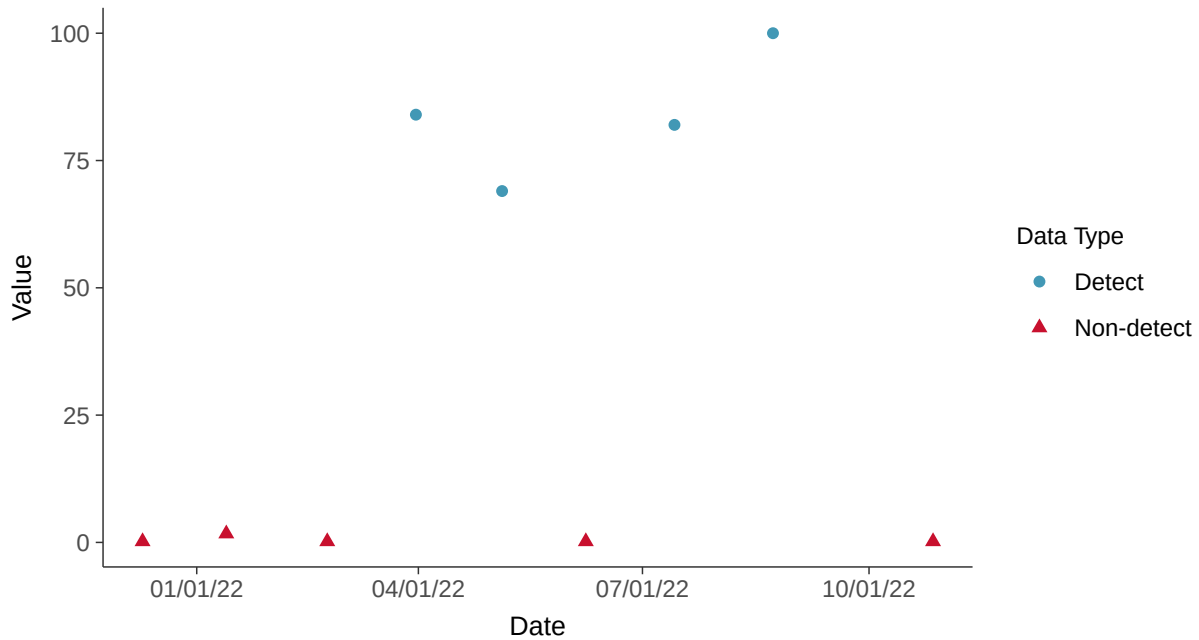


Appendix IV: Fluoride (App IV), W-3B

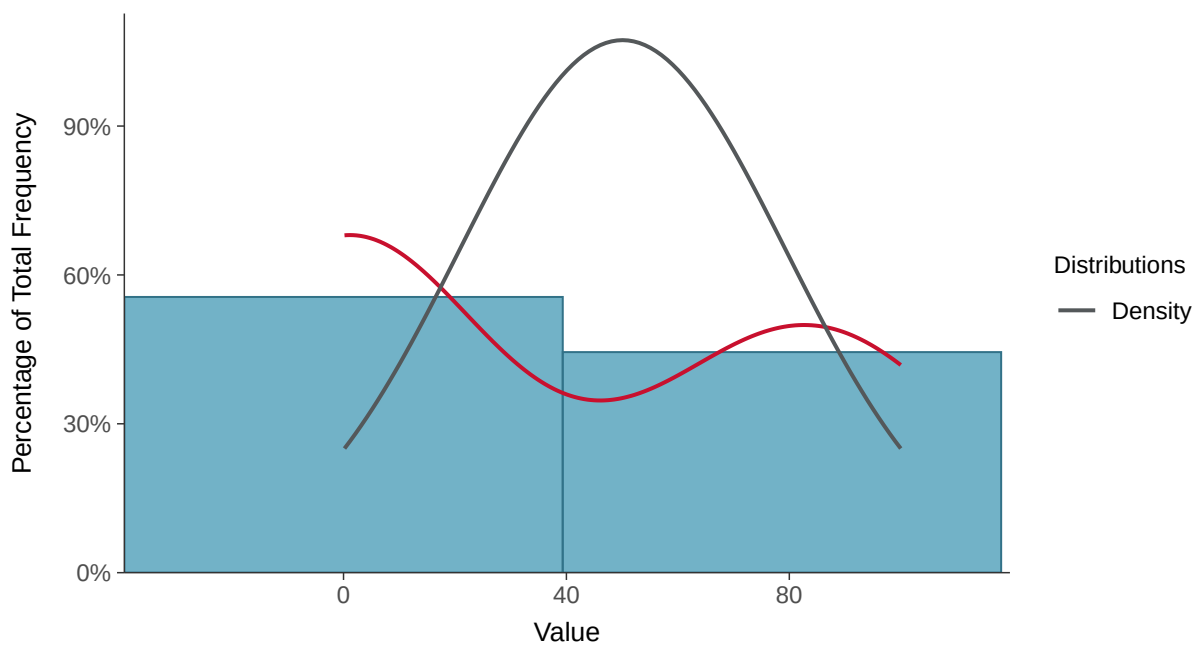
ID: 6_2_112

Scatter Plot

Fluoride (App IV), W-3B (mg/l)

**Histogram**

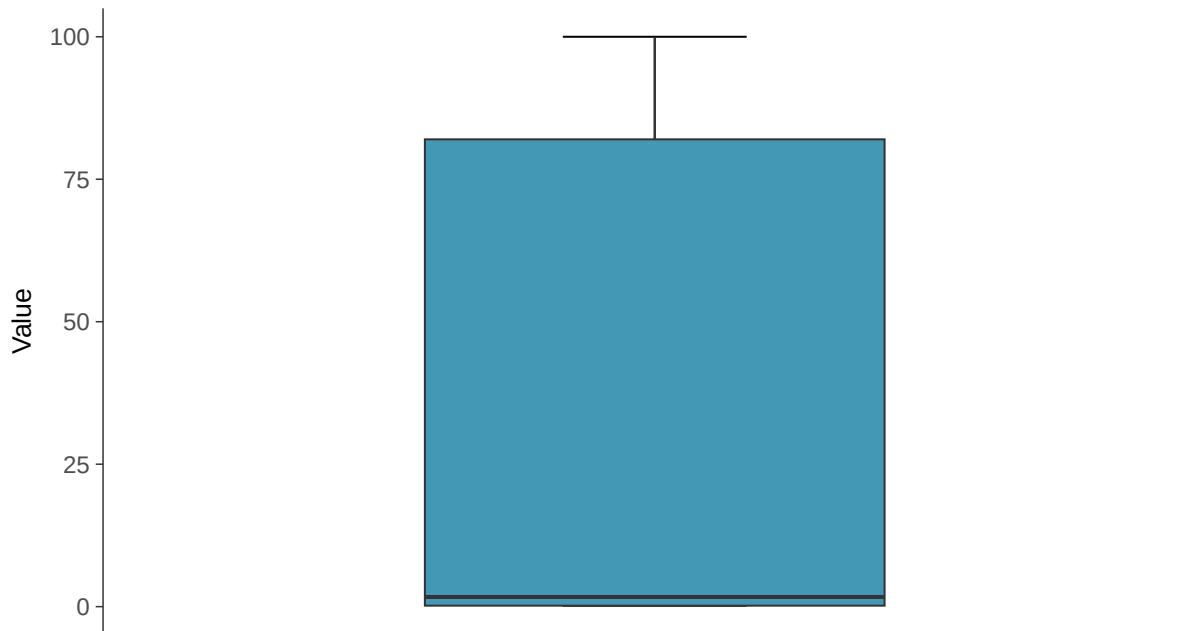
Fluoride (App IV), W-3B (mg/l)





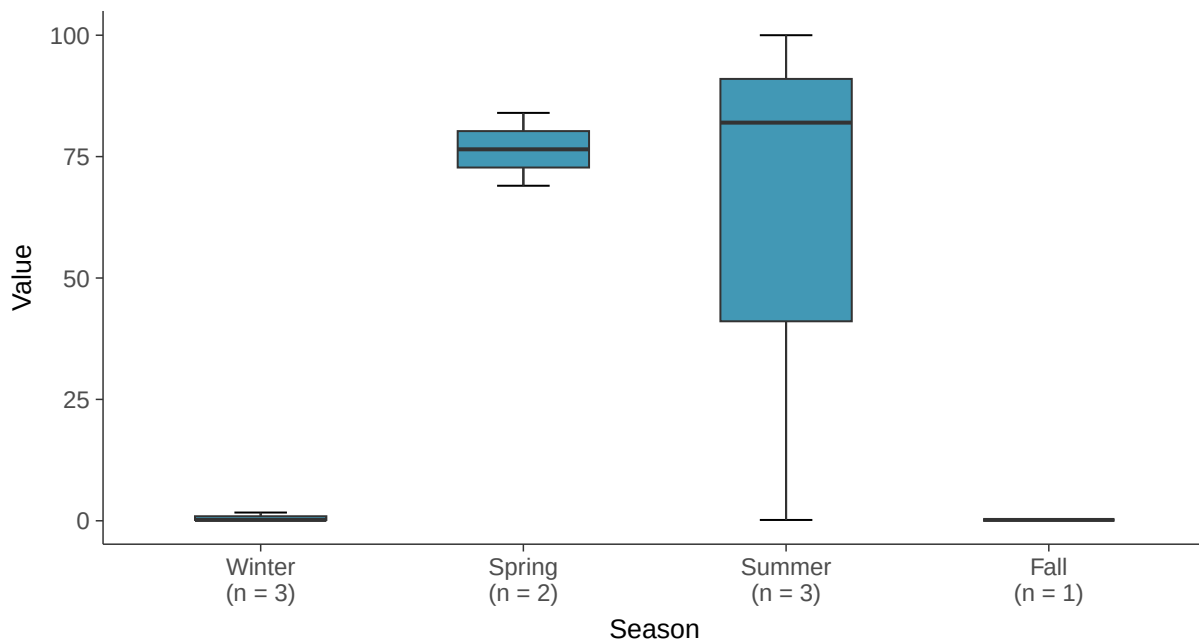
Boxplot

Fluoride (App IV), W-3B (mg/l)



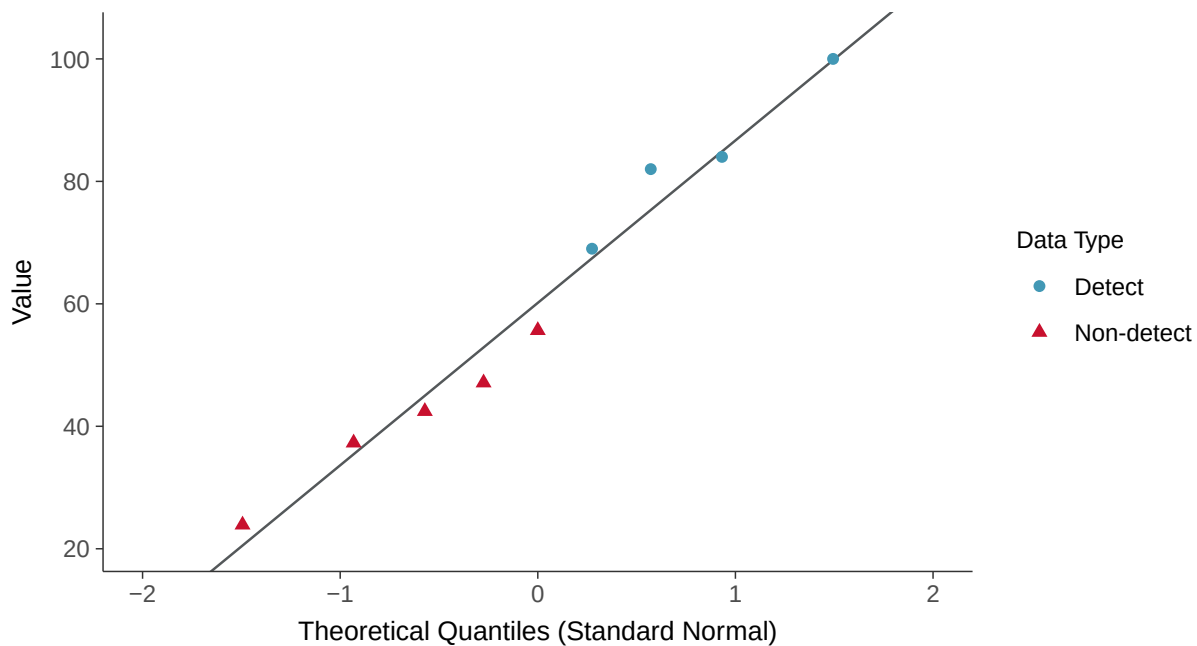
Boxplot by Season

Fluoride (App IV), W-3B (mg/l)



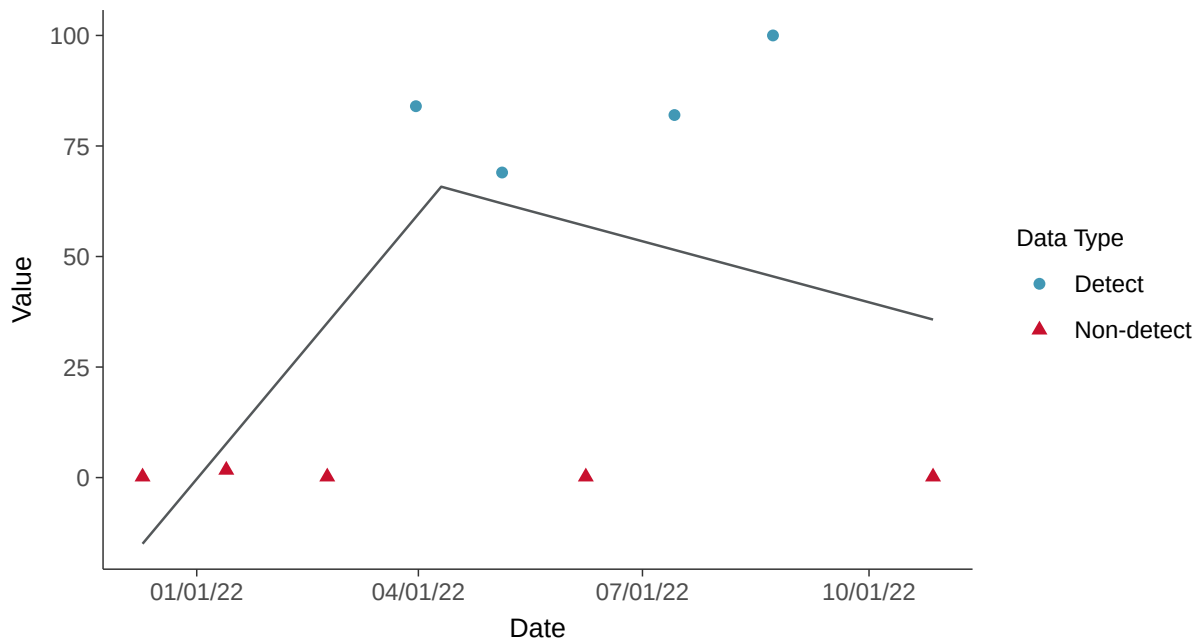
Normal Q-Q plot using ROS Imputed Estimates

Fluoride (App IV), W-3B (mg/l)



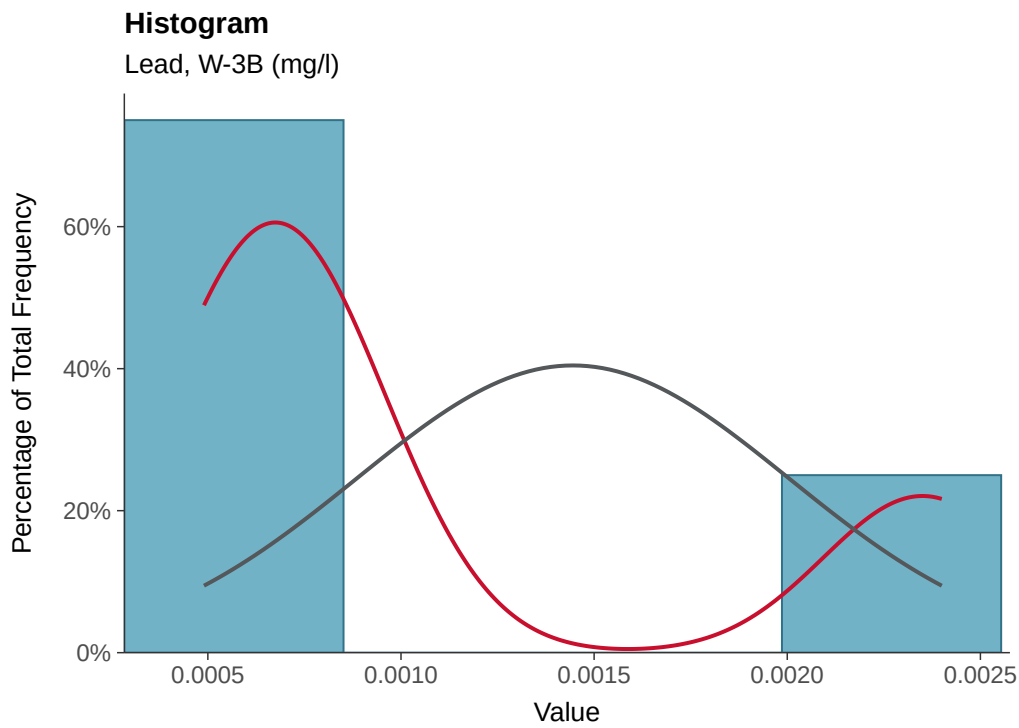
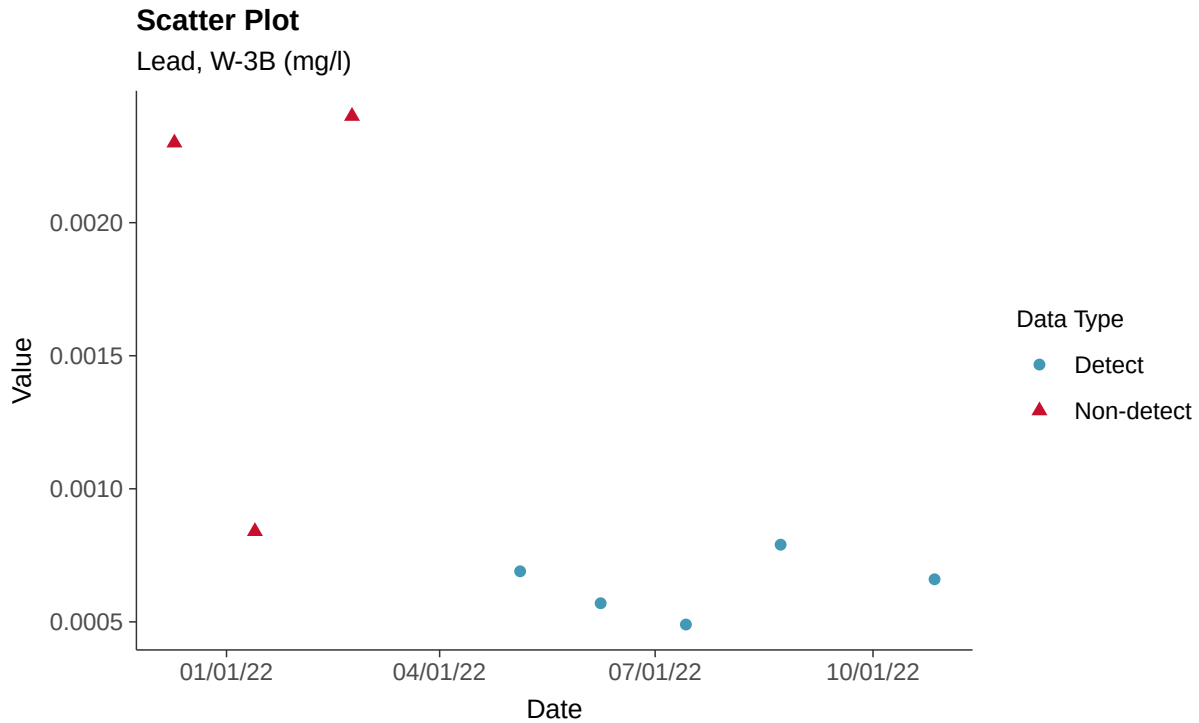
Trend Regression: Piecewise Linear-Linear

Fluoride (App IV), W-3B (mg/l)



Appendix IV: Lead, W-3B

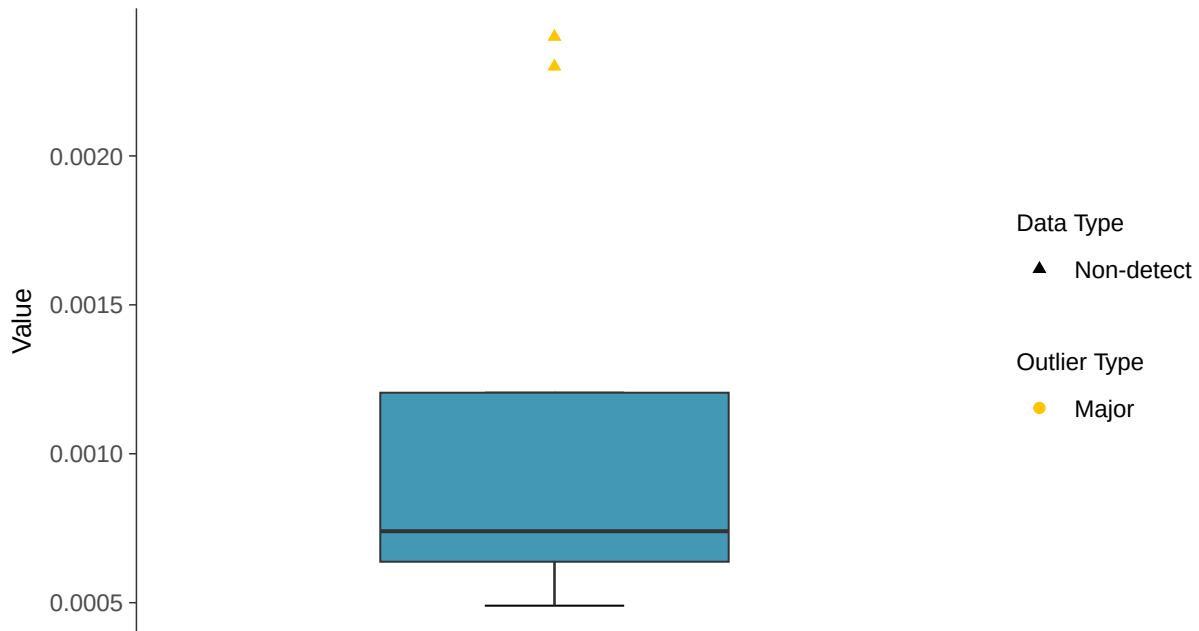
ID: 6_2_113



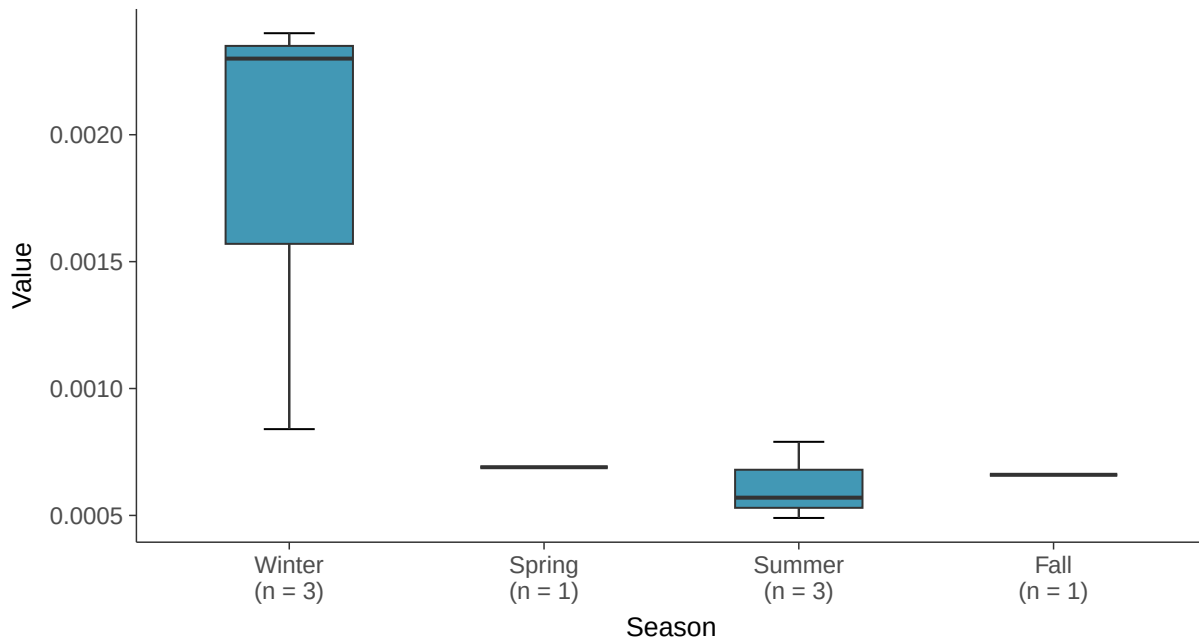
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Lead, W-3B (mg/l)

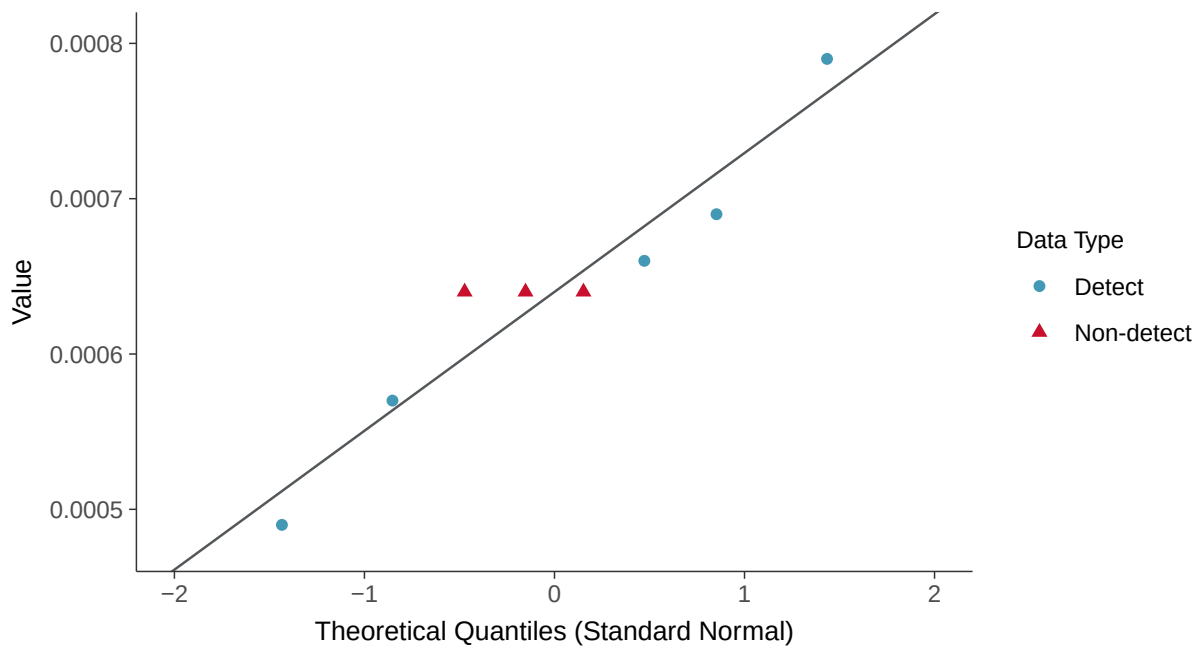
**Boxplot by Season**

Lead, W-3B (mg/l)



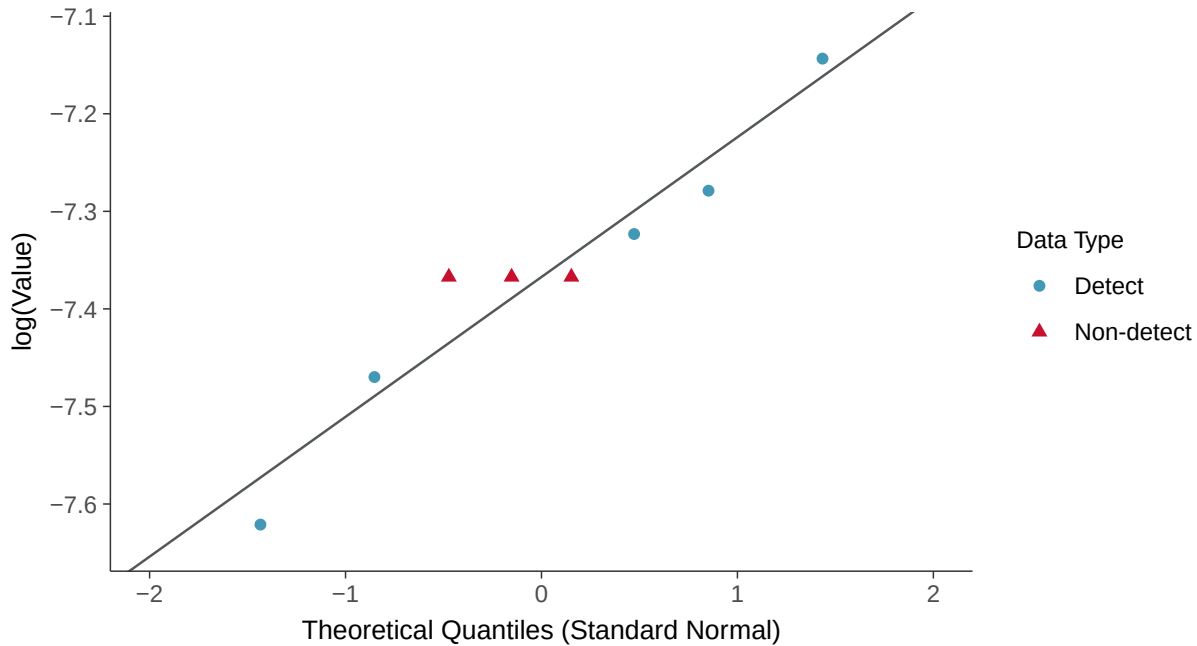
Normal Q-Q plot using ROS Imputed Estimates

Lead, W-3B (mg/l)



Lognormal Q-Q plot using ROS Imputed Estimates

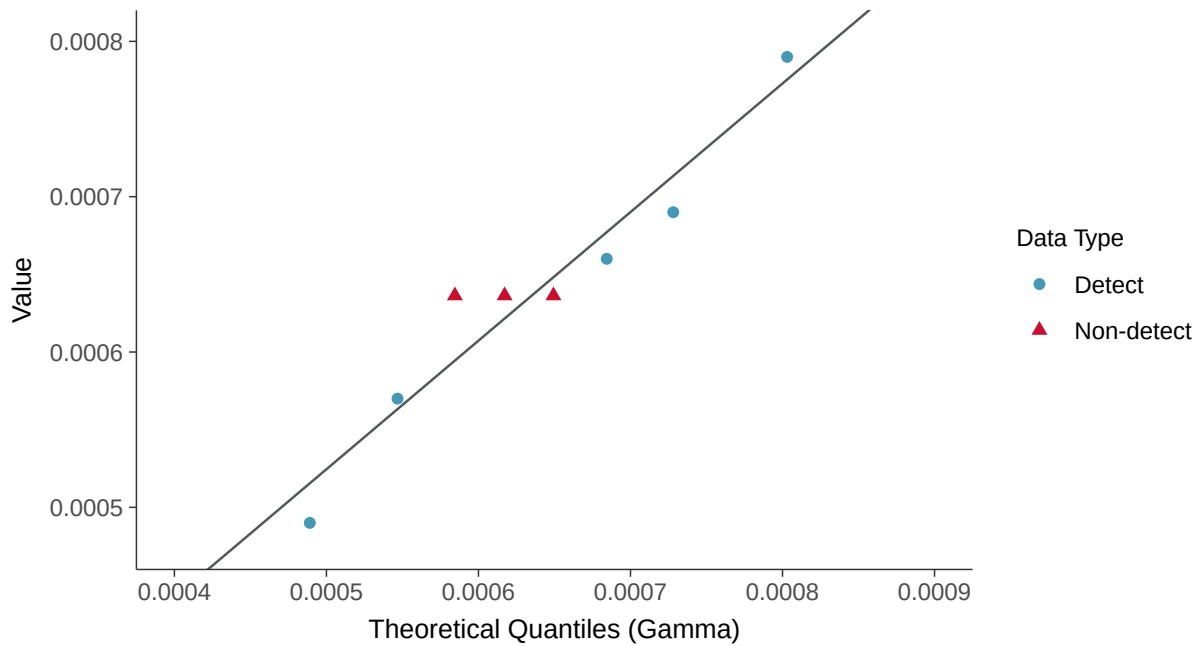
Lead, W-3B (mg/l)





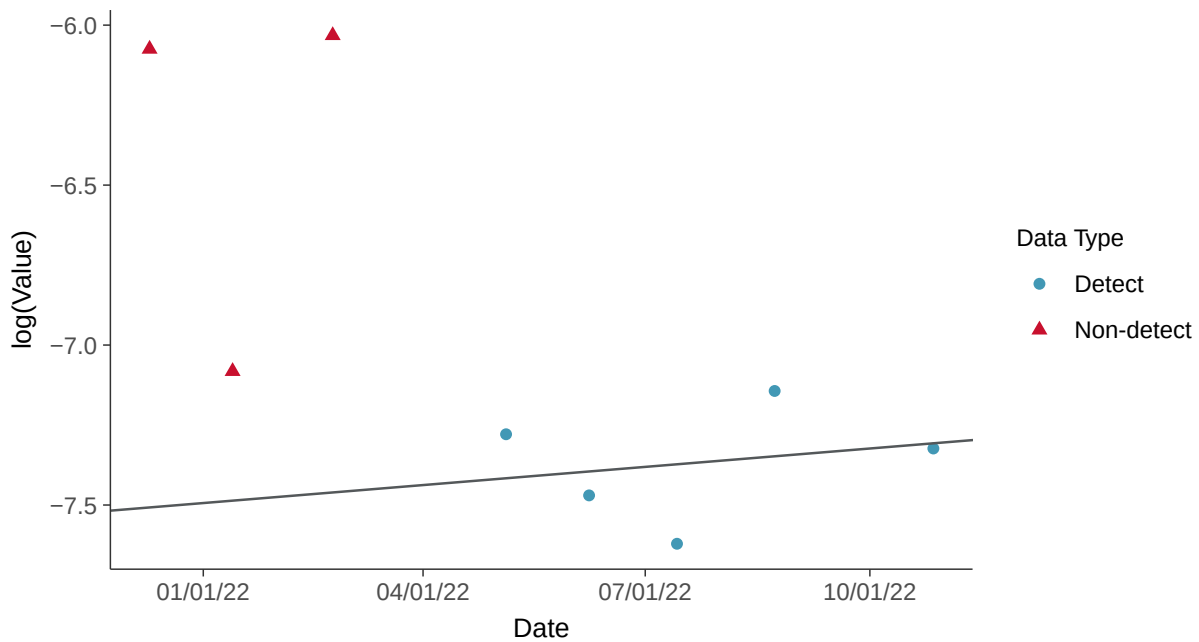
Gamma Q-Q plot using ROS Imputed Estimates

Lead, W-3B (mg/l)



Trend Regression: Lognormal MLE

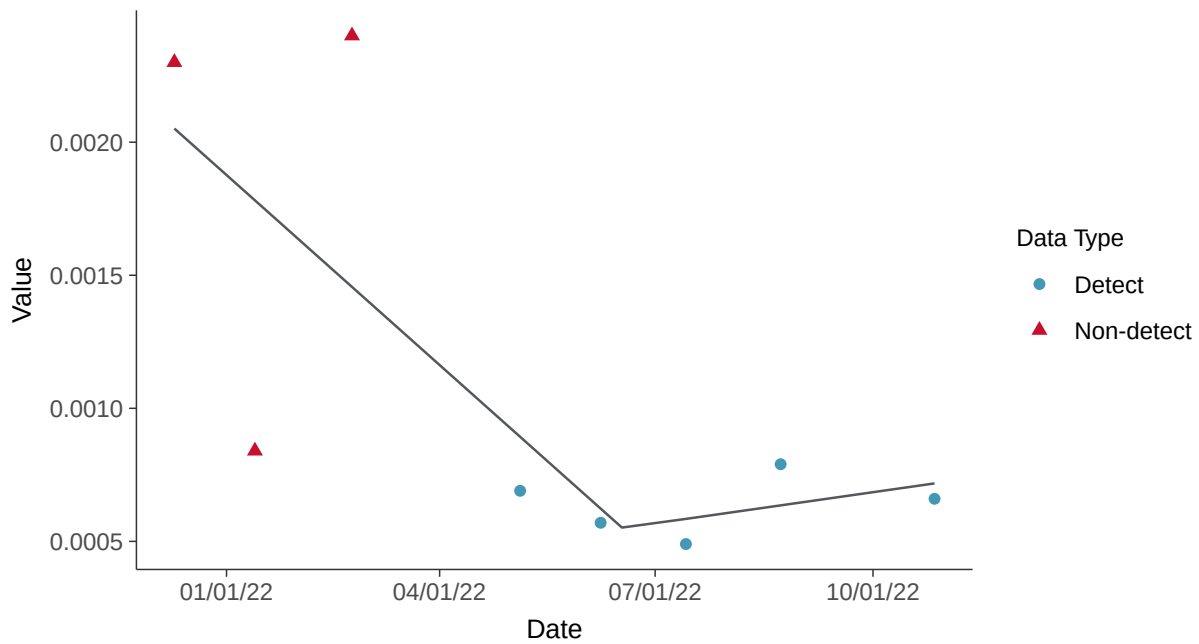
Lead, W-3B (mg/l)





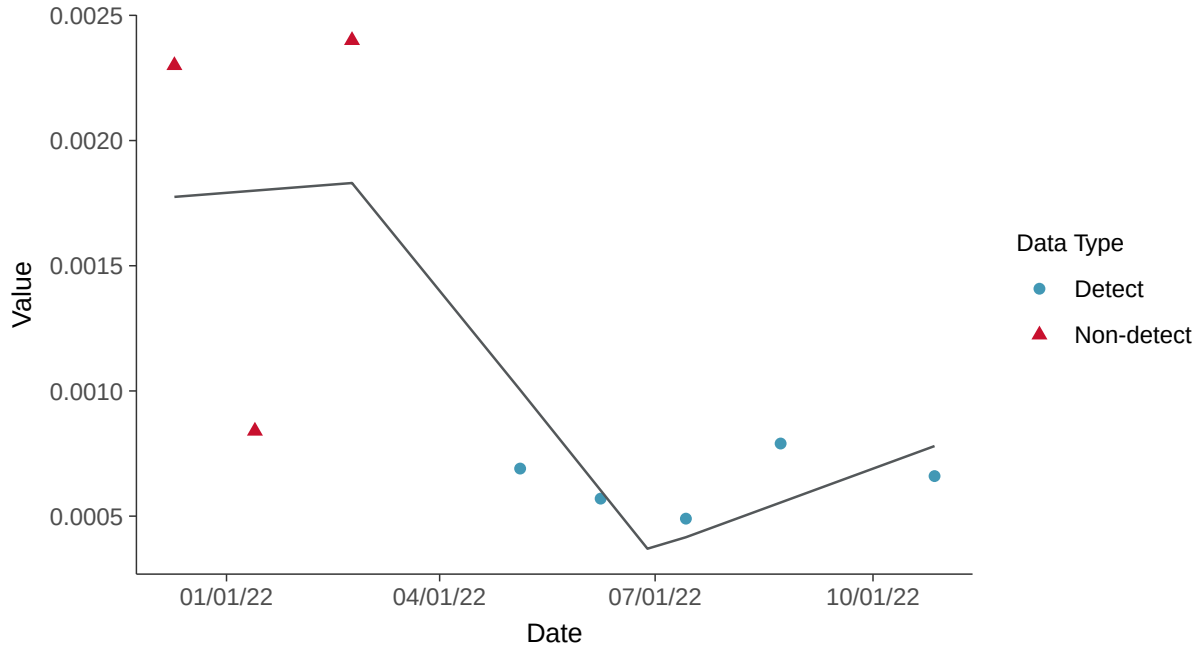
Trend Regression: Piecewise Linear-Linear

Lead, W-3B (mg/l)



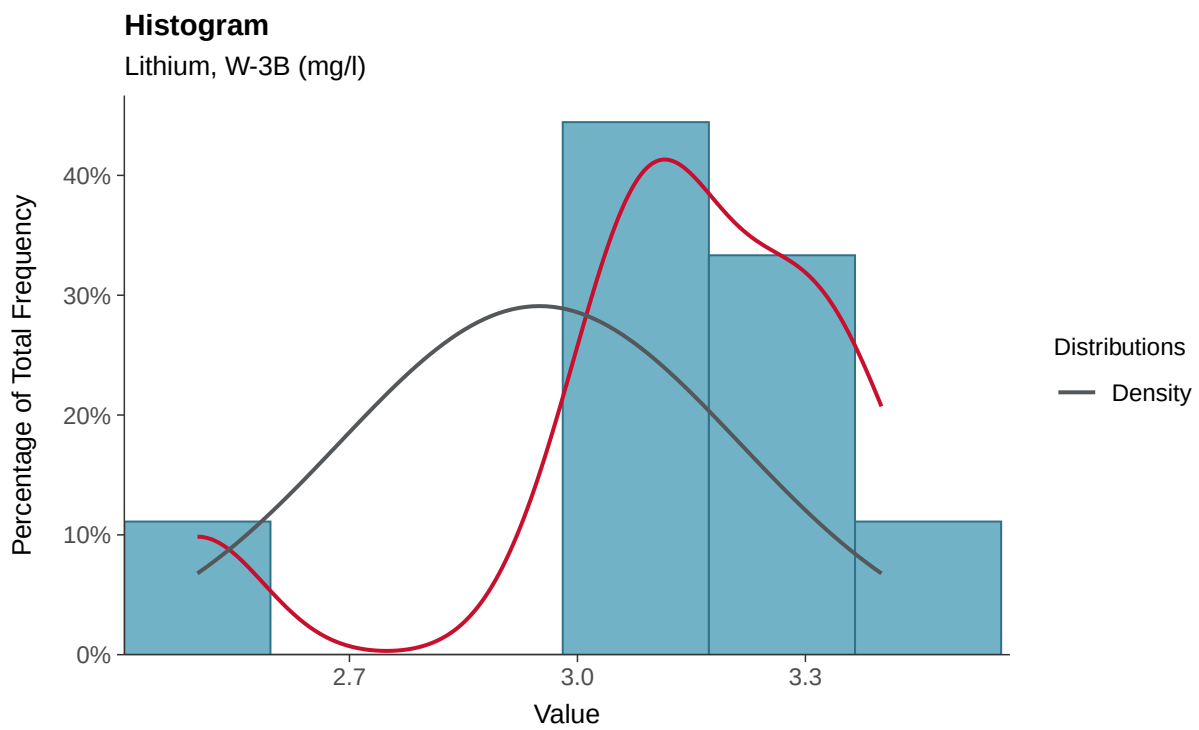
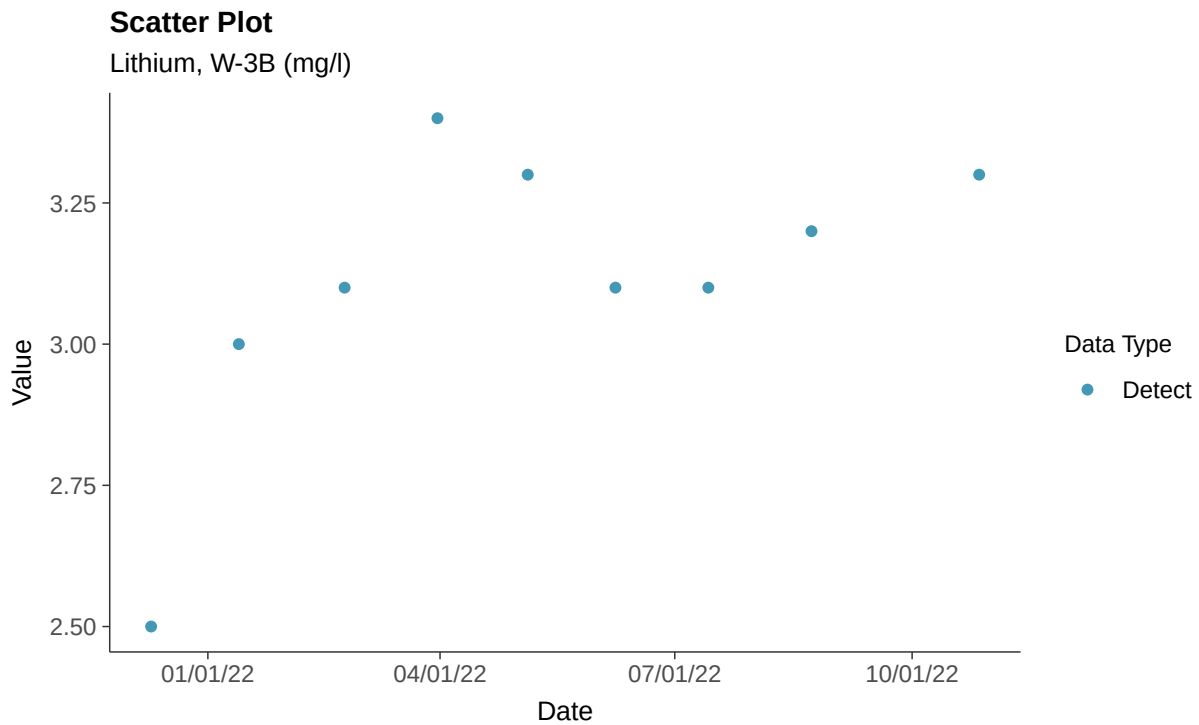
Trend Regression: Piecewise Linear-Linear-Linear

Lead, W-3B (mg/l)



Appendix IV: Lithium, W-3B

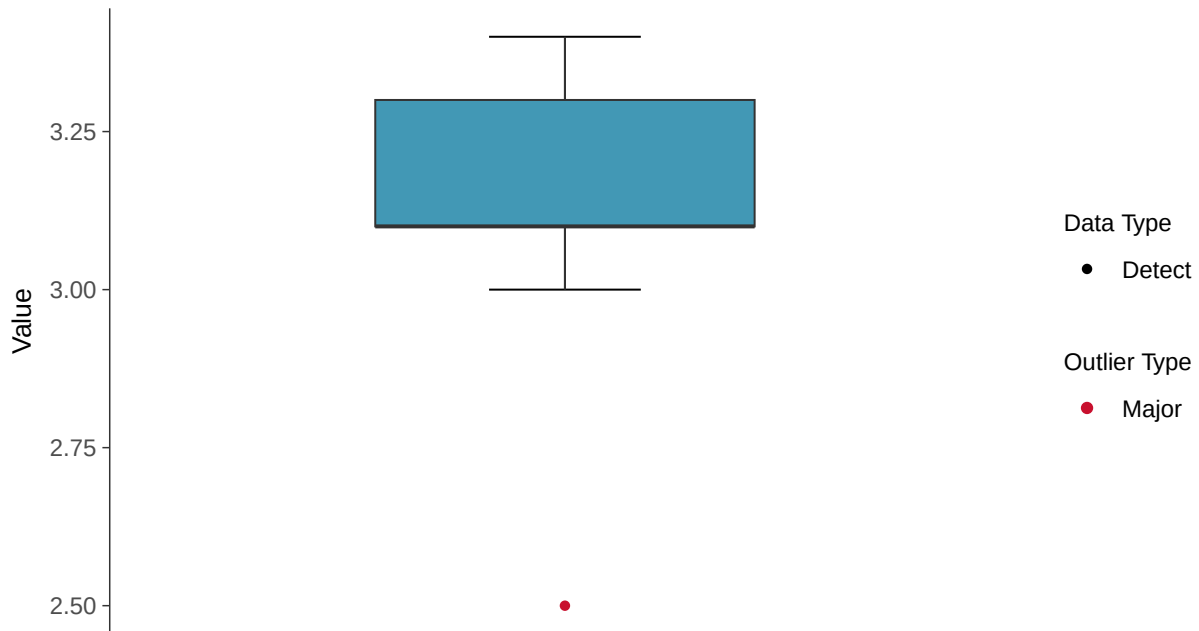
ID: 6_2_114



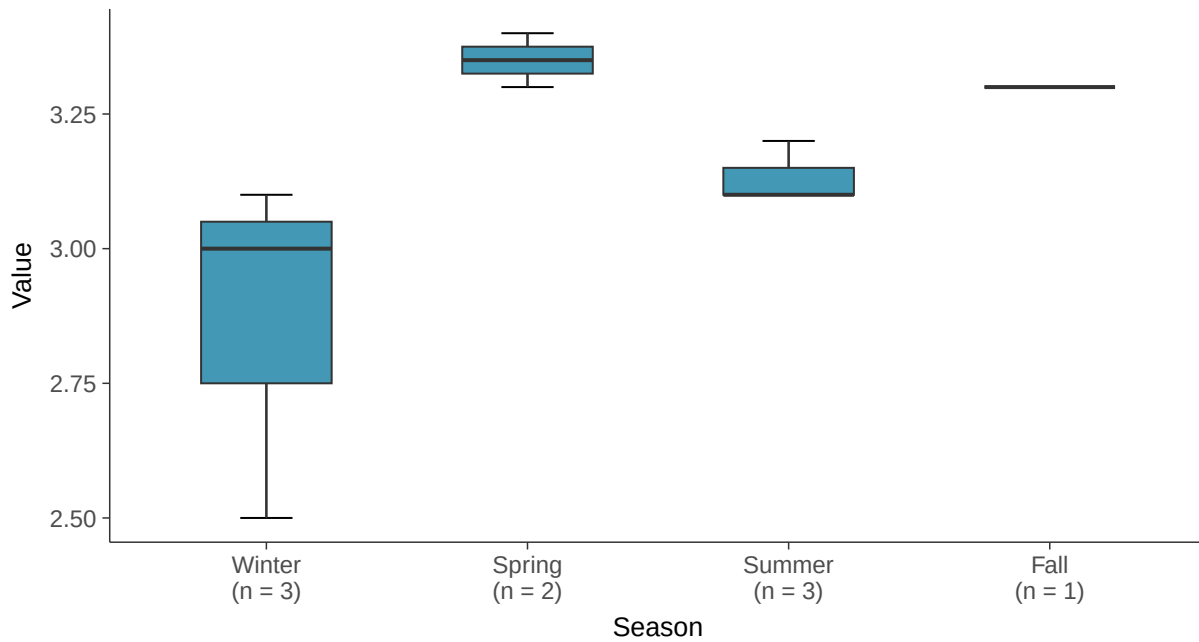
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Lithium, W-3B (mg/l)

**Boxplot by Season**

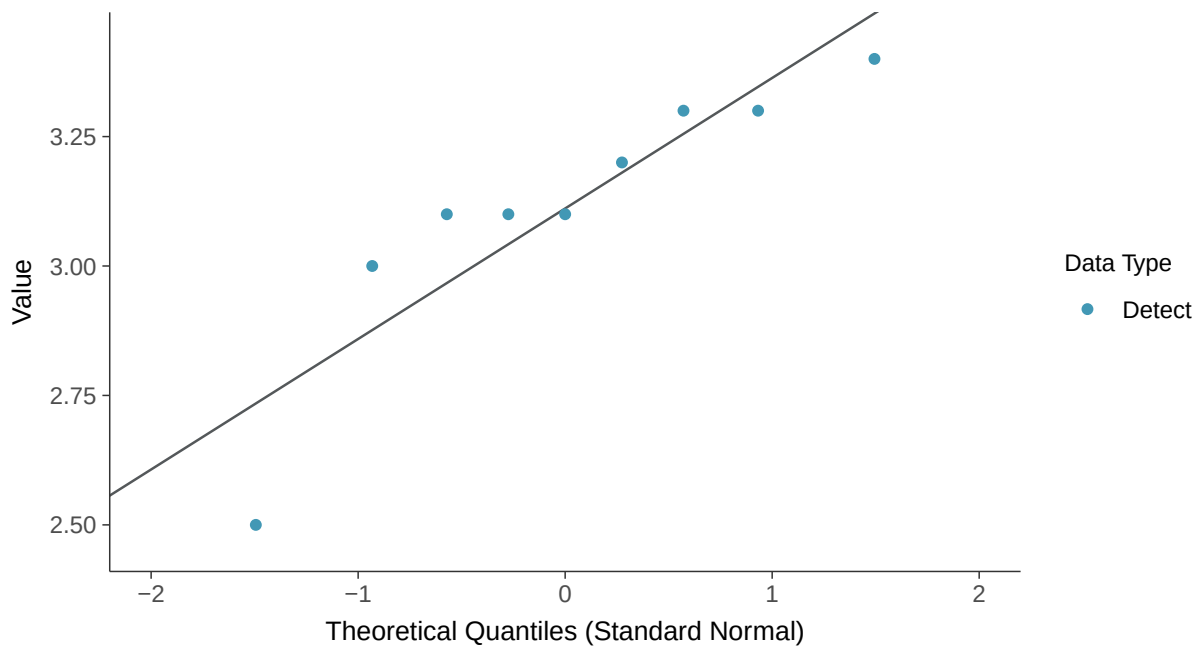
Lithium, W-3B (mg/l)





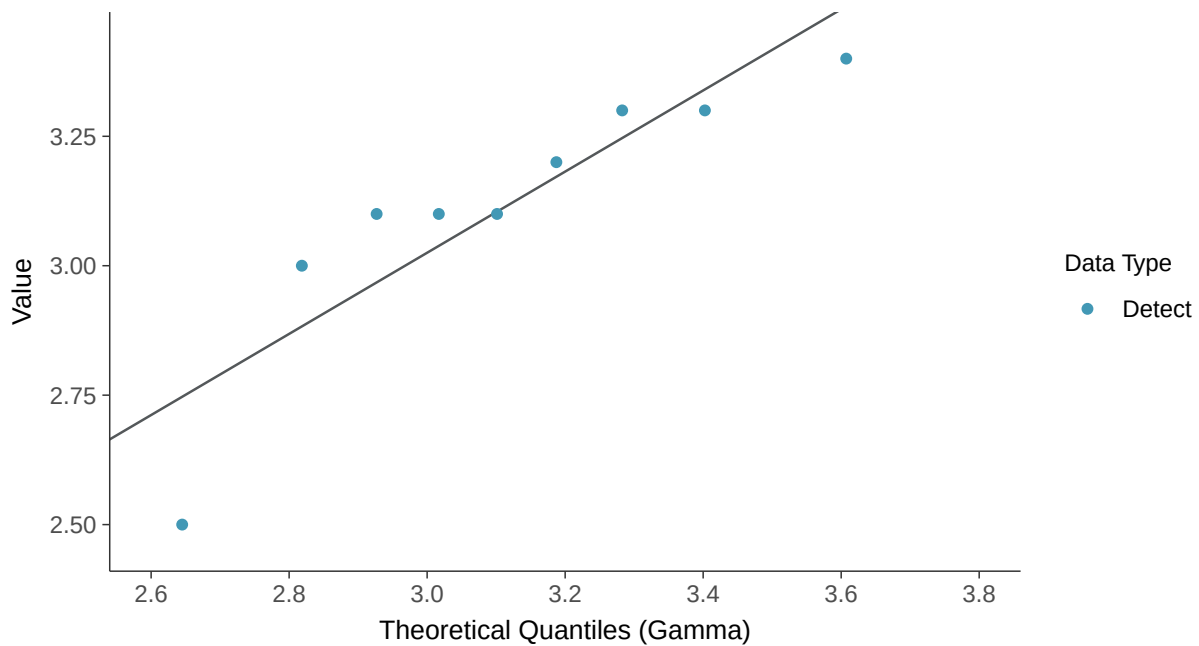
Normal Q-Q plot

Lithium, W-3B (mg/l)



Gamma Q-Q plot

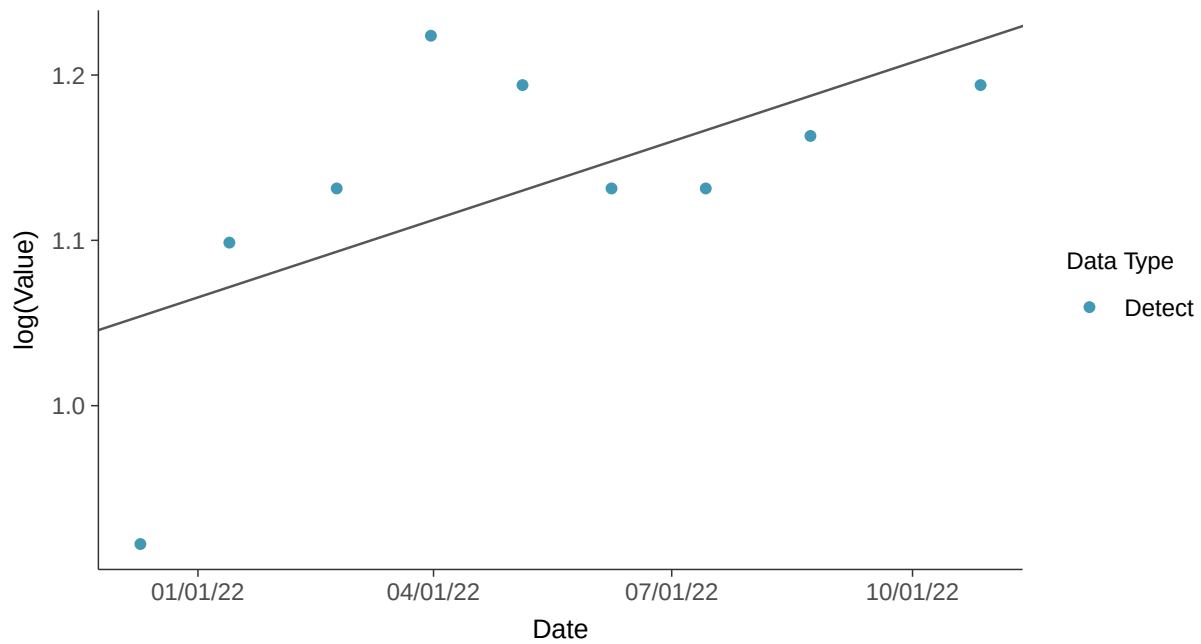
Lithium, W-3B (mg/l)



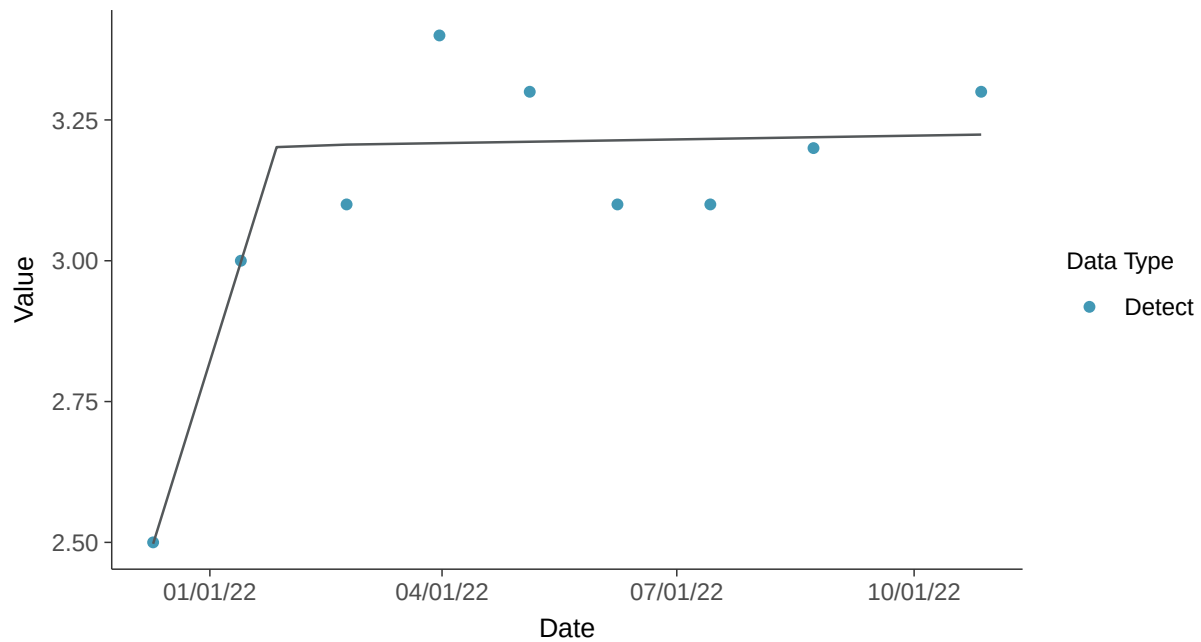
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Trend Regression: Lognormal MLE

Lithium, W-3B (mg/l)

**Trend Regression: Piecewise Linear-Linear**

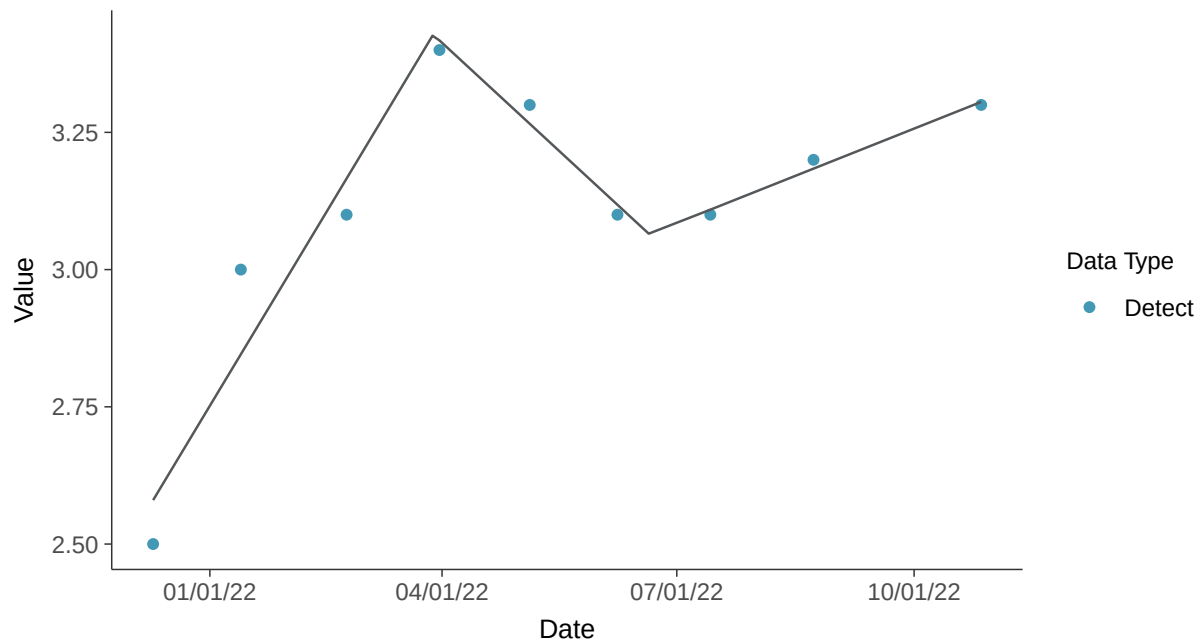
Lithium, W-3B (mg/l)





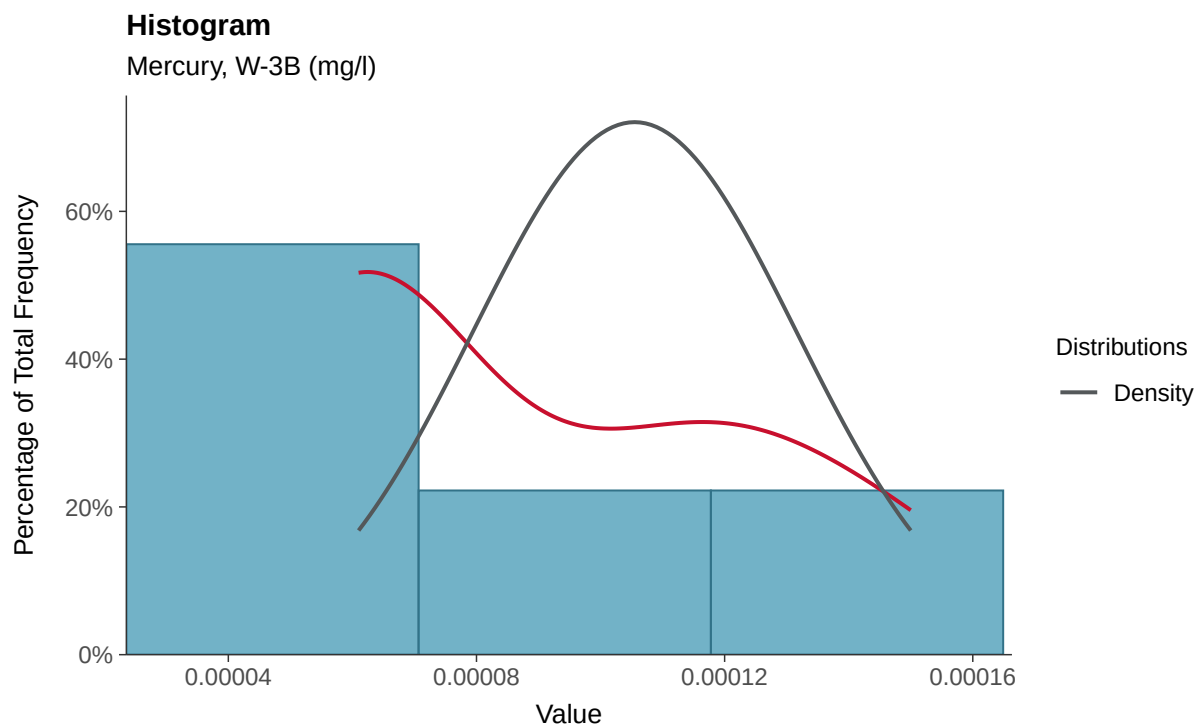
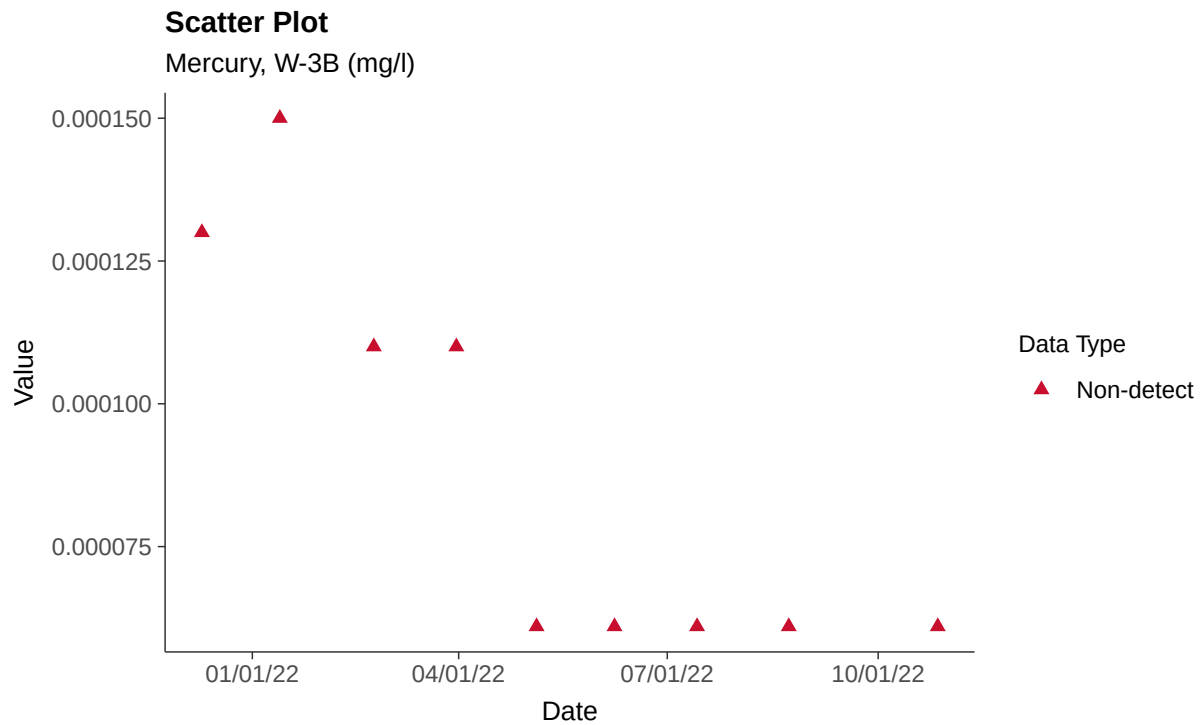
Trend Regression: Piecewise Linear-Linear-Linear

Lithium, W-3B (mg/l)



Appendix IV: Mercury, W-3B

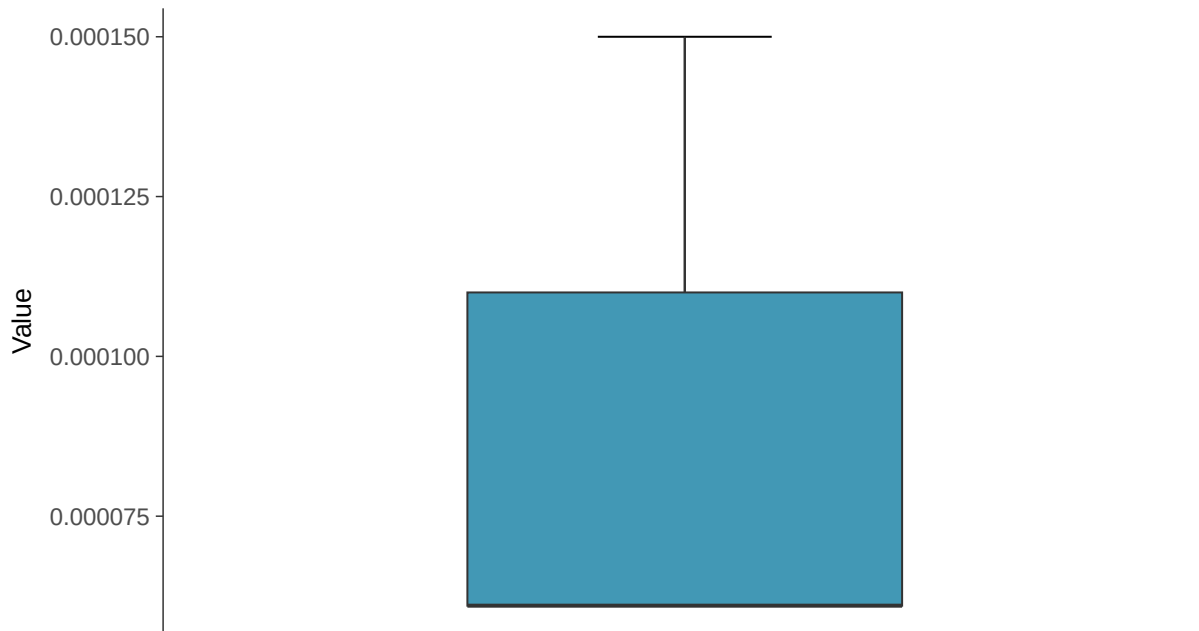
ID: 6_2_115





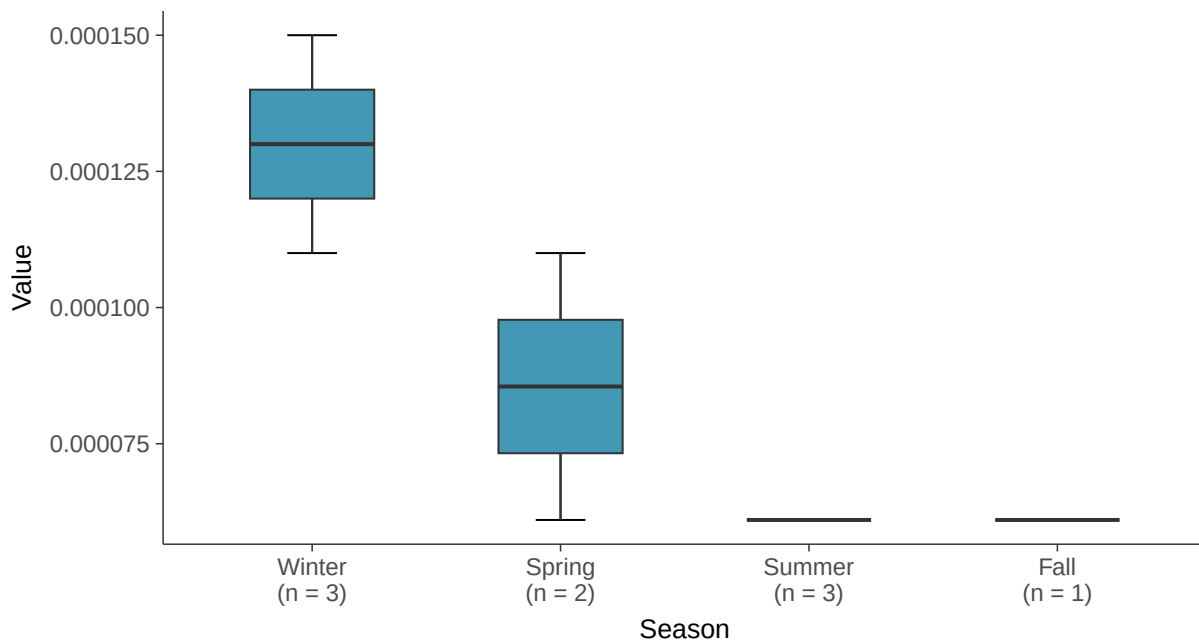
Boxplot

Mercury, W-3B (mg/l)



Boxplot by Season

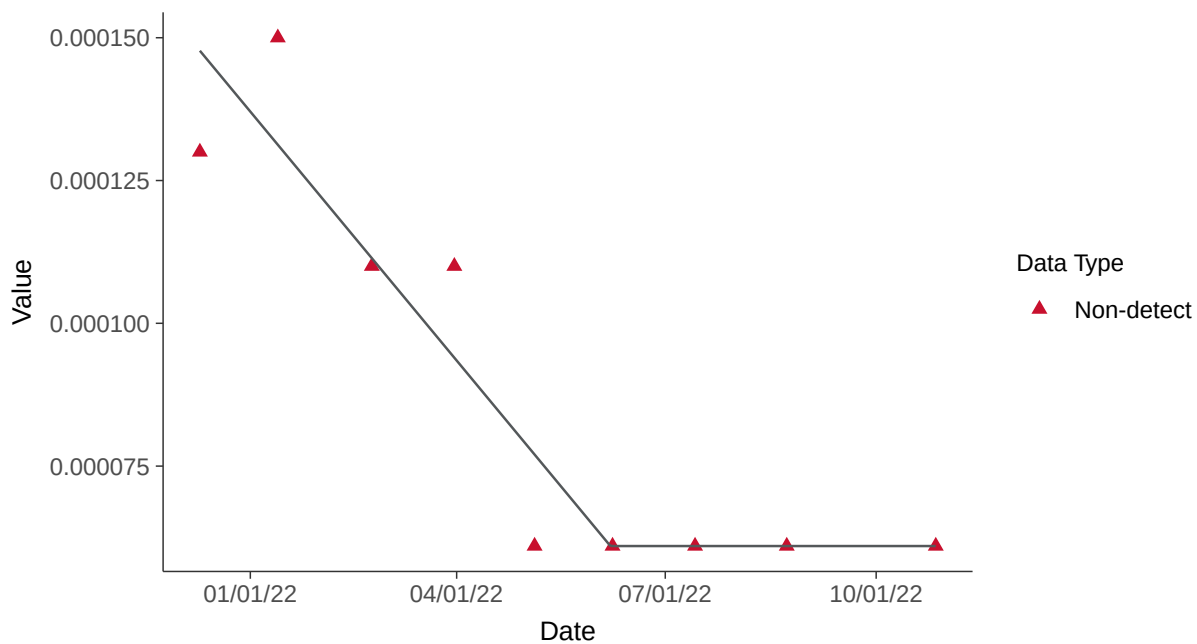
Mercury, W-3B (mg/l)





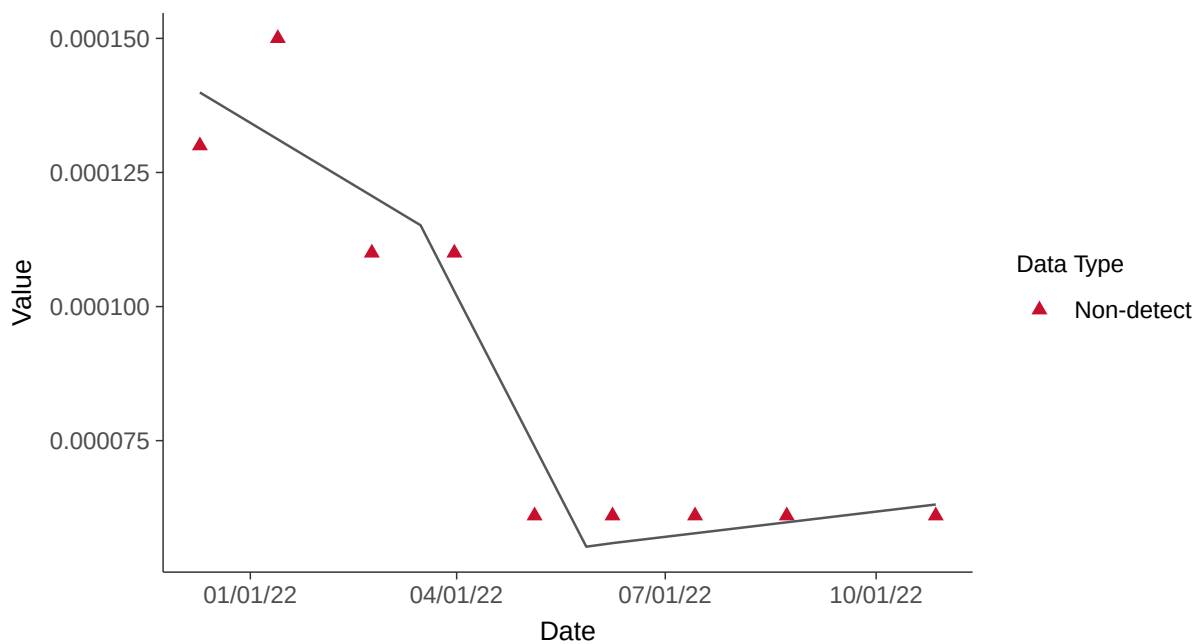
Trend Regression: Piecewise Linear-Linear

Mercury, W-3B (mg/l)



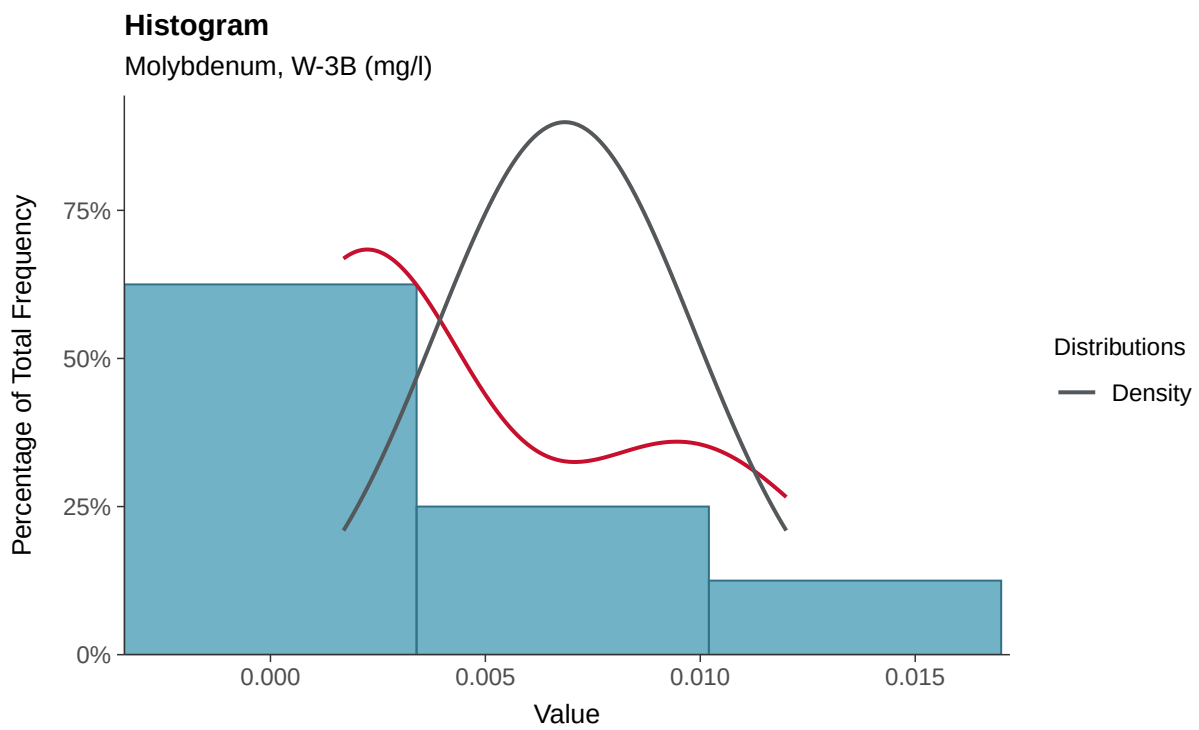
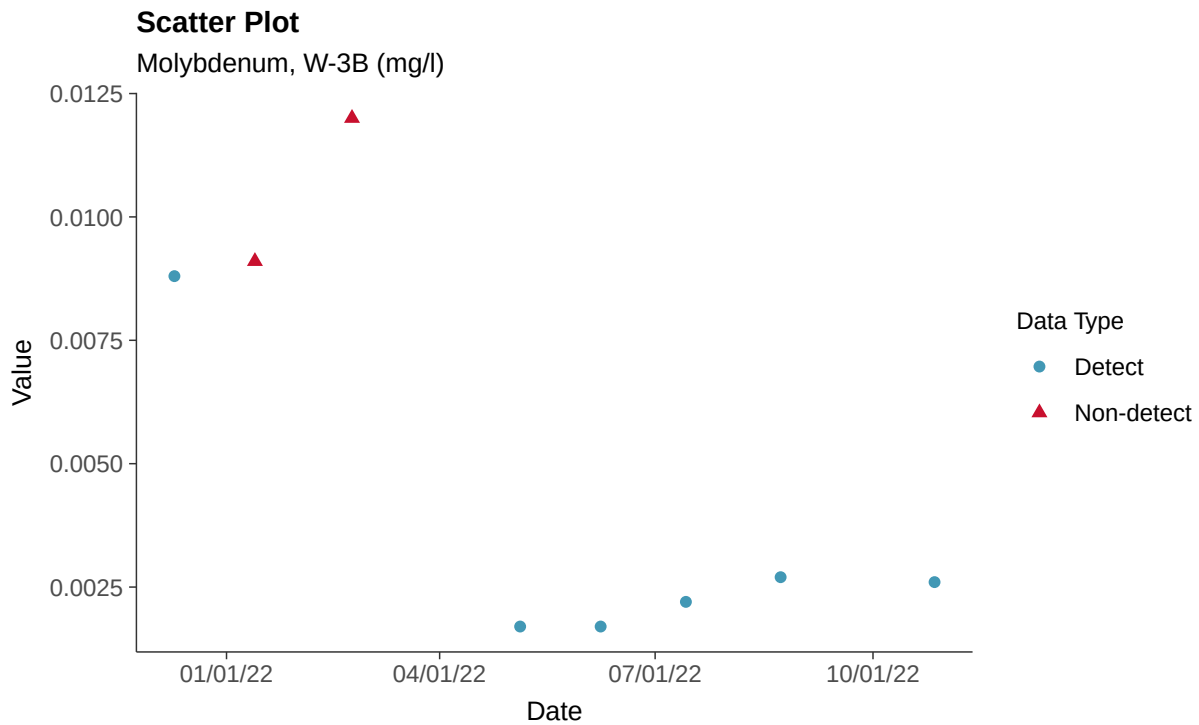
Trend Regression: Piecewise Linear-Linear-Linear

Mercury, W-3B (mg/l)



Appendix IV: Molybdenum, W-3B

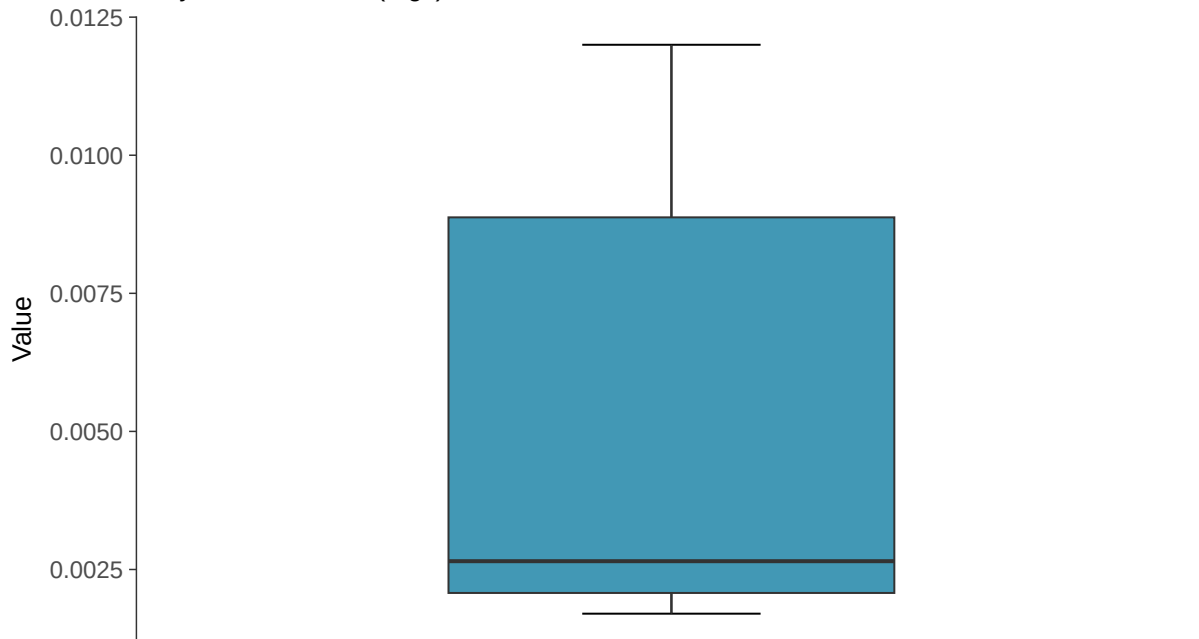
ID: 6_2_116





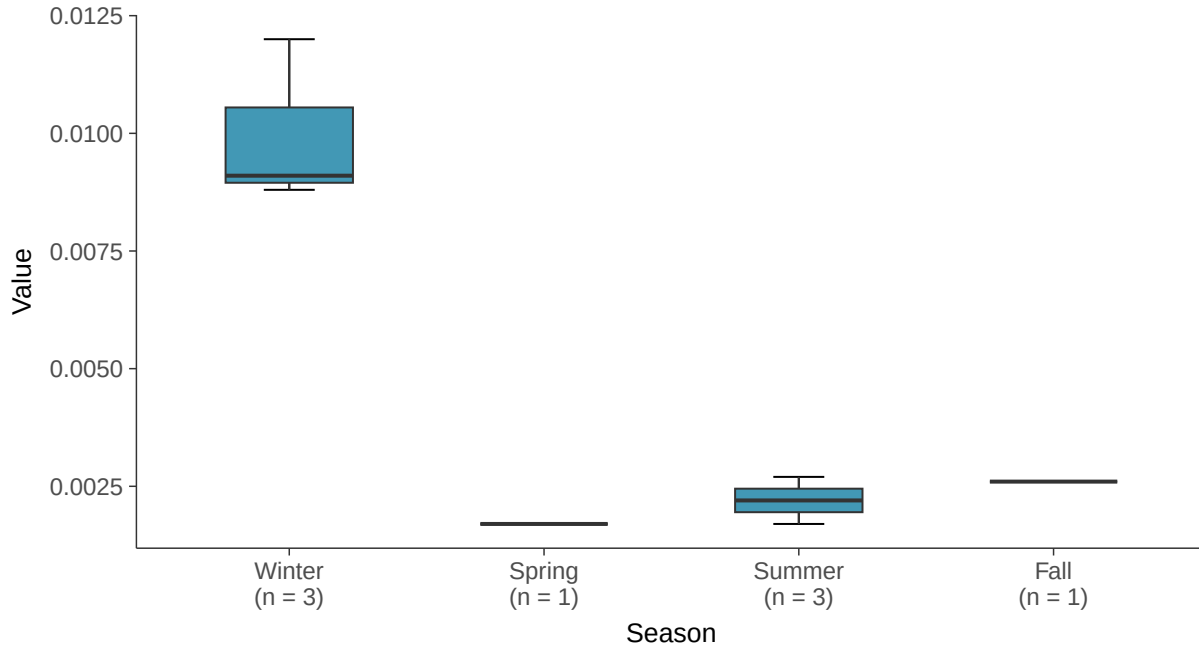
Boxplot

Molybdenum, W-3B (mg/l)



Boxplot by Season

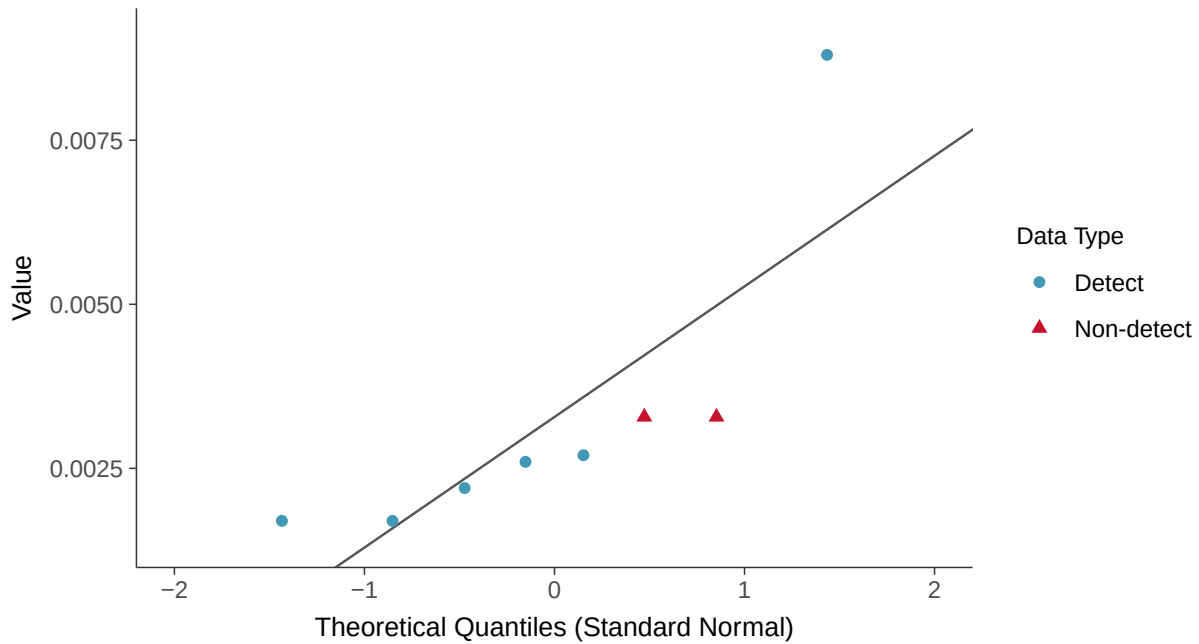
Molybdenum, W-3B (mg/l)





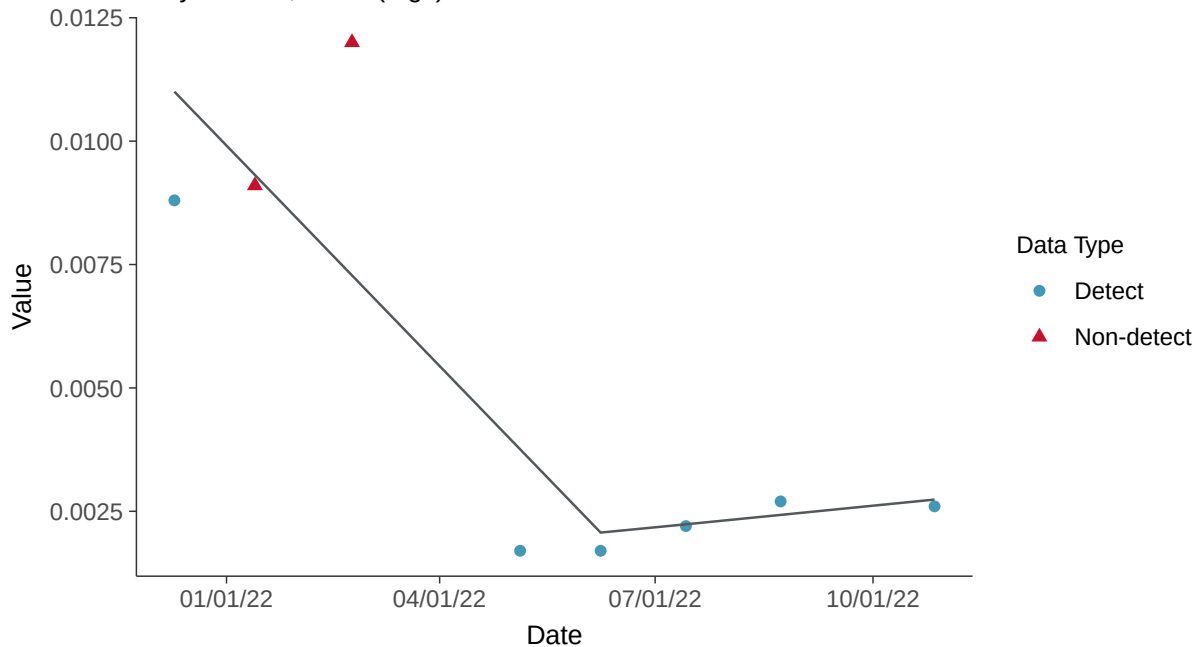
Normal Q-Q plot using ROS Imputed Estimates

Molybdenum, W-3B (mg/l)



Trend Regression: Piecewise Linear-Linear

Molybdenum, W-3B (mg/l)

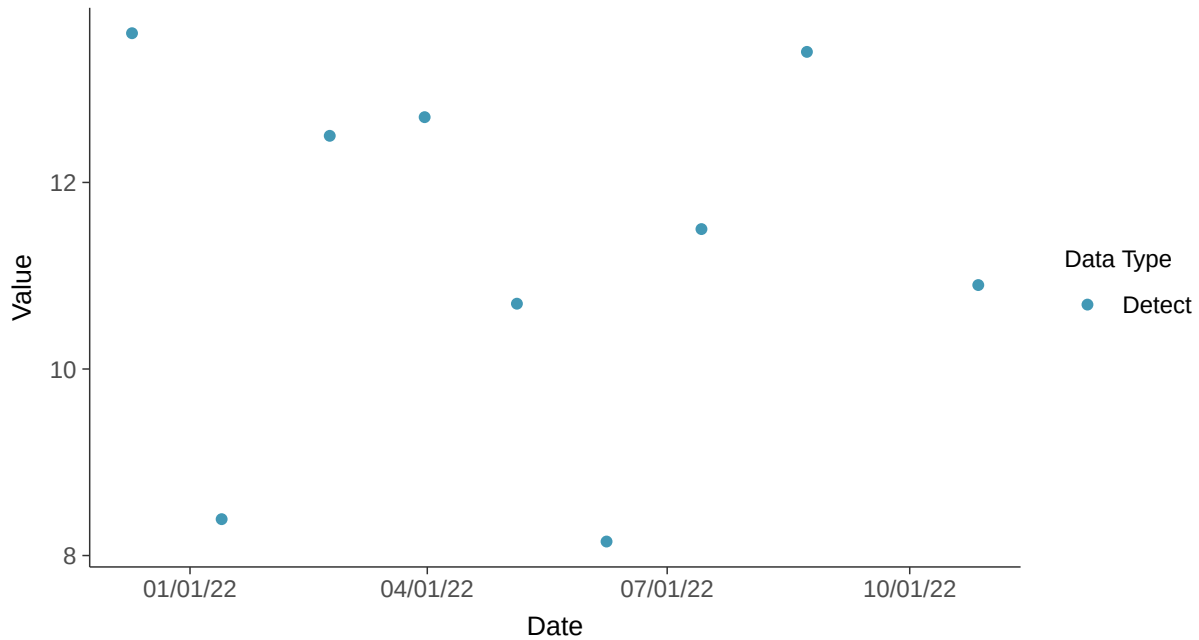


Appendix IV: Radium-226+228, W-3B

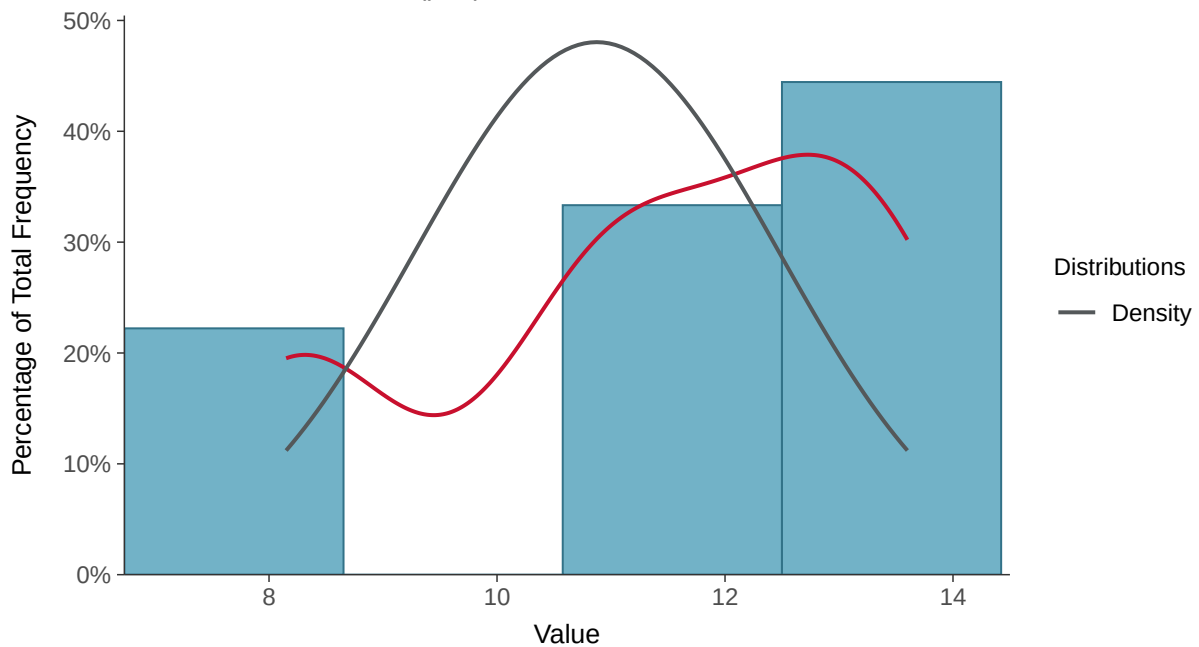
ID: 6_2_120

Scatter Plot

Radium-226+228, W-3B (pci/l)

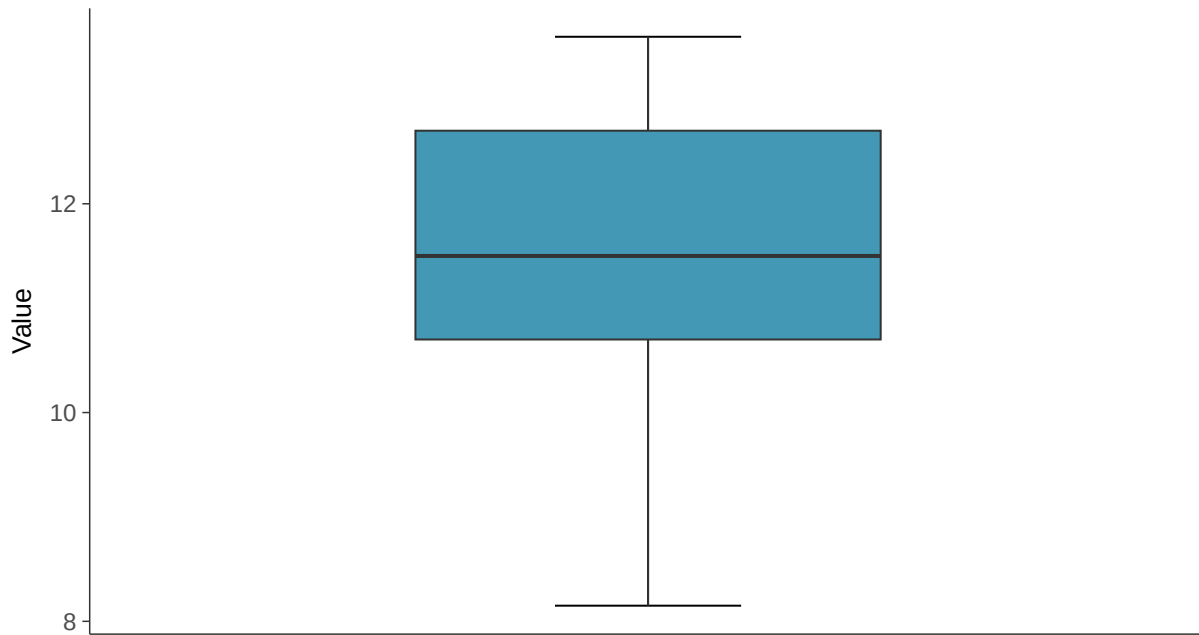
**Histogram**

Radium-226+228, W-3B (pci/l)



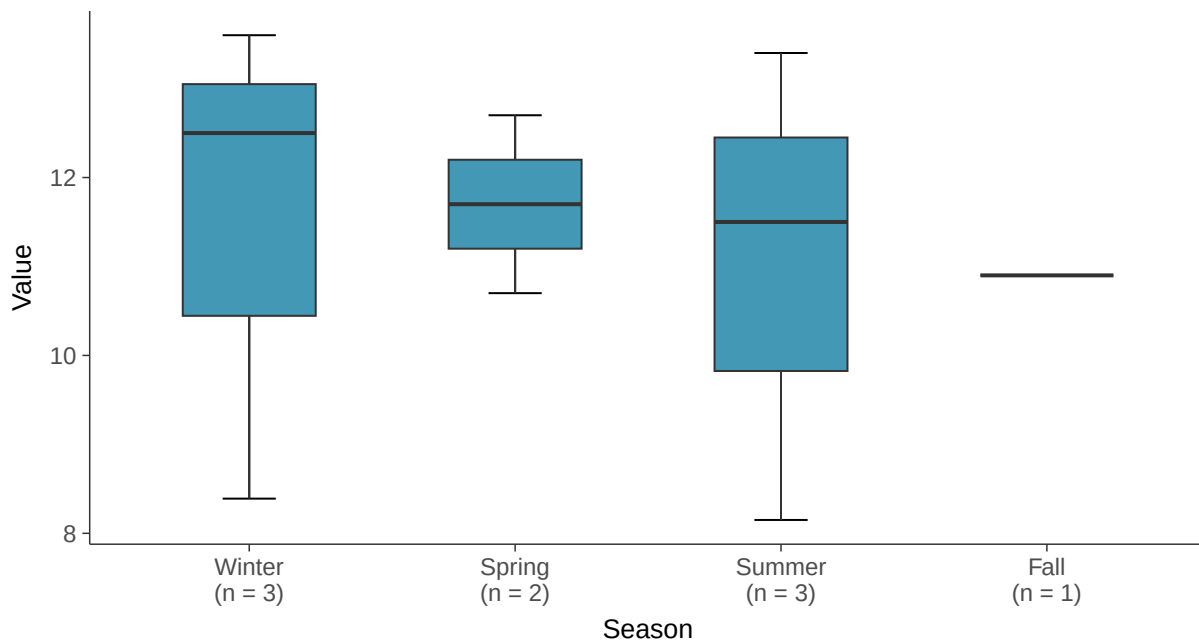
Boxplot

Radium-226+228, W-3B (pci/l)



Boxplot by Season

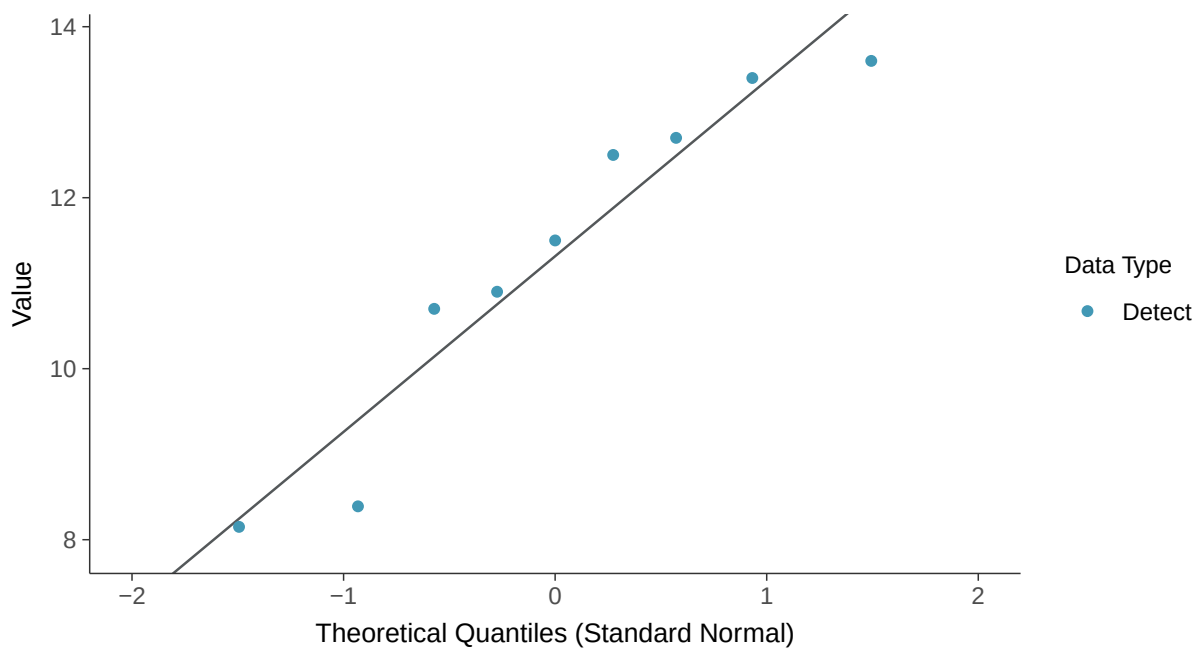
Radium-226+228, W-3B (pci/l)





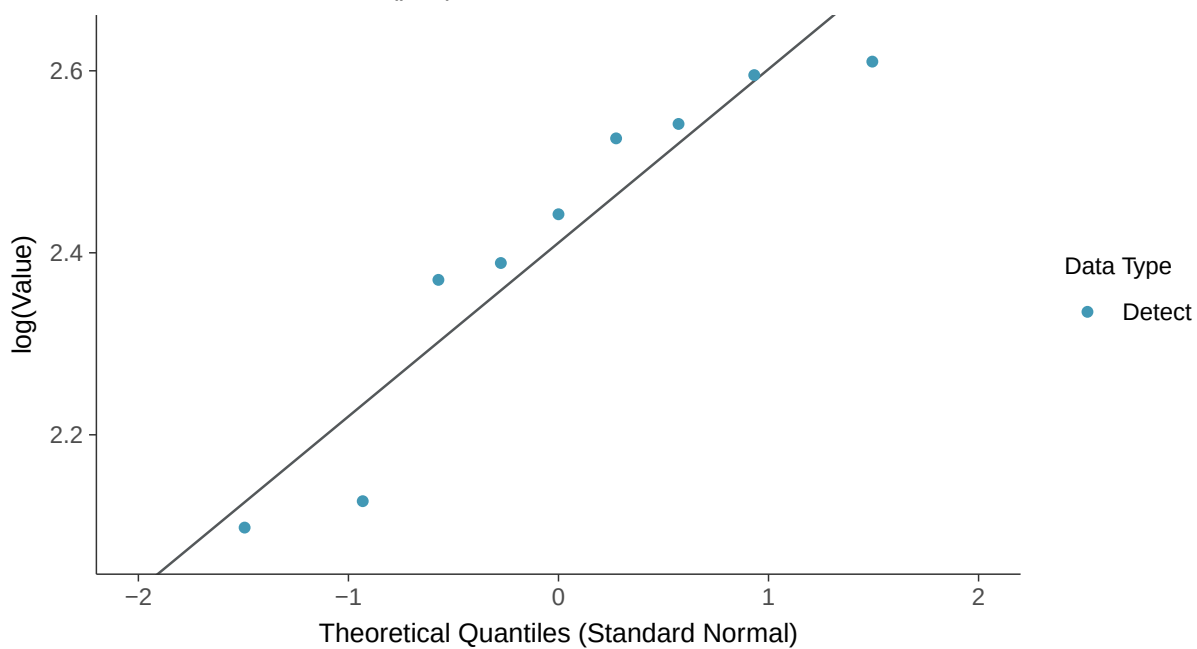
Normal Q-Q plot

Radium-226+228, W-3B (pci/l)



Lognormal Q-Q plot

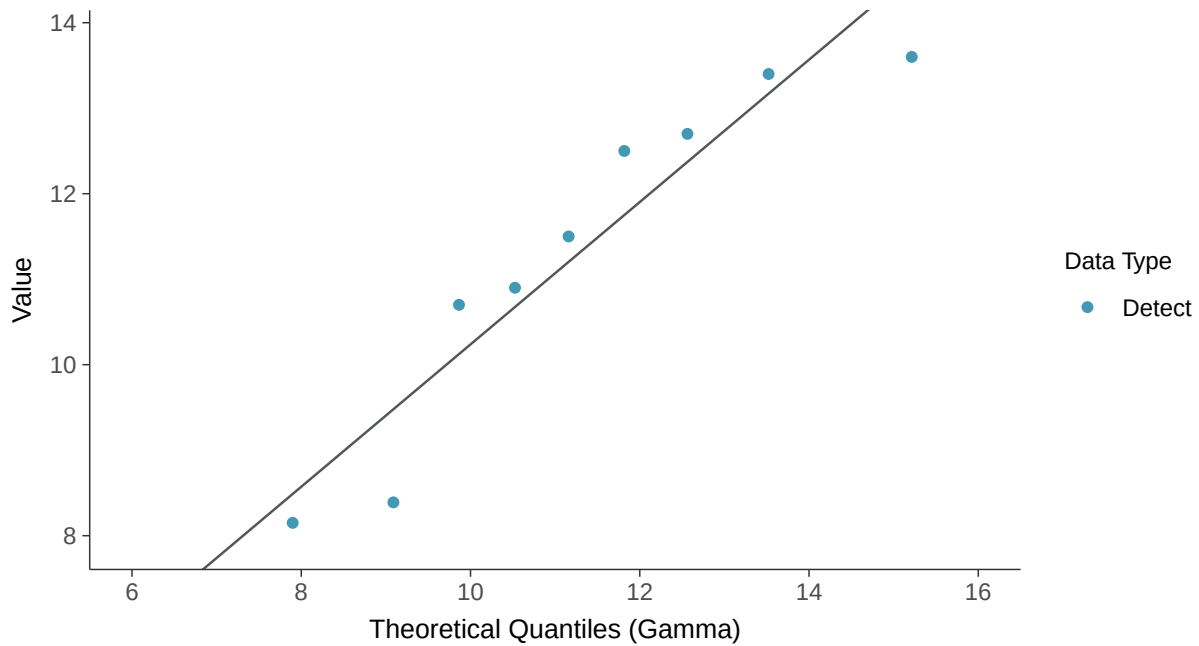
Radium-226+228, W-3B (pci/l)



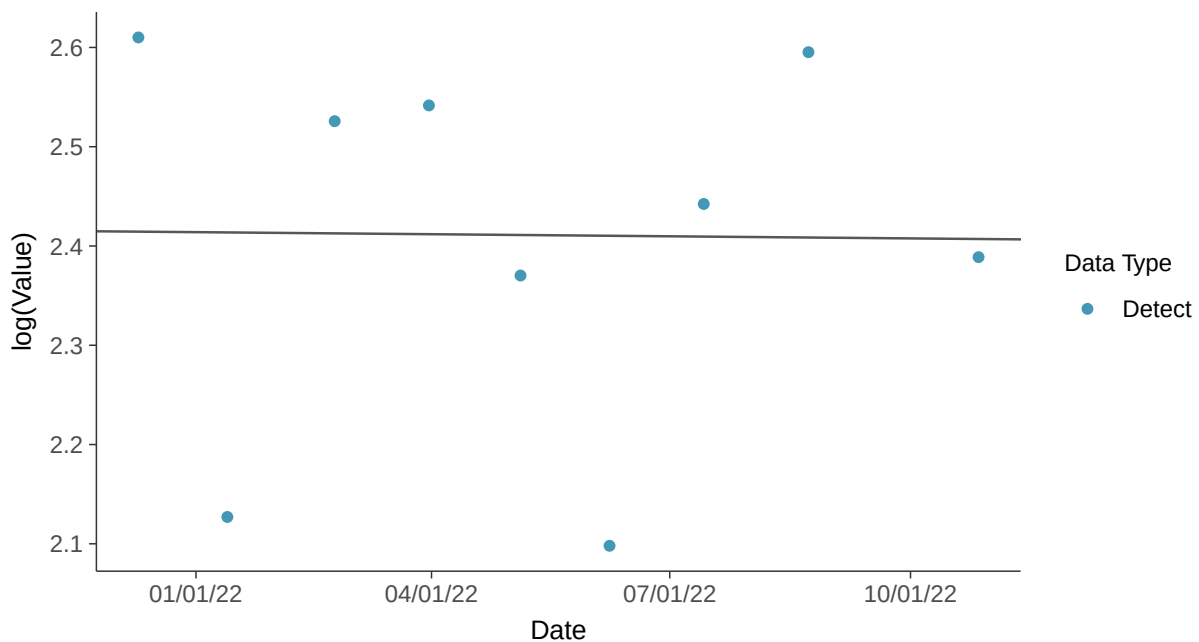
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Gamma Q-Q plot

Radium-226+228, W-3B (pci/l)

**Trend Regression: Lognormal MLE**

Radium-226+228, W-3B (pci/l)

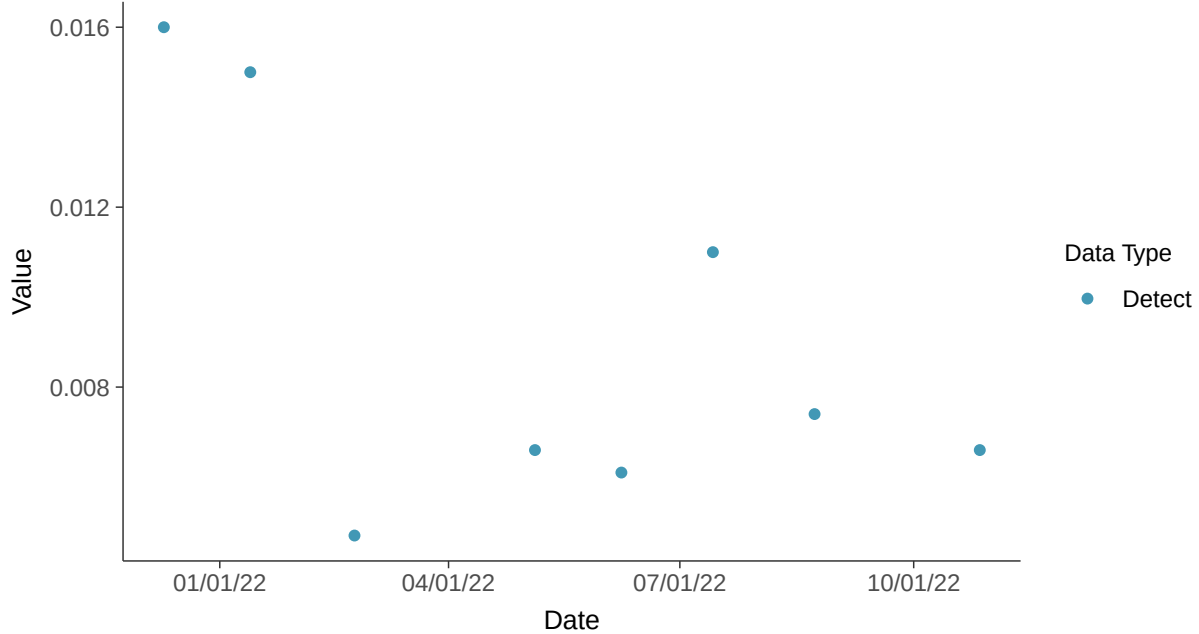


Appendix IV: Selenium, W-3B

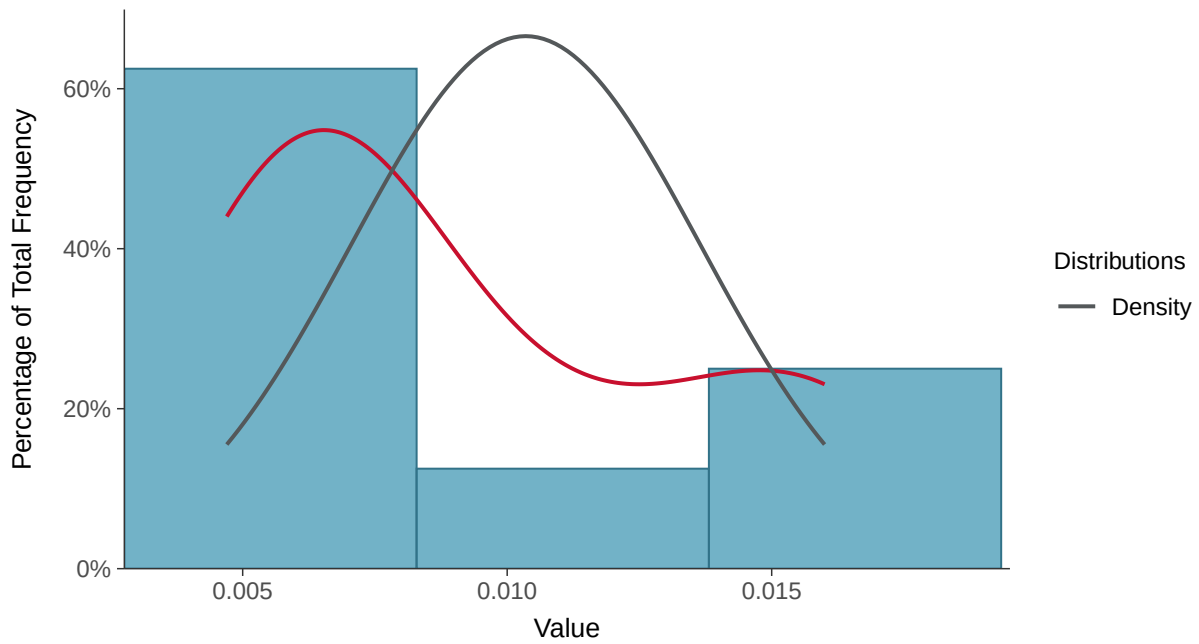
ID: 6_2_122

Scatter Plot

Selenium, W-3B (mg/l)

**Histogram**

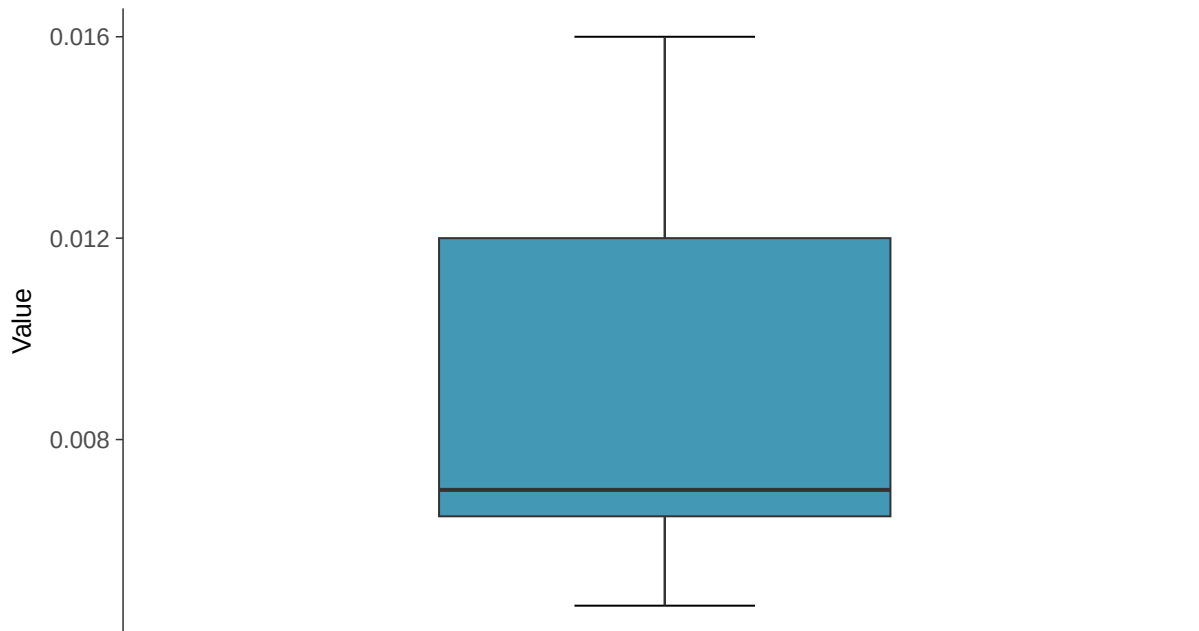
Selenium, W-3B (mg/l)





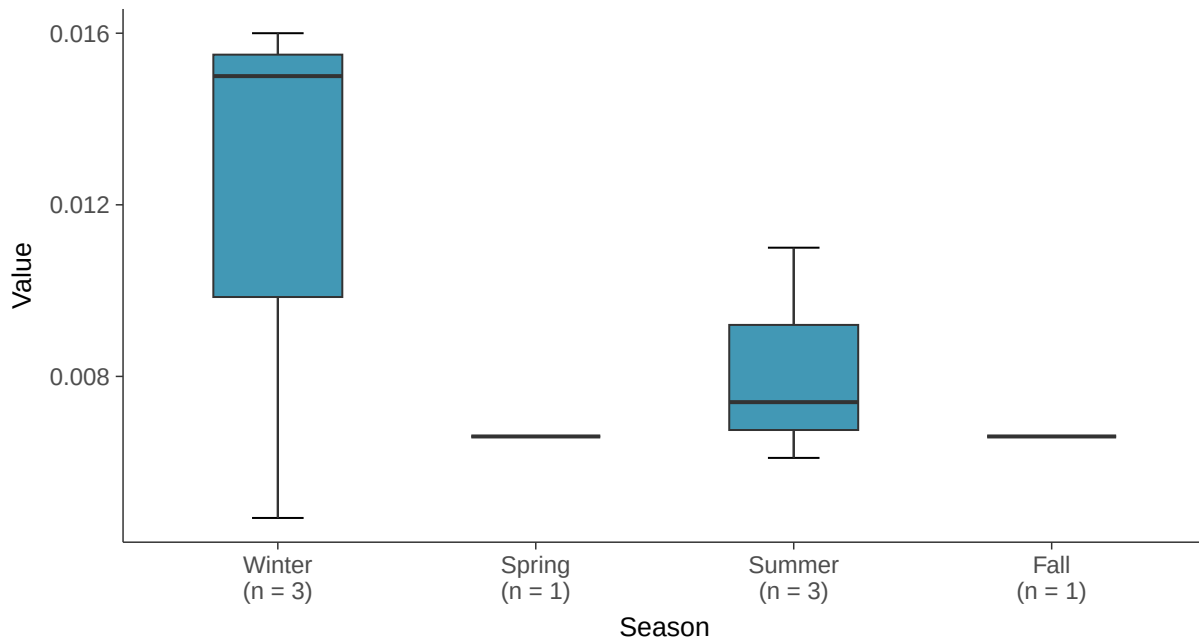
Boxplot

Selenium, W-3B (mg/l)



Boxplot by Season

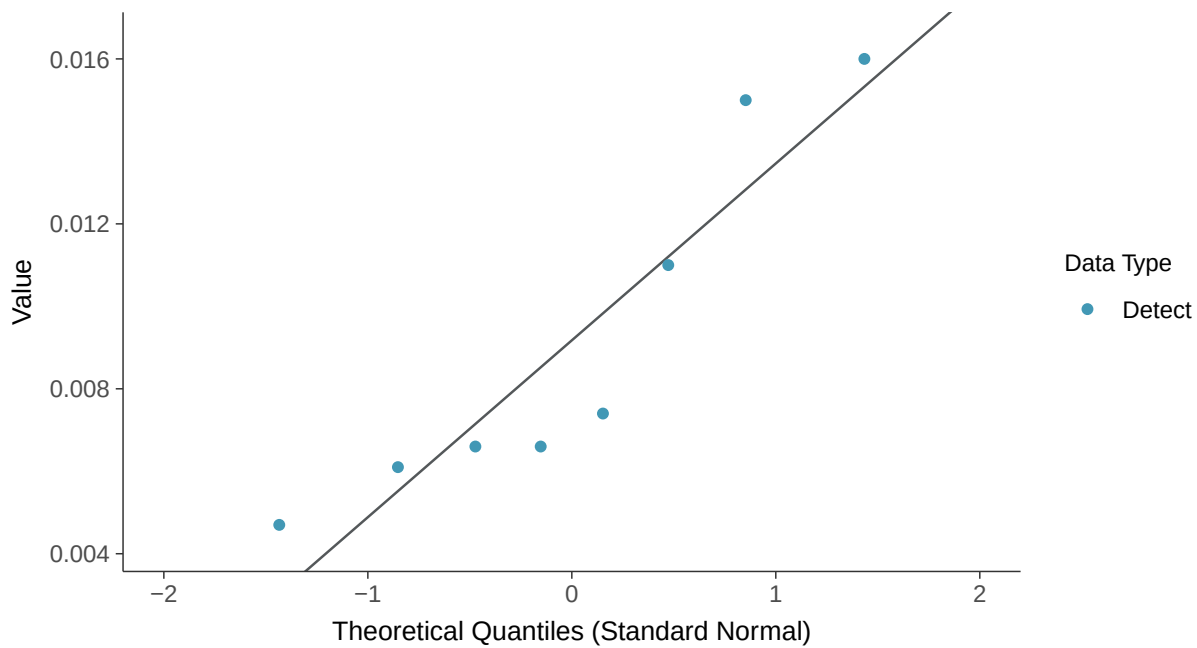
Selenium, W-3B (mg/l)





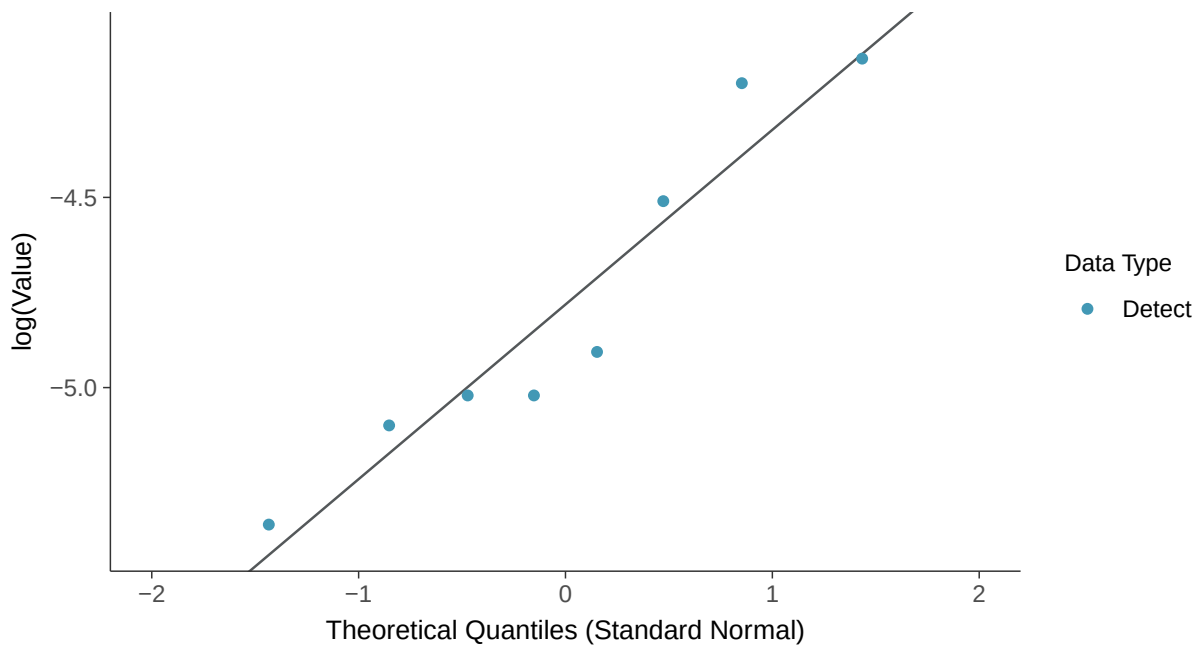
Normal Q-Q plot

Selenium, W-3B (mg/l)



Lognormal Q-Q plot

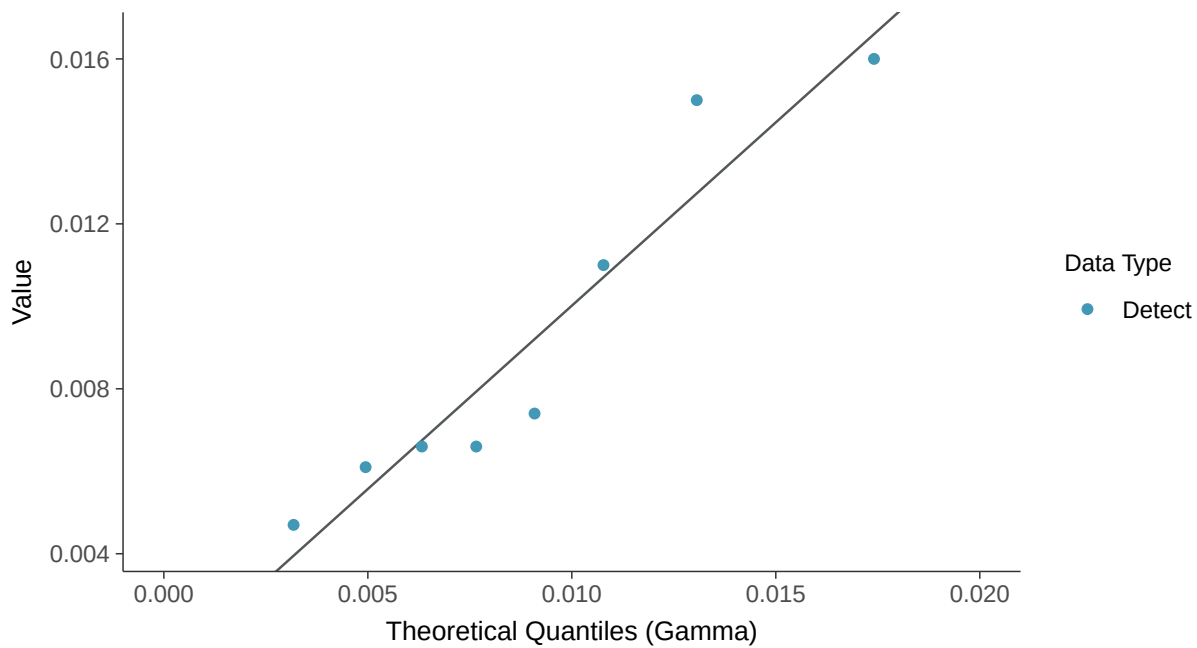
Selenium, W-3B (mg/l)





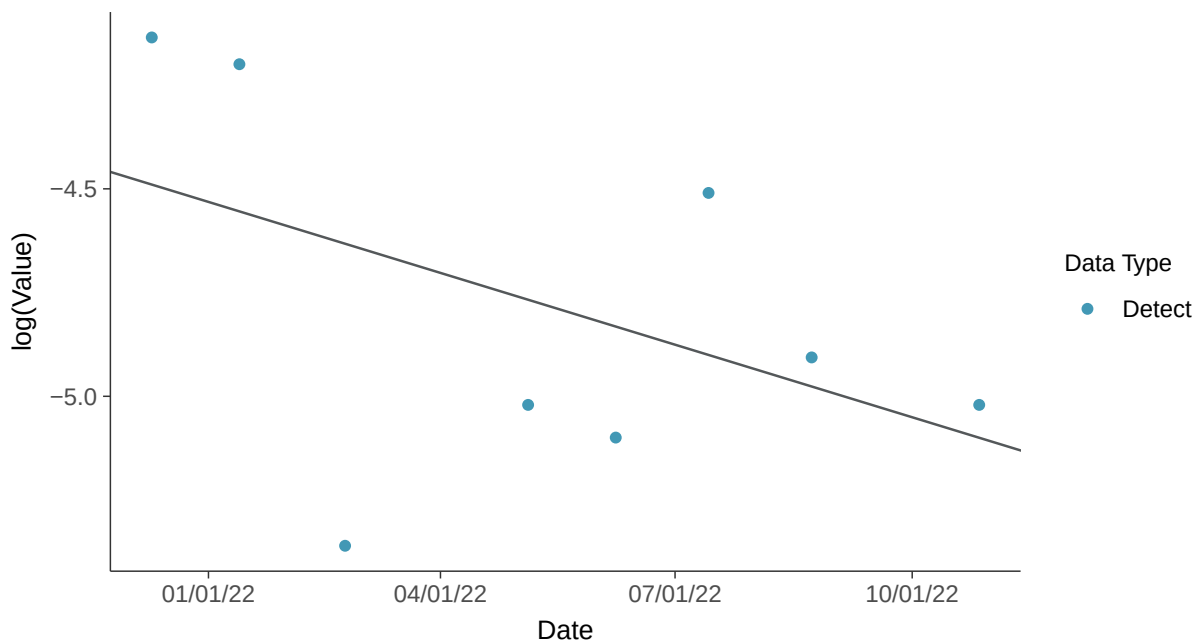
Gamma Q-Q plot

Selenium, W-3B (mg/l)



Trend Regression: Lognormal MLE

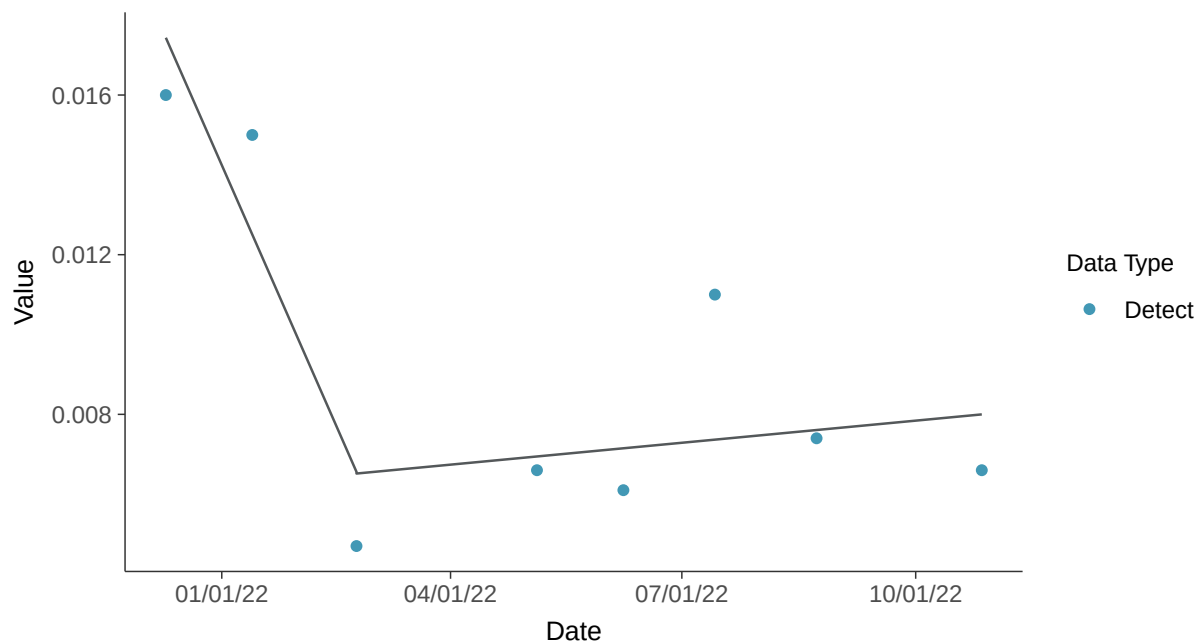
Selenium, W-3B (mg/l)





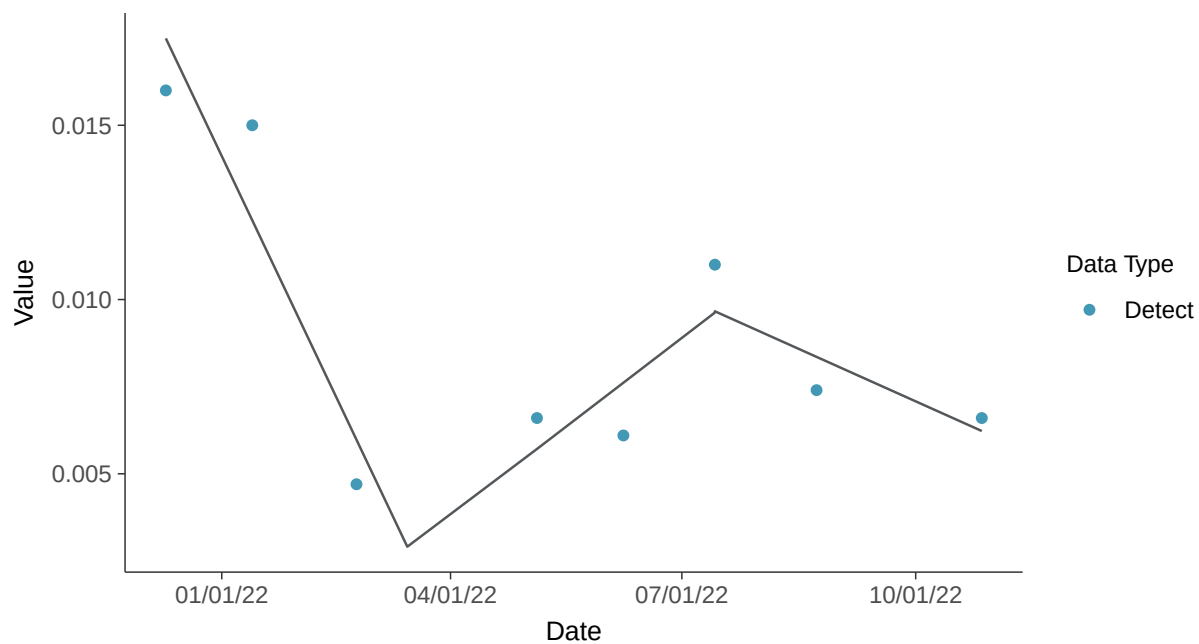
Trend Regression: Piecewise Linear-Linear

Selenium, W-3B (mg/l)



Trend Regression: Piecewise Linear-Linear-Linear

Selenium, W-3B (mg/l)

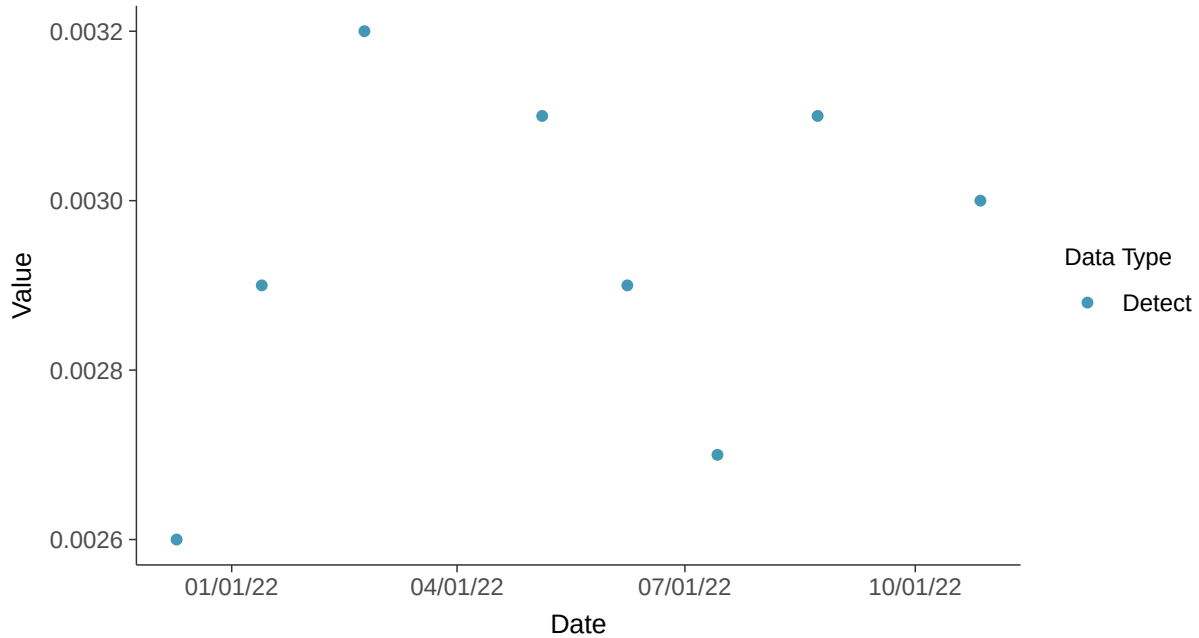


Appendix IV: Thallium, W-3B

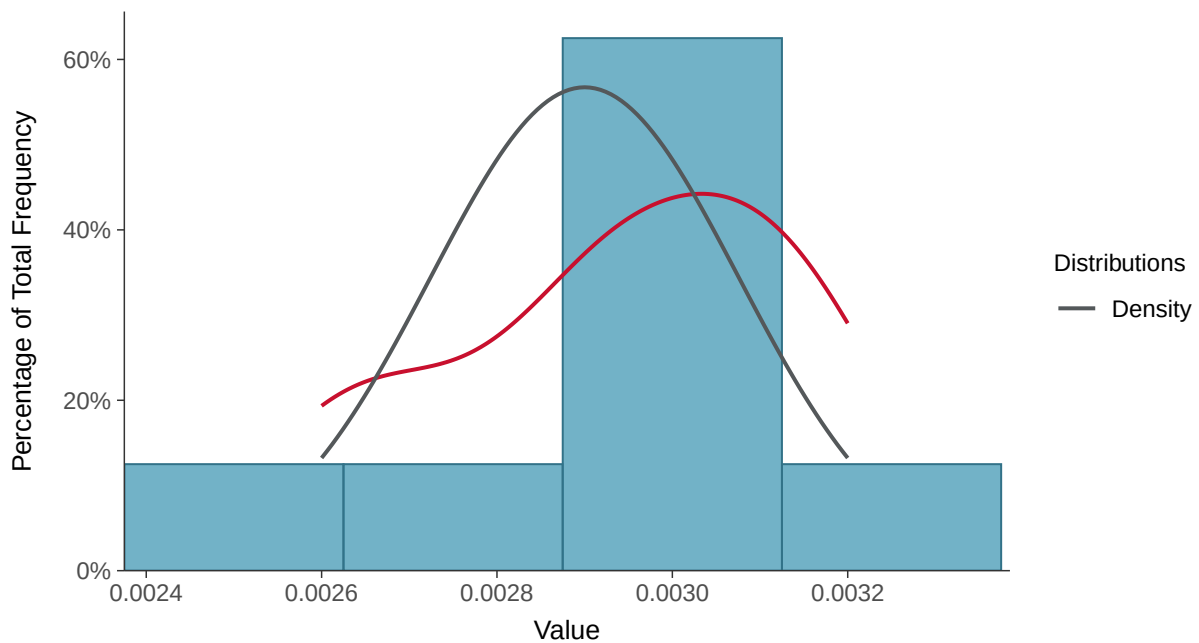
ID: 6_2_126

Scatter Plot

Thallium, W-3B (mg/l)

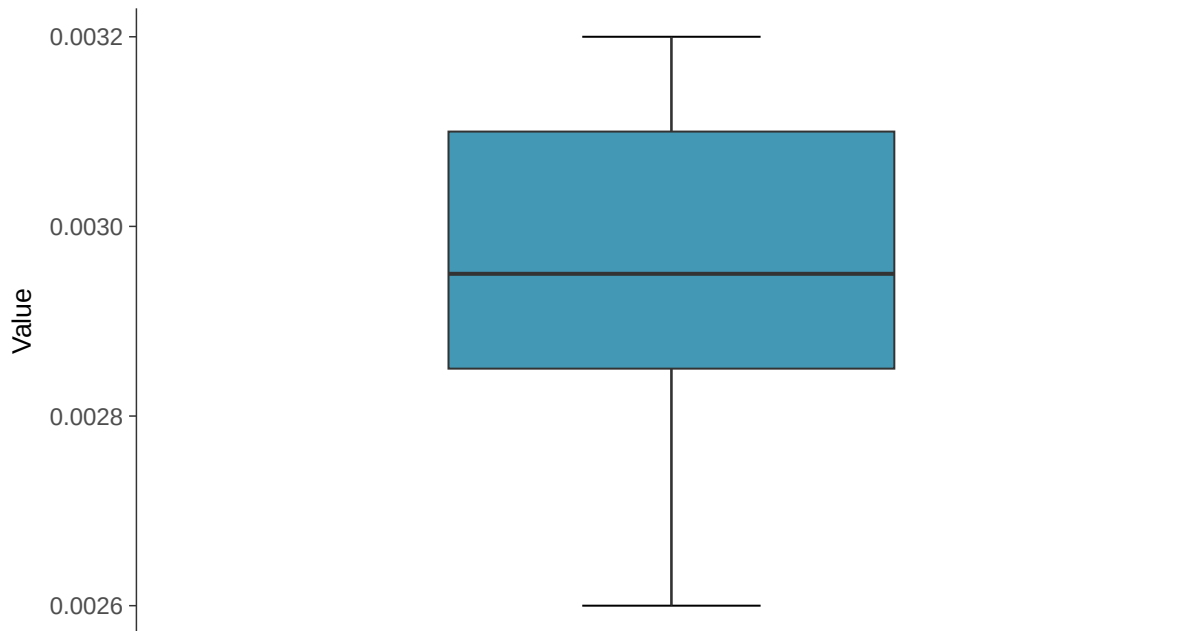
**Histogram**

Thallium, W-3B (mg/l)



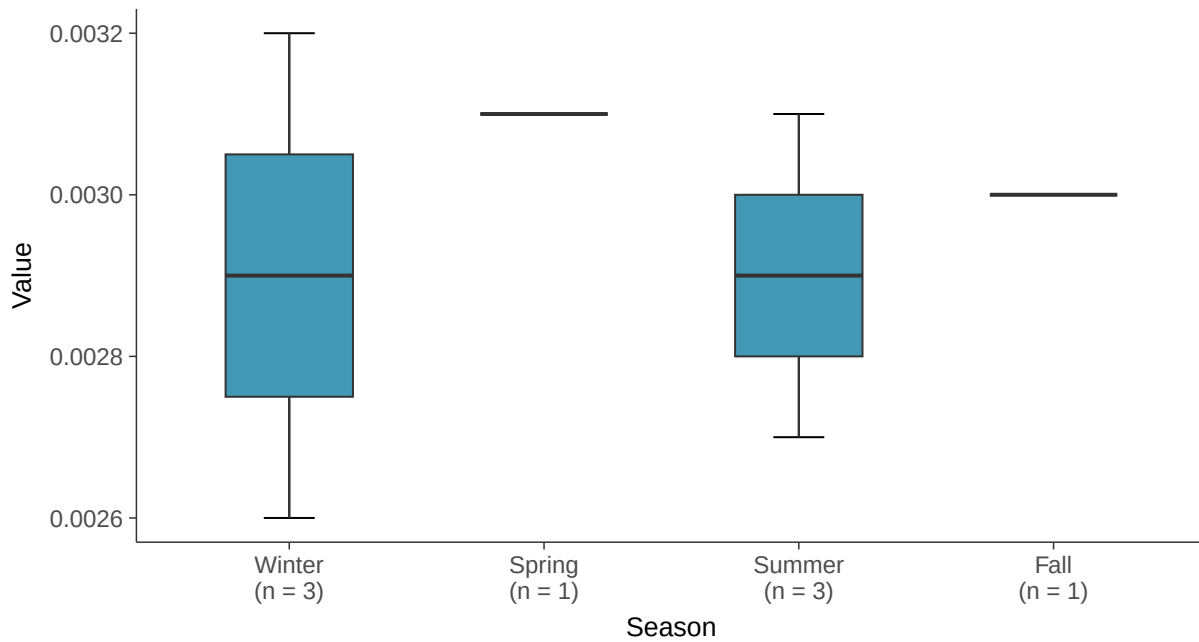
Boxplot

Thallium, W-3B (mg/l)



Boxplot by Season

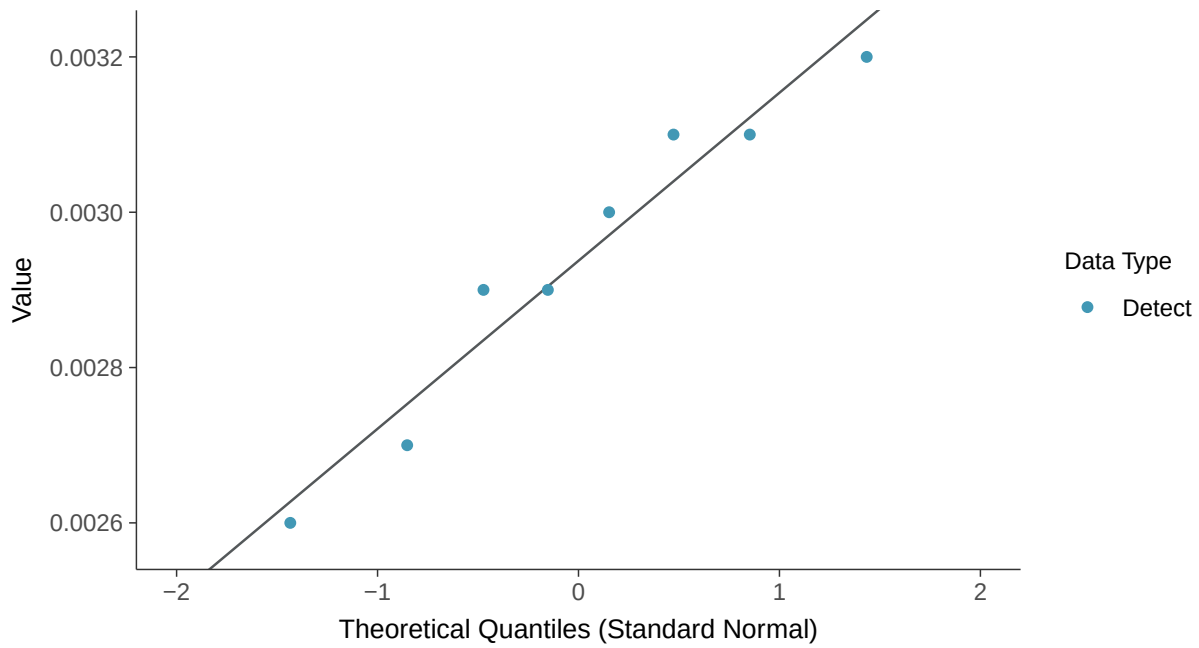
Thallium, W-3B (mg/l)





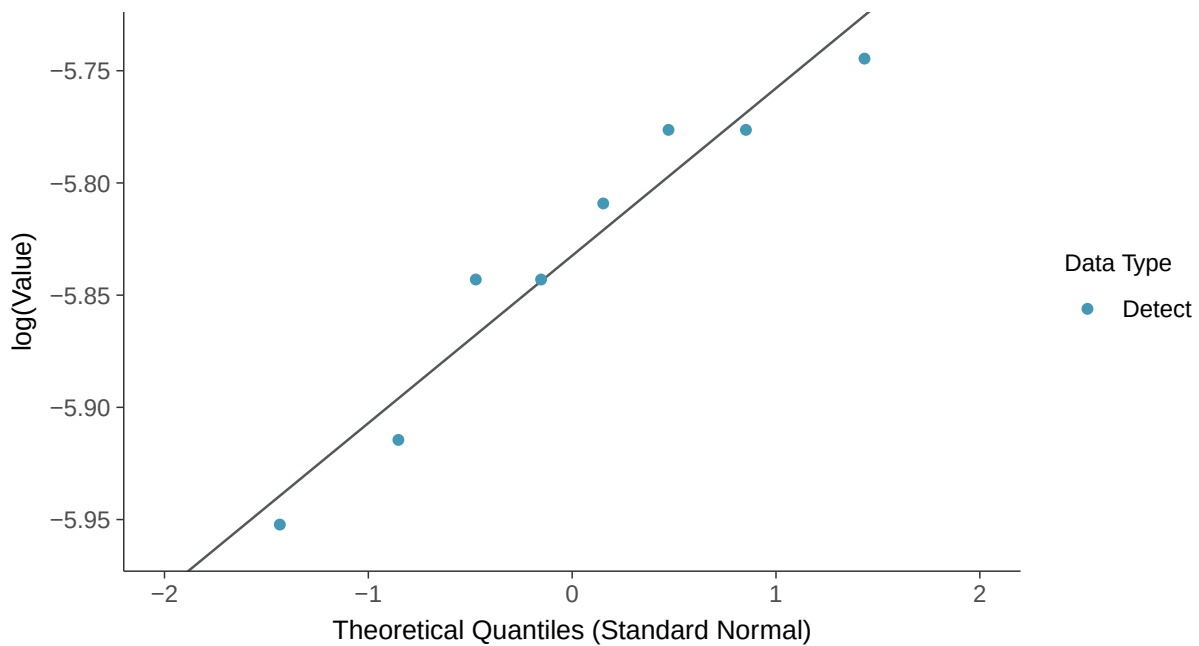
Normal Q-Q plot

Thallium, W-3B (mg/l)



Lognormal Q-Q plot

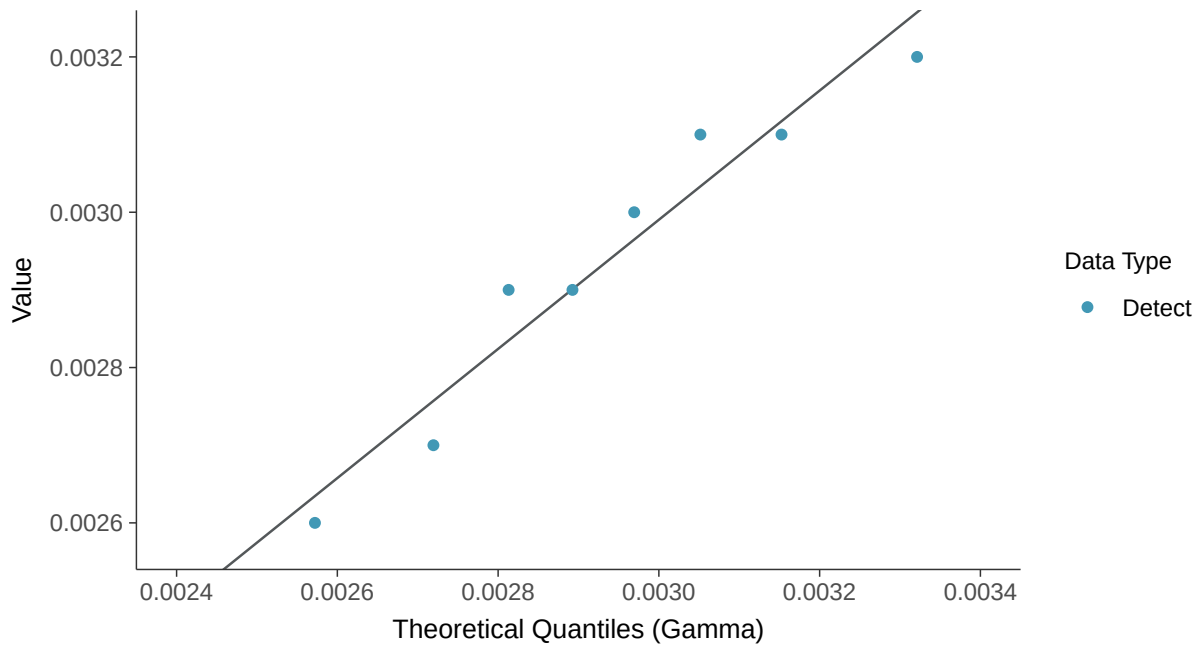
Thallium, W-3B (mg/l)





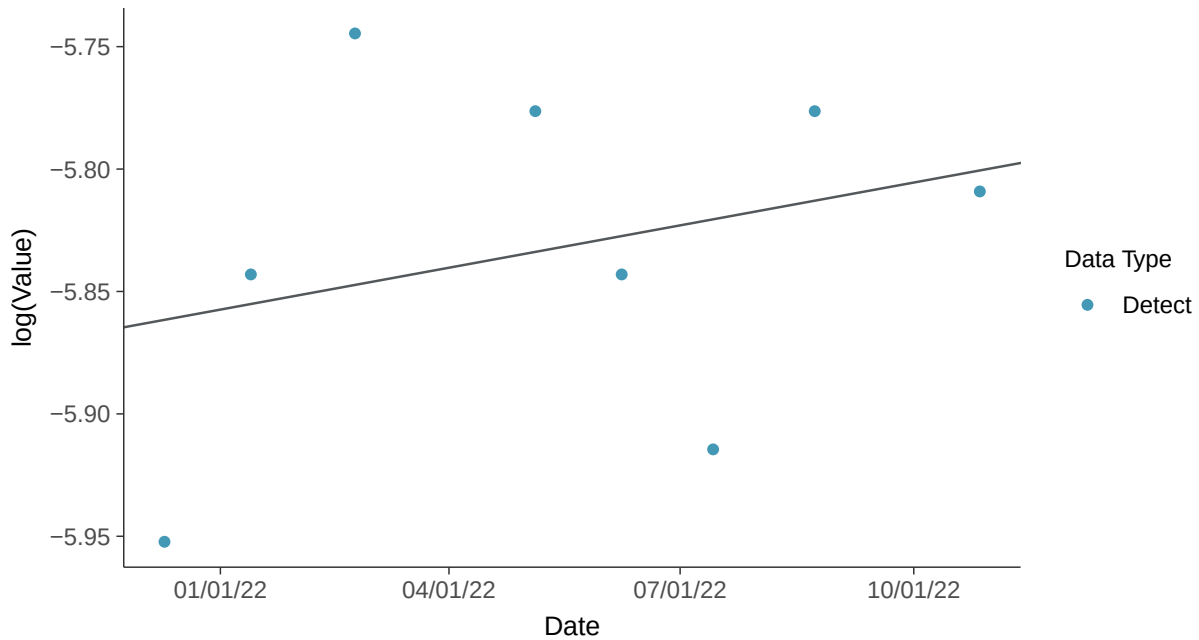
Gamma Q-Q plot

Thallium, W-3B (mg/l)



Trend Regression: Lognormal MLE

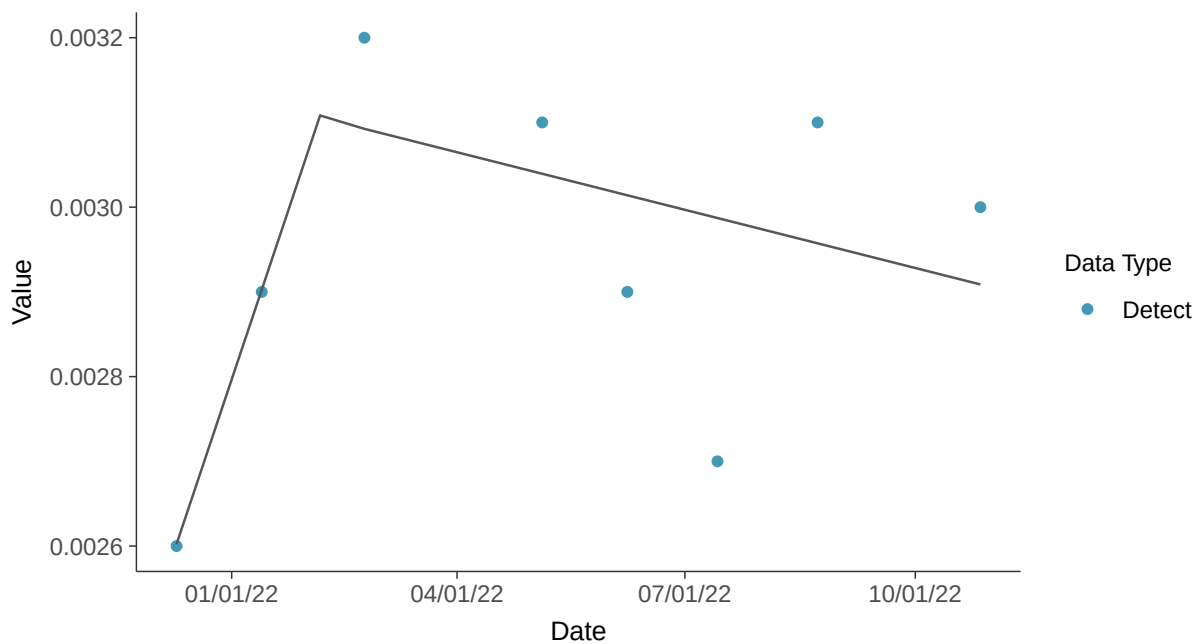
Thallium, W-3B (mg/l)





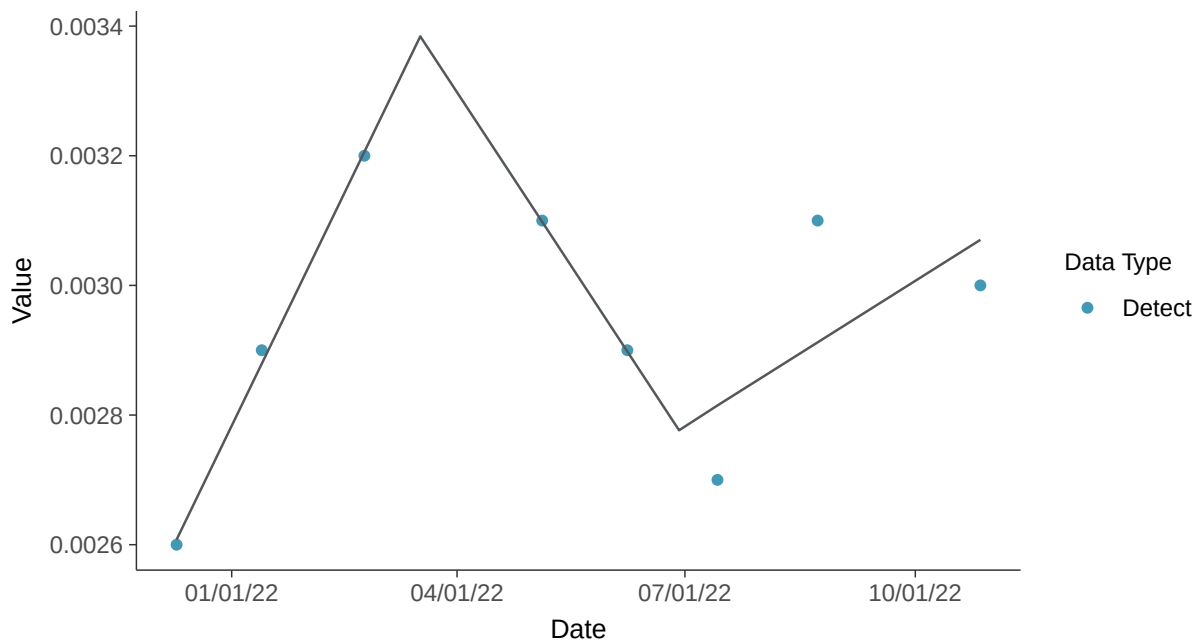
Trend Regression: Piecewise Linear-Linear

Thallium, W-3B (mg/l)



Trend Regression: Piecewise Linear-Linear-Linear

Thallium, W-3B (mg/l)

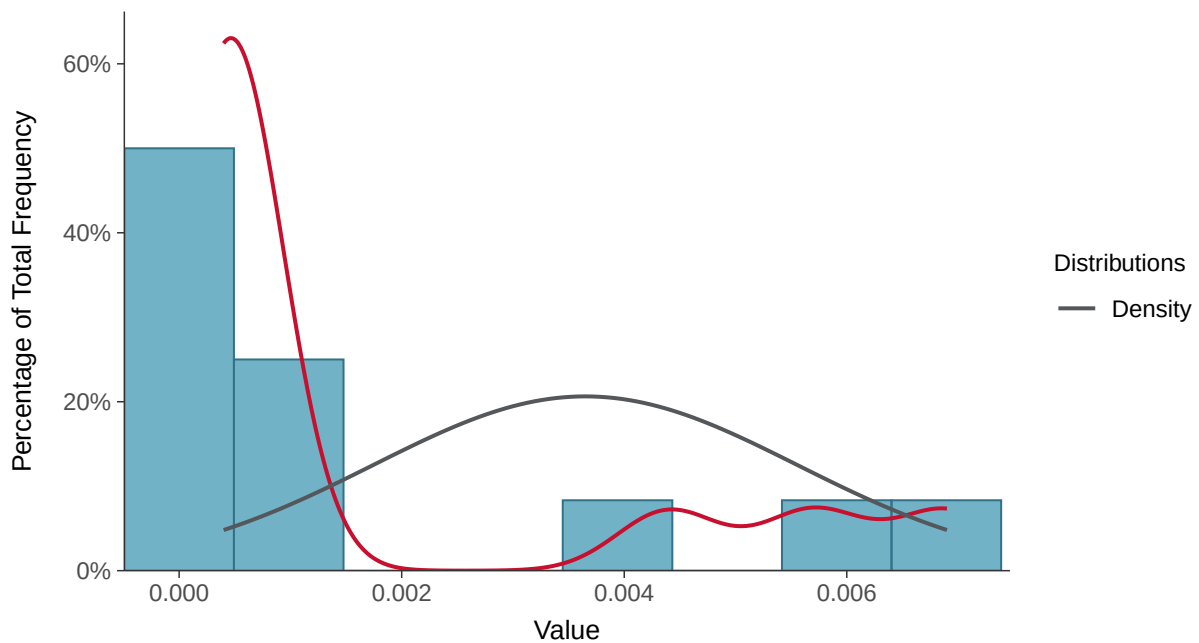


Scatter Plot

A scatter plot showing the relationship between 'Date' (X-axis) and 'Value' (Y-axis). The X-axis ranges from 01/01/21 to 07/01/22, with major ticks every 6 months. The Y-axis ranges from 0.000 to 0.006, with major ticks every 0.002. The legend indicates two data types: 'Detect' (blue circles) and 'Non-detect' (red triangles). There is one 'Detect' point at approximately 06/01/22 with a value of 0.0005. There are 11 'Non-detect' points, with the highest value of approximately 0.0068 occurring around 02/01/22.

Date	Value	Data Type
01/01/21	0.0057	Non-detect
03/01/21	0.0005	Non-detect
05/01/21	0.0005	Non-detect
09/01/21	0.0005	Non-detect
01/01/22	0.0044	Non-detect
02/01/22	0.0068	Non-detect
03/01/22	0.0005	Non-detect
04/01/22	0.0005	Non-detect
06/01/22	0.0005	Detect
07/01/22	0.0005	Non-detect
08/01/22	0.0005	Non-detect
10/01/22	0.0005	Non-detect

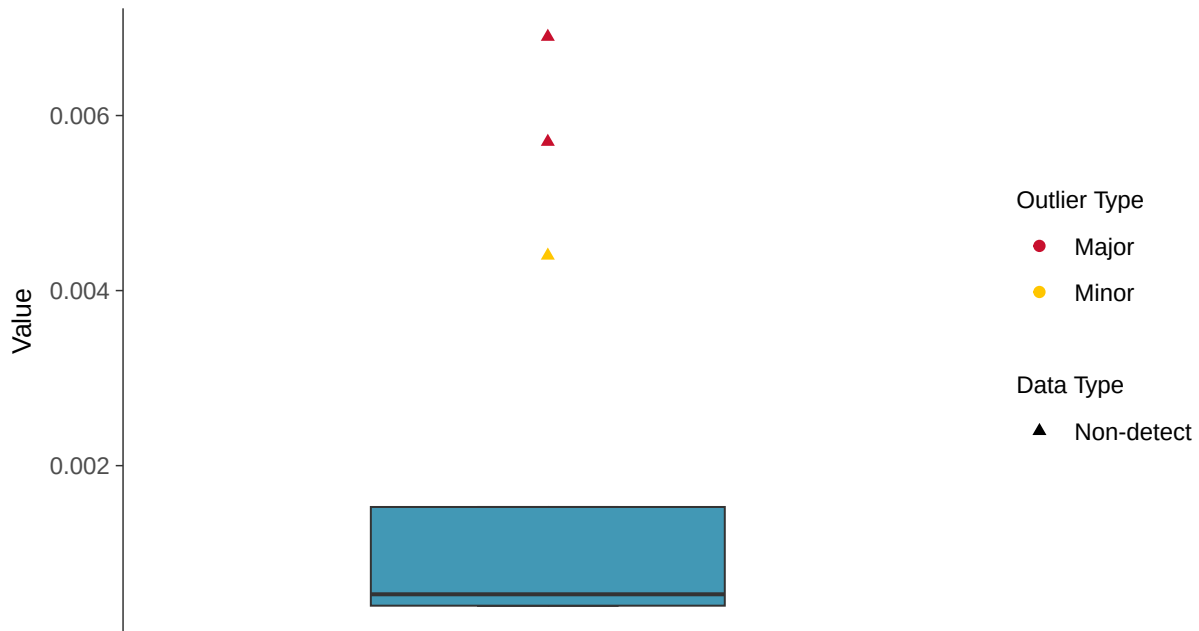
Antimony, W-5B (mg/l)



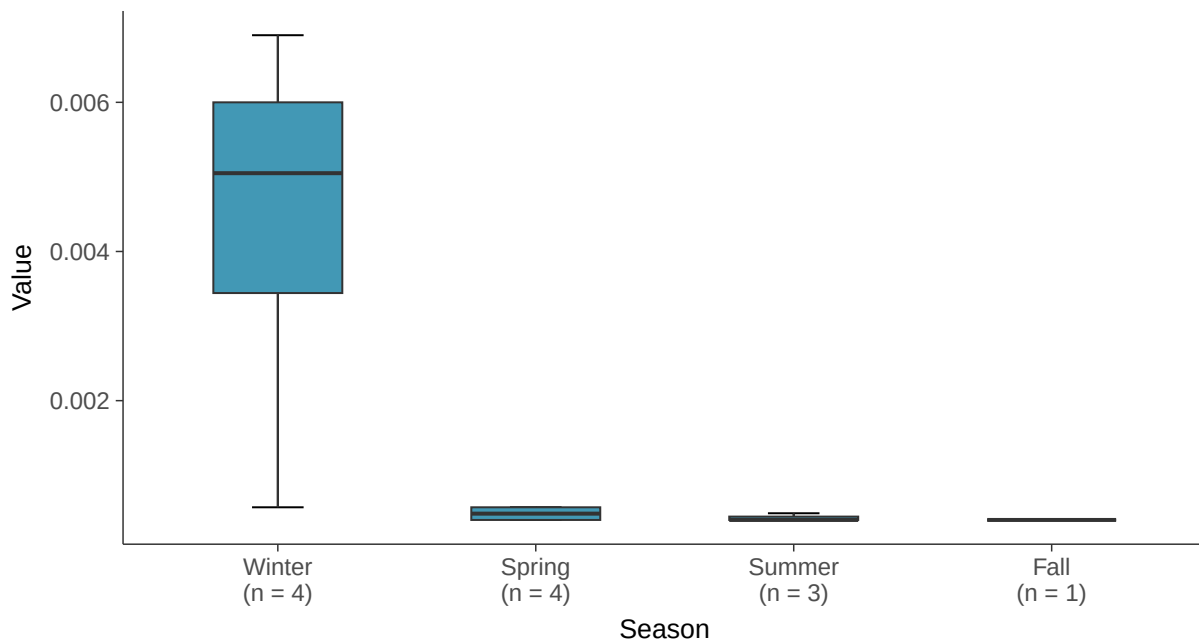
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Antimony, W-5B (mg/l)

**Boxplot by Season**

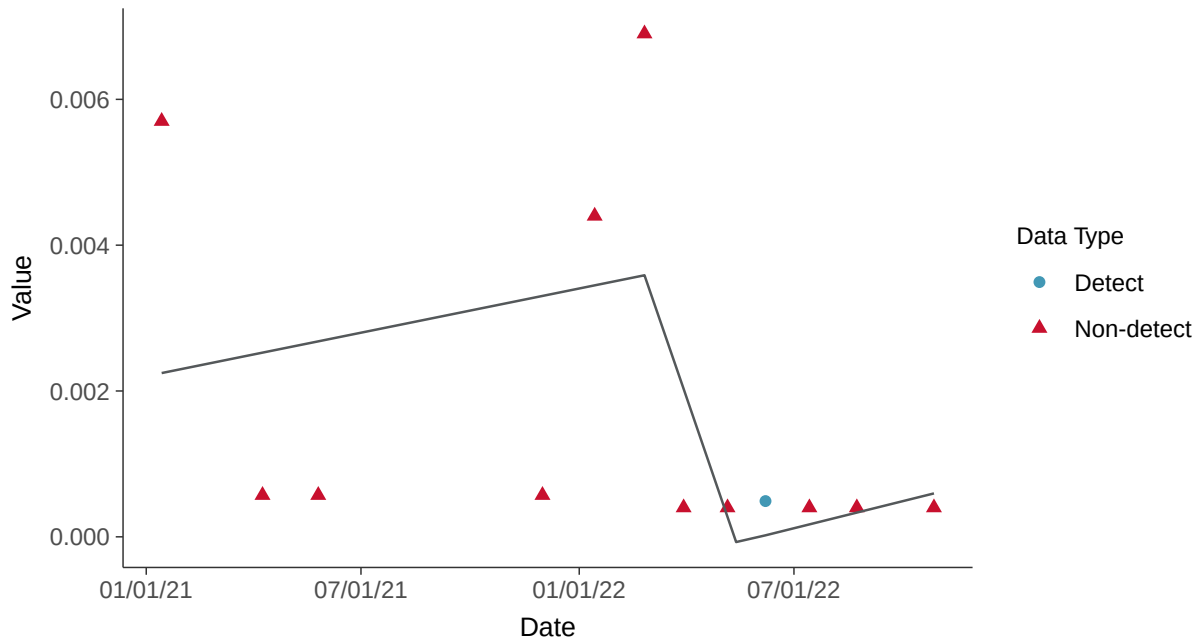
Antimony, W-5B (mg/l)



Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Trend Regression: Piecewise Linear-Linear-Linear

Antimony, W-5B (mg/l)

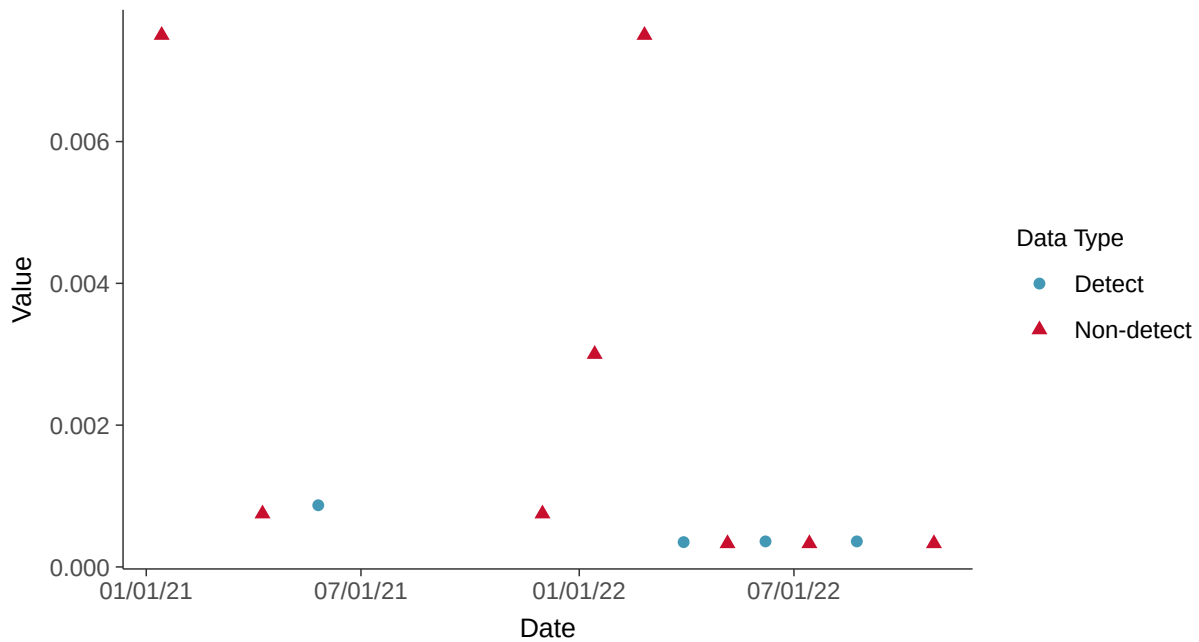


Appendix IV: Arsenic, W-5B

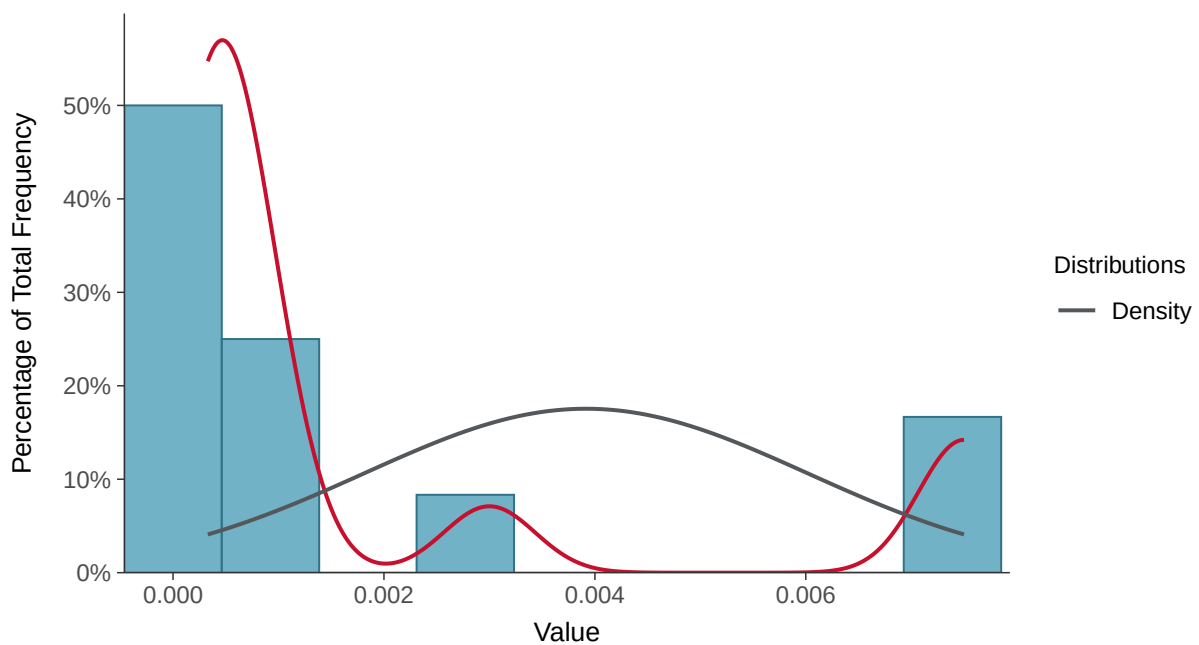
ID: 7_2_102

Scatter Plot

Arsenic, W-5B (mg/l)

**Histogram**

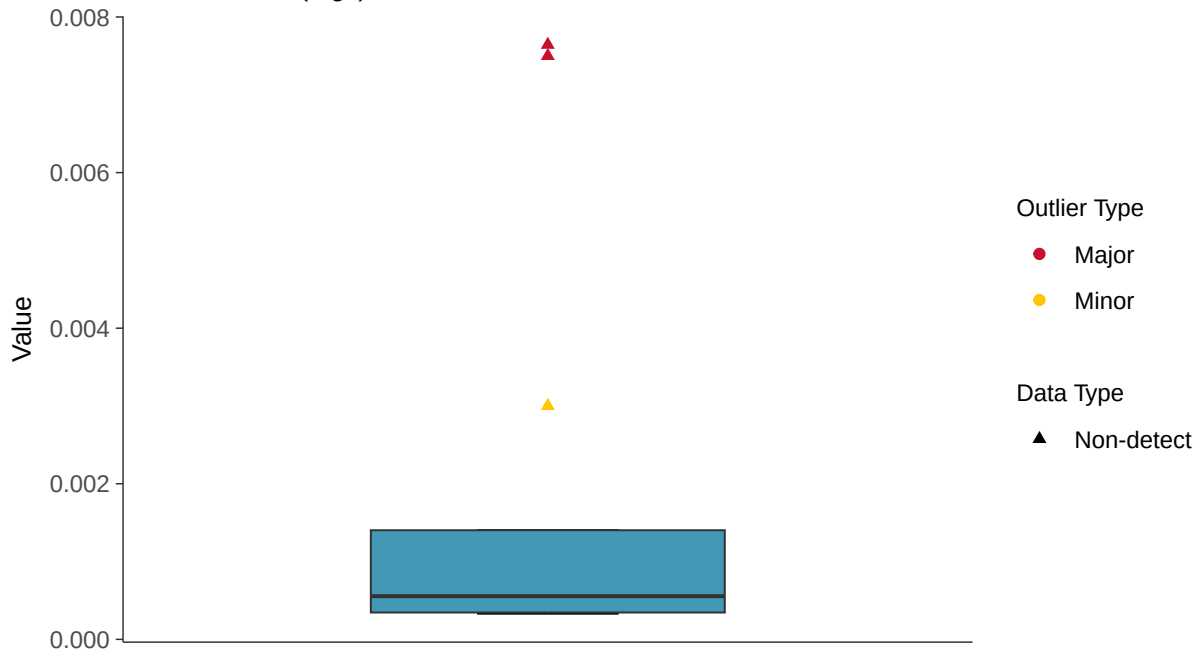
Arsenic, W-5B (mg/l)





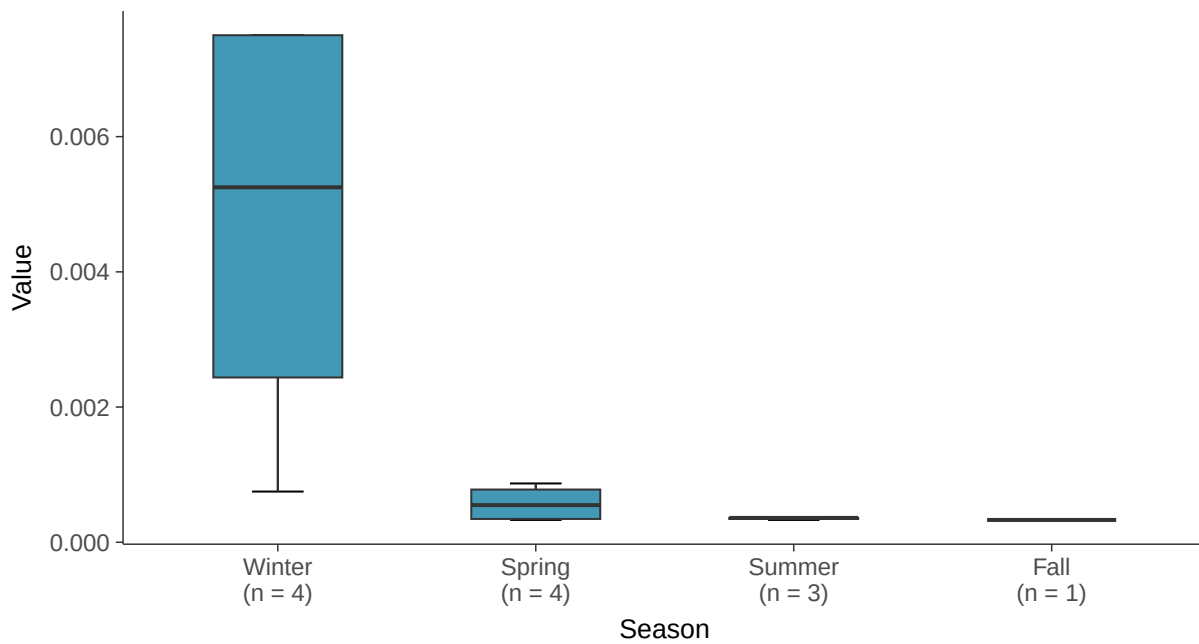
Boxplot

Arsenic, W-5B (mg/l)



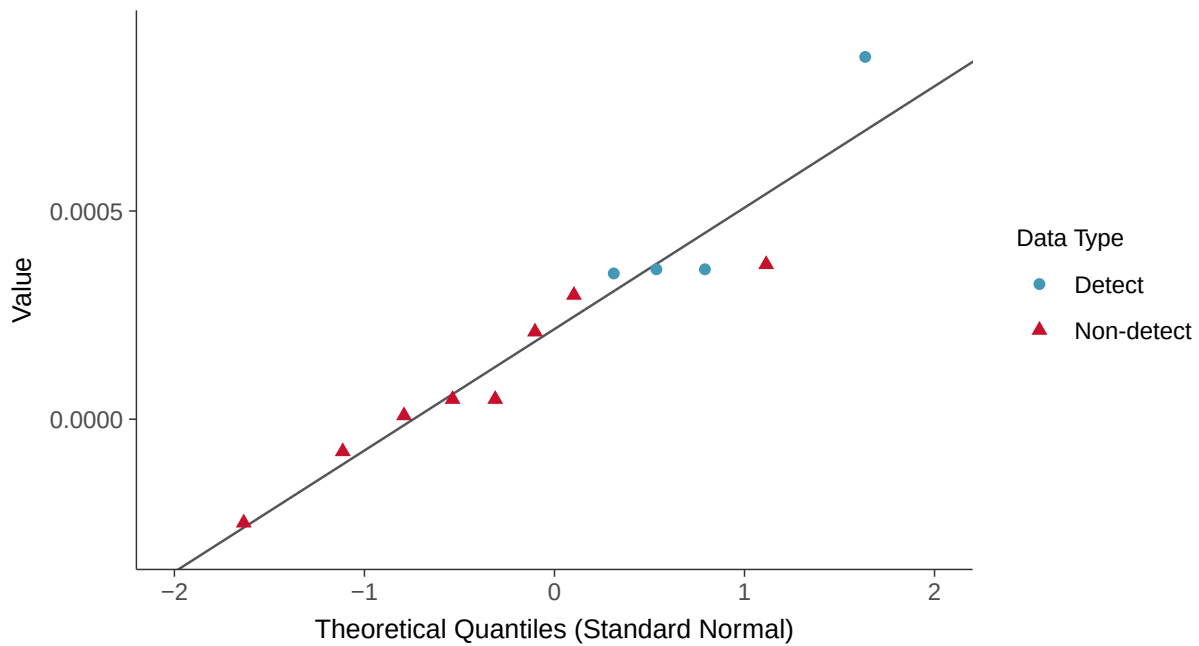
Boxplot by Season

Arsenic, W-5B (mg/l)



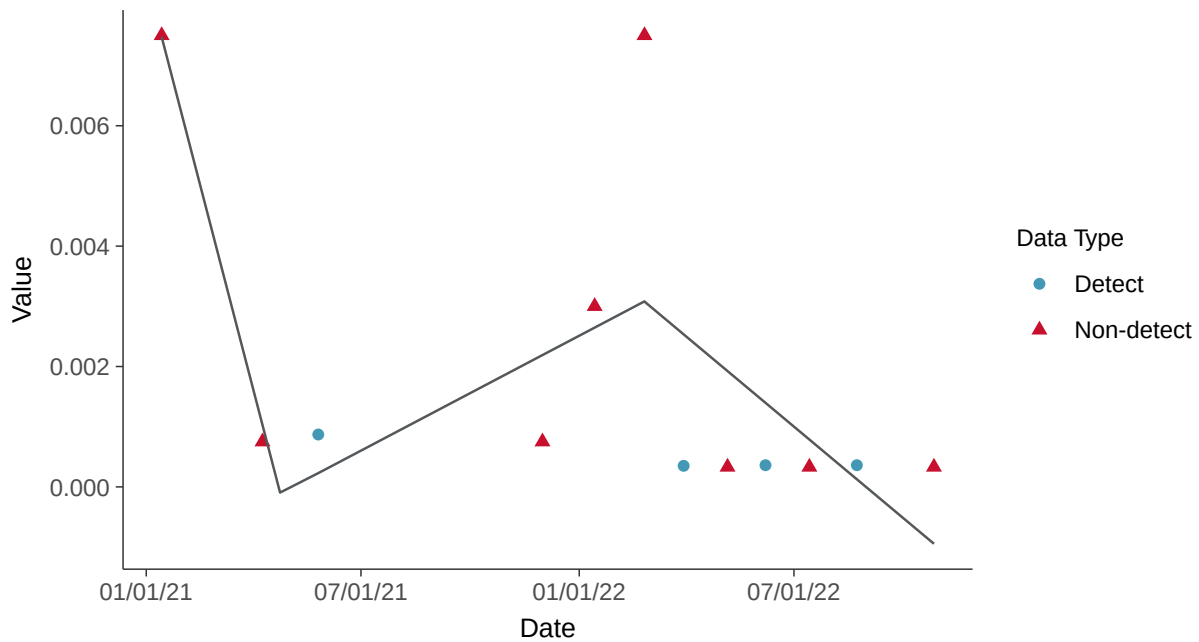
Normal Q-Q plot using ROS Imputed Estimates

Arsenic, W-5B (mg/l)



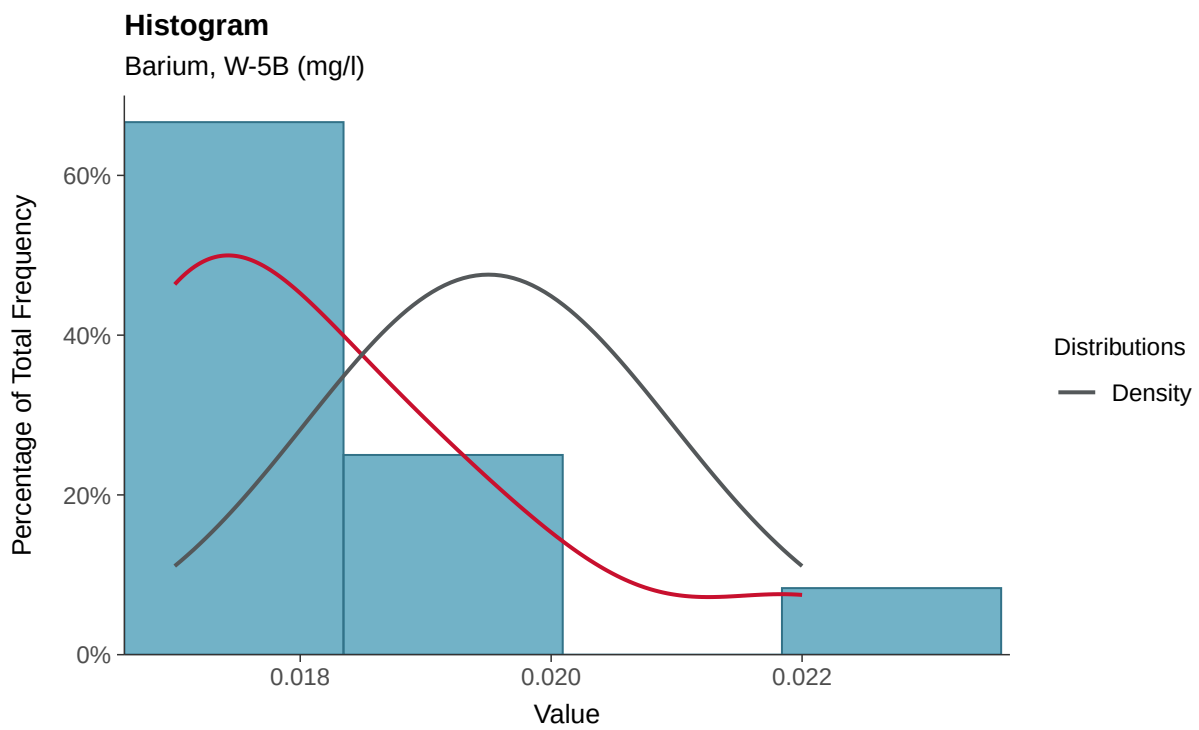
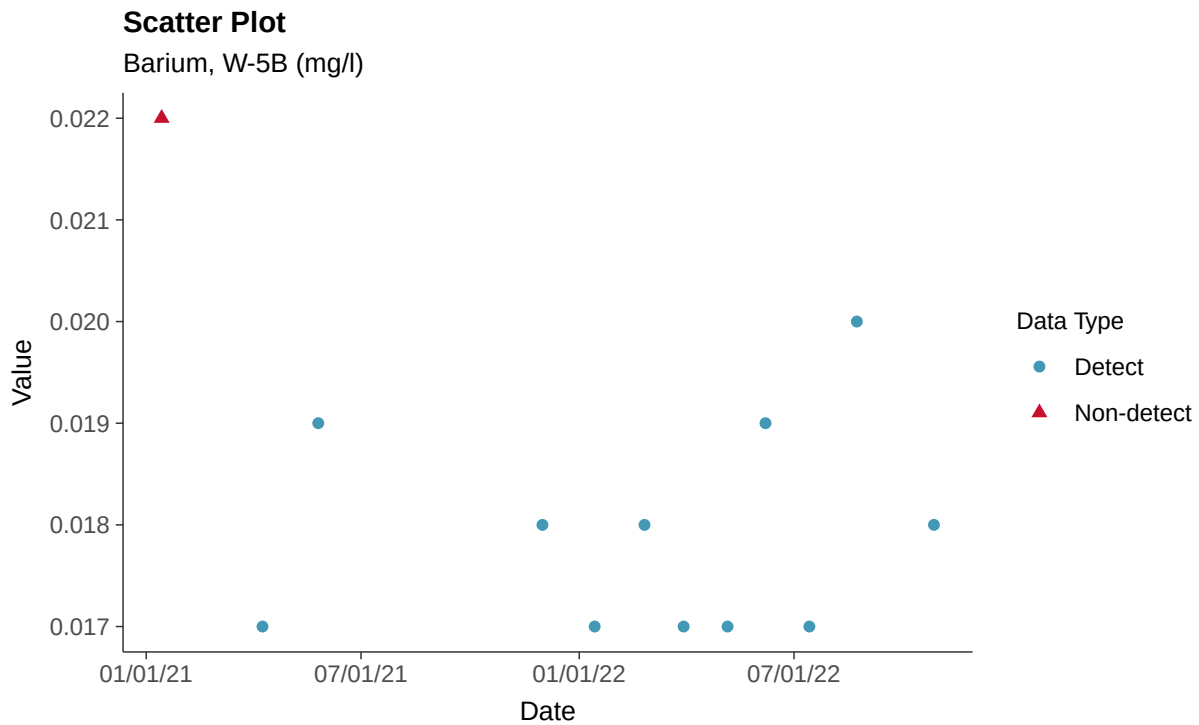
Trend Regression: Piecewise Linear-Linear-Linear

Arsenic, W-5B (mg/l)



Appendix IV: Barium, W-5B

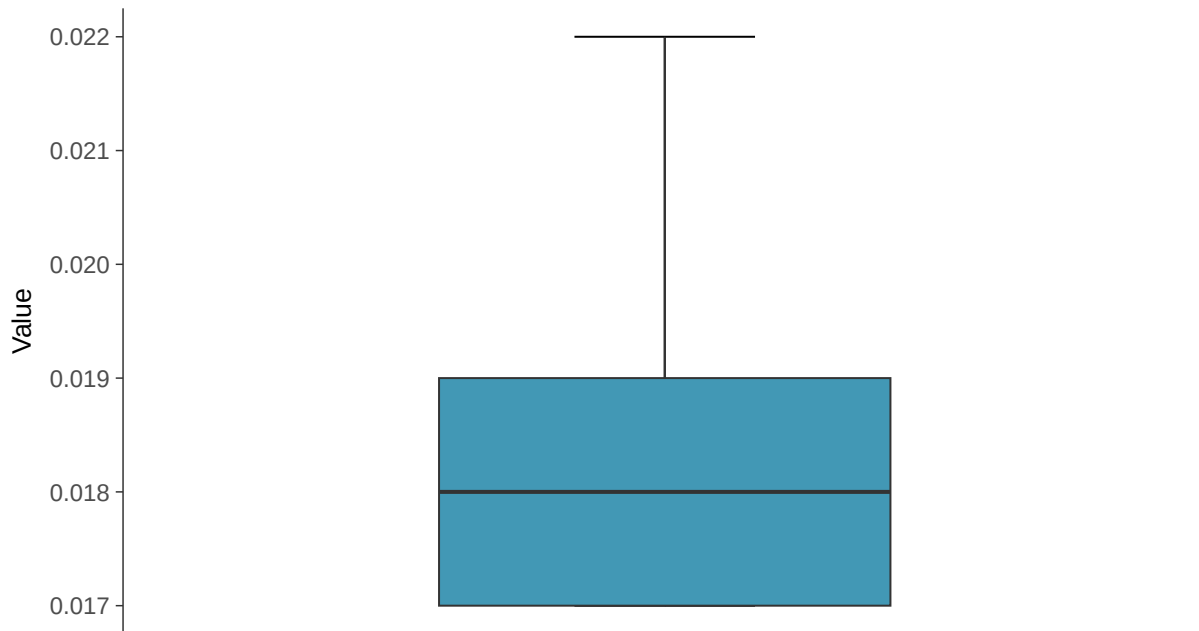
ID: 7_2_103





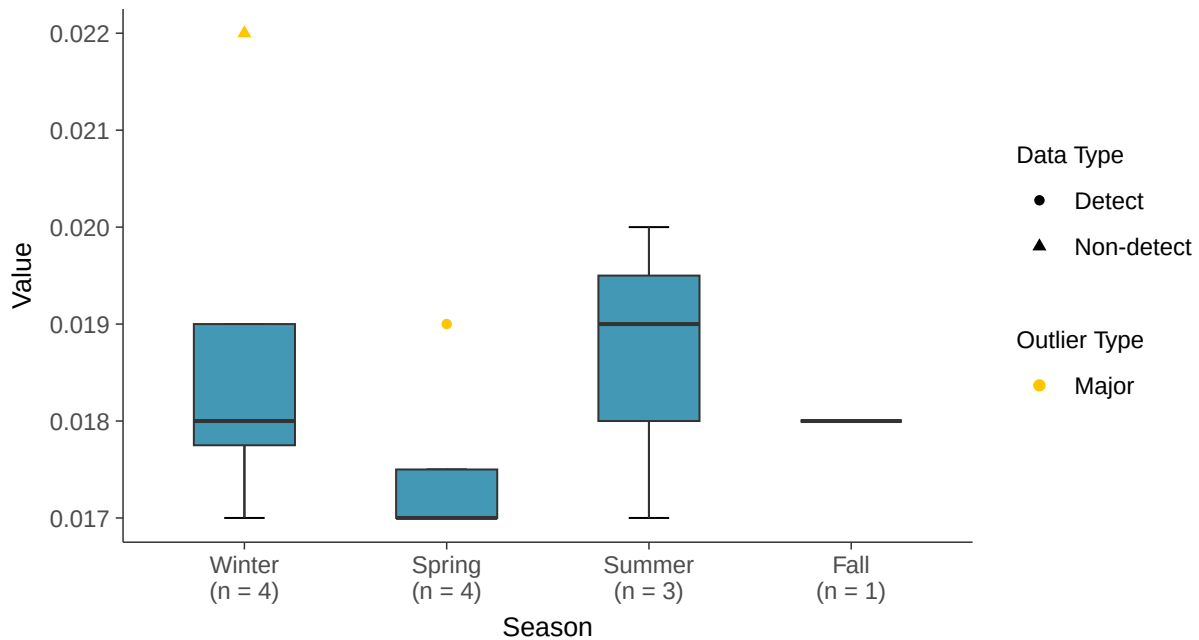
Boxplot

Barium, W-5B (mg/l)



Boxplot by Season

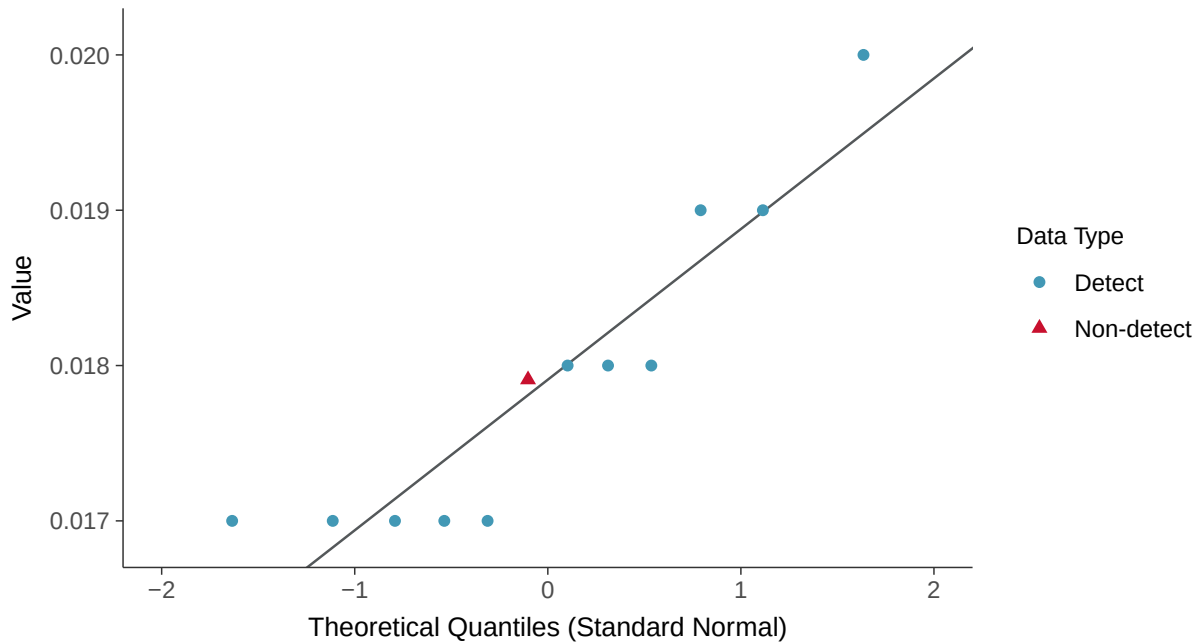
Barium, W-5B (mg/l)



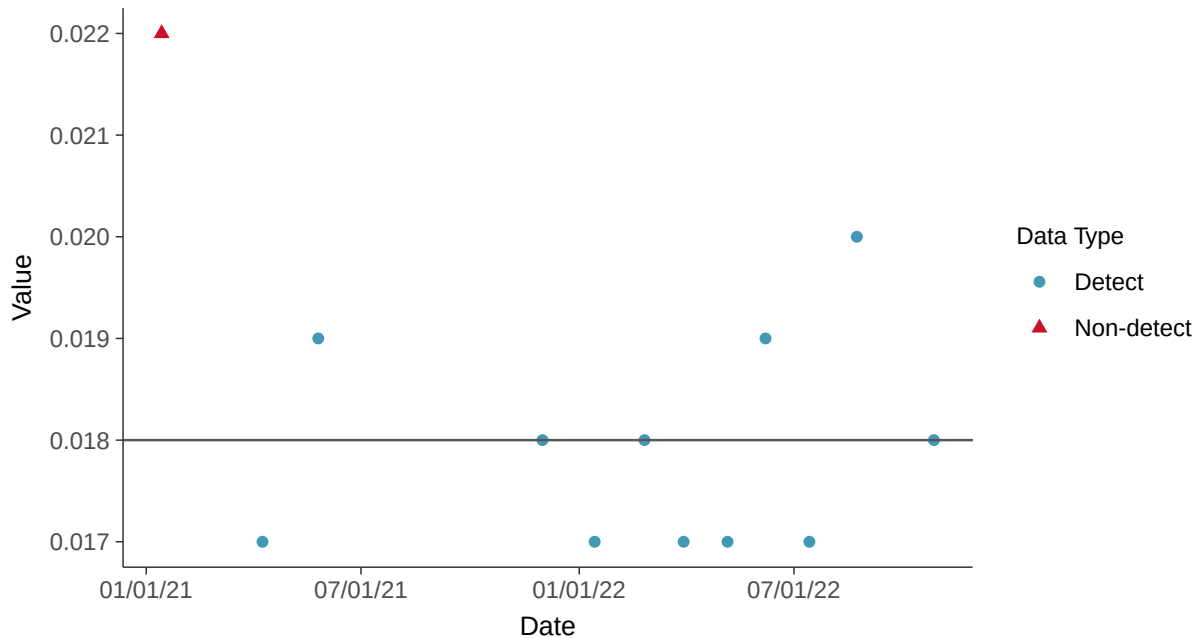
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Normal Q-Q plot using ROS Imputed Estimates

Barium, W-5B (mg/l)

**Trend Regression: Mann-Kendall/Theil-Sen Estimate**

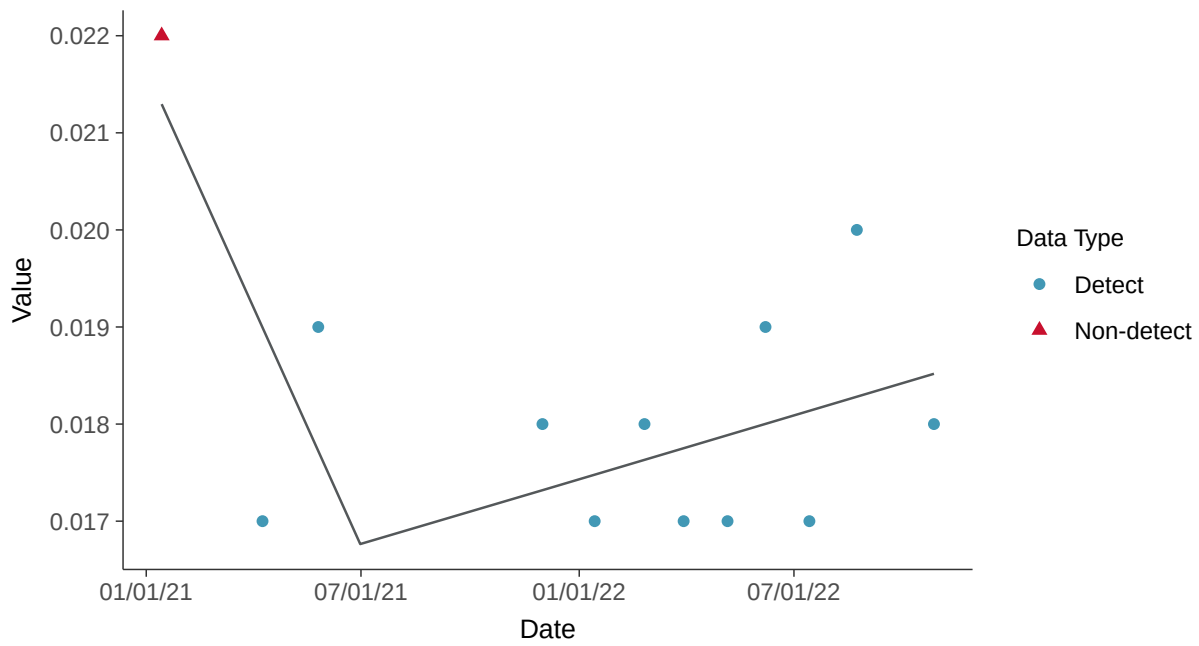
Barium, W-5B (mg/l)



Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Trend Regression: Piecewise Linear-Linear

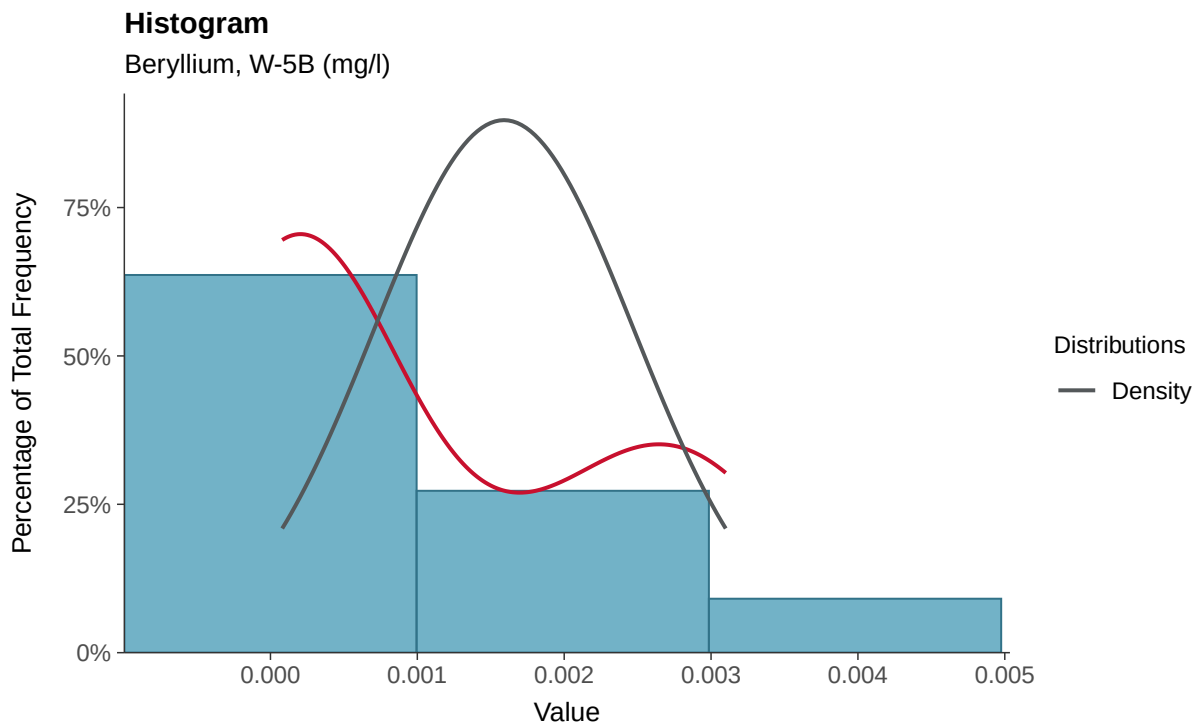
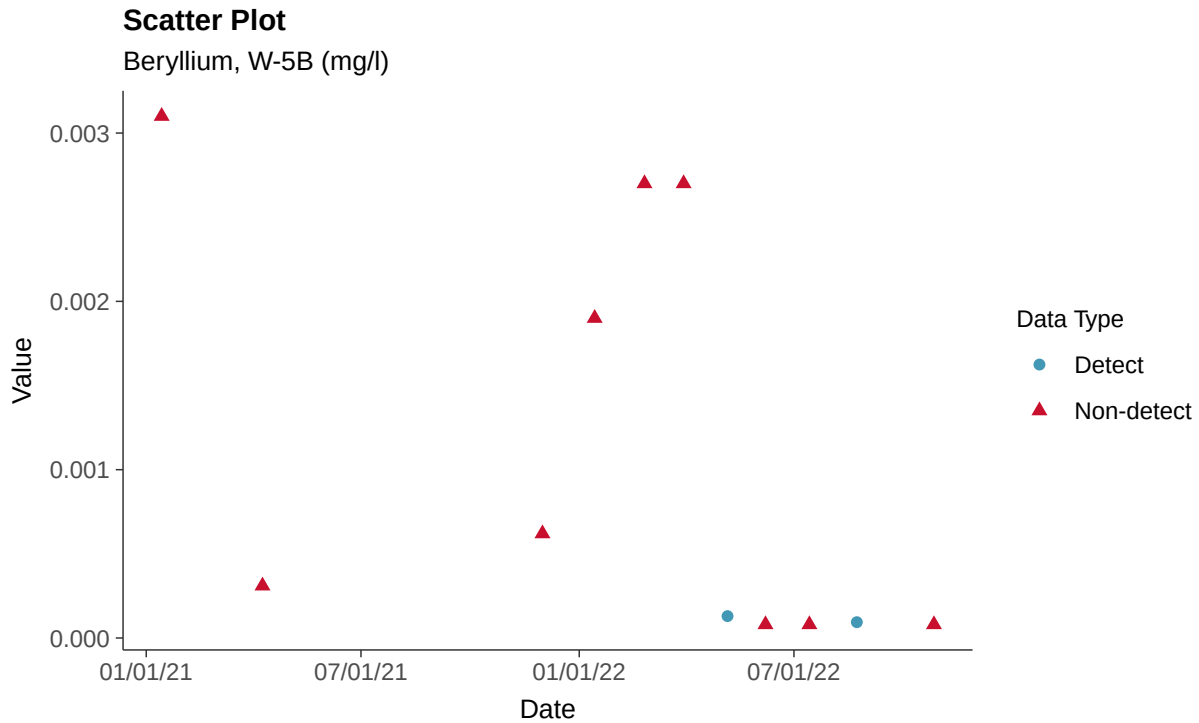
Barium, W-5B (mg/l)



Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Appendix IV: Beryllium, W-5B

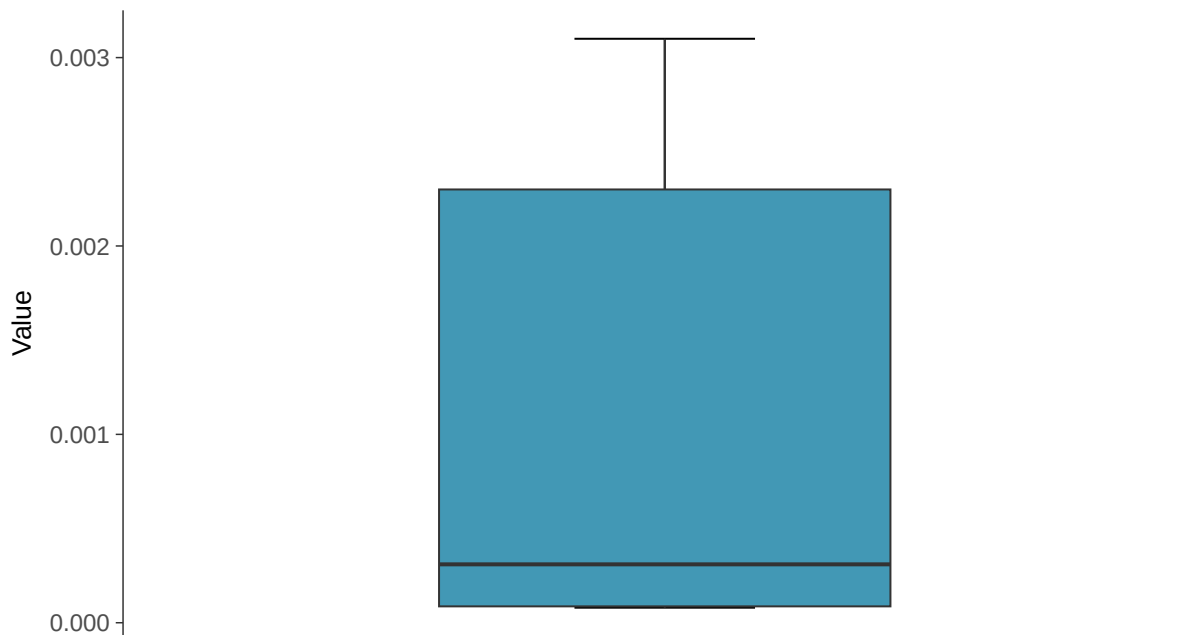
ID: 7_2_104





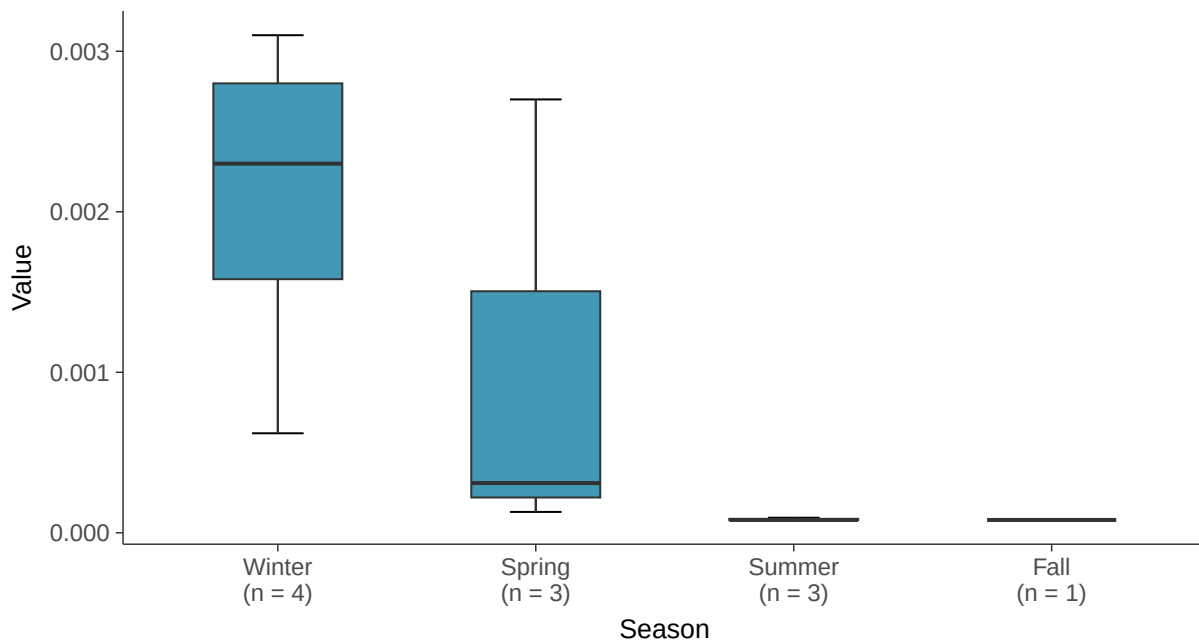
Boxplot

Beryllium, W-5B (mg/l)



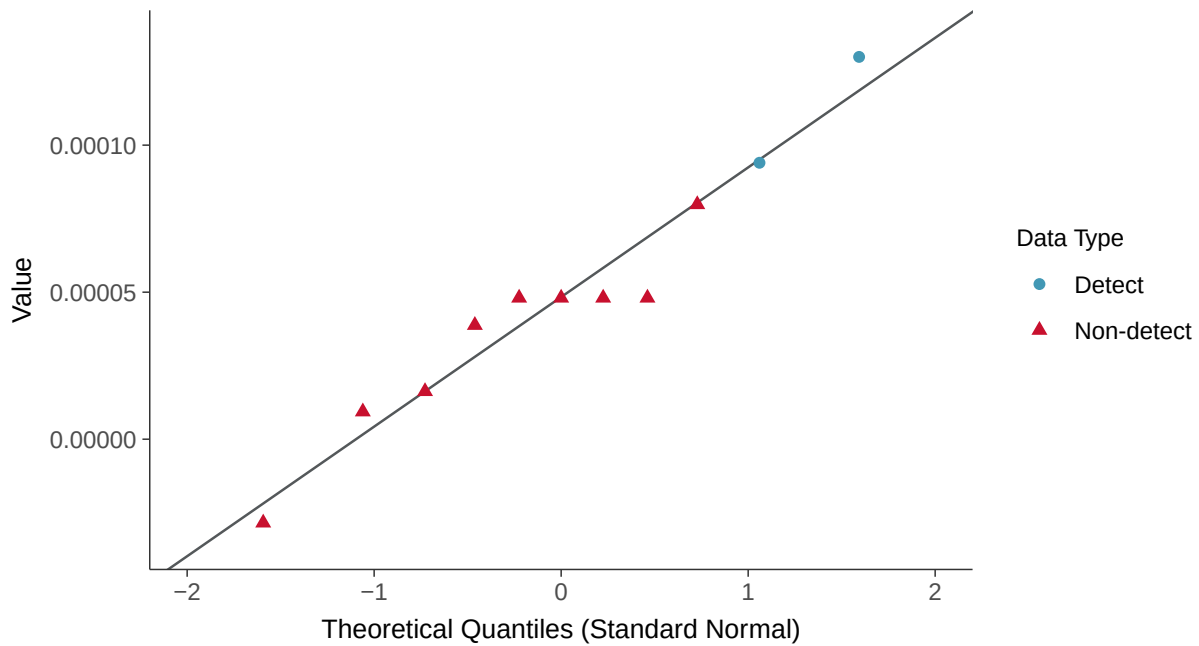
Boxplot by Season

Beryllium, W-5B (mg/l)

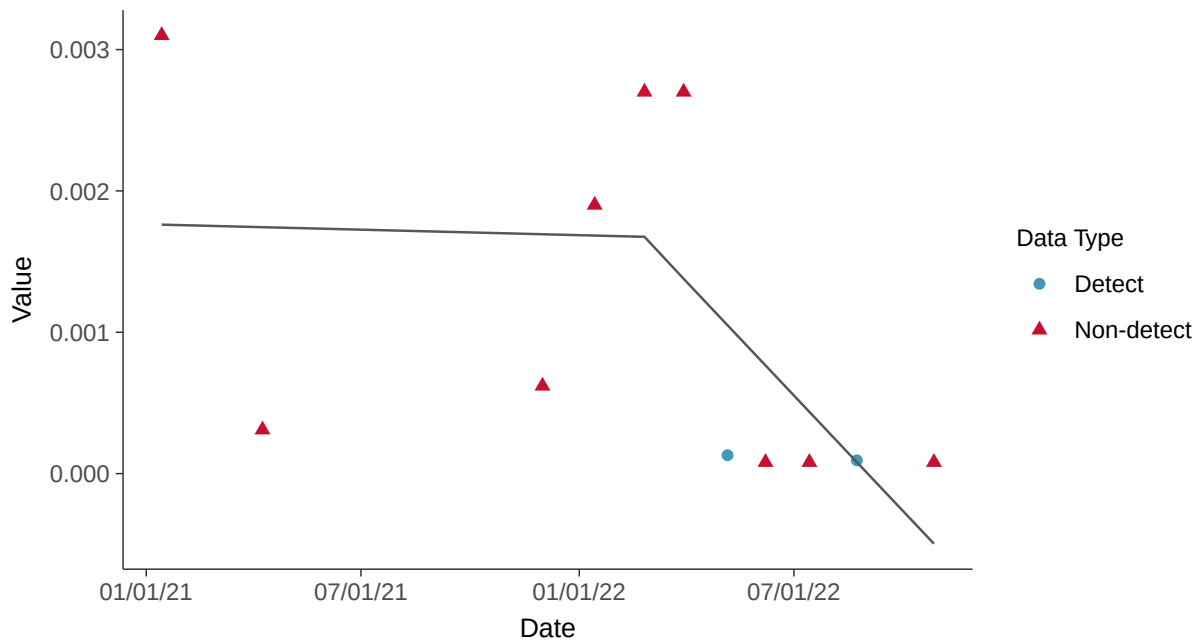


Normal Q-Q plot using ROS Imputed Estimates

Beryllium, W-5B (mg/l)

**Trend Regression: Piecewise Linear-Linear**

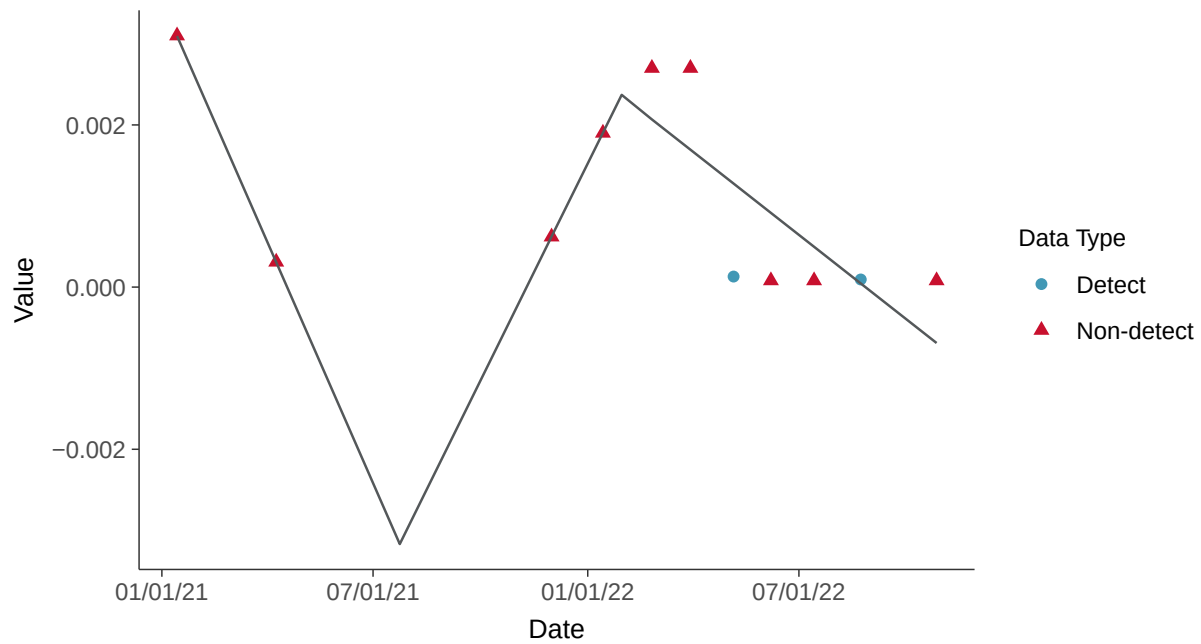
Beryllium, W-5B (mg/l)





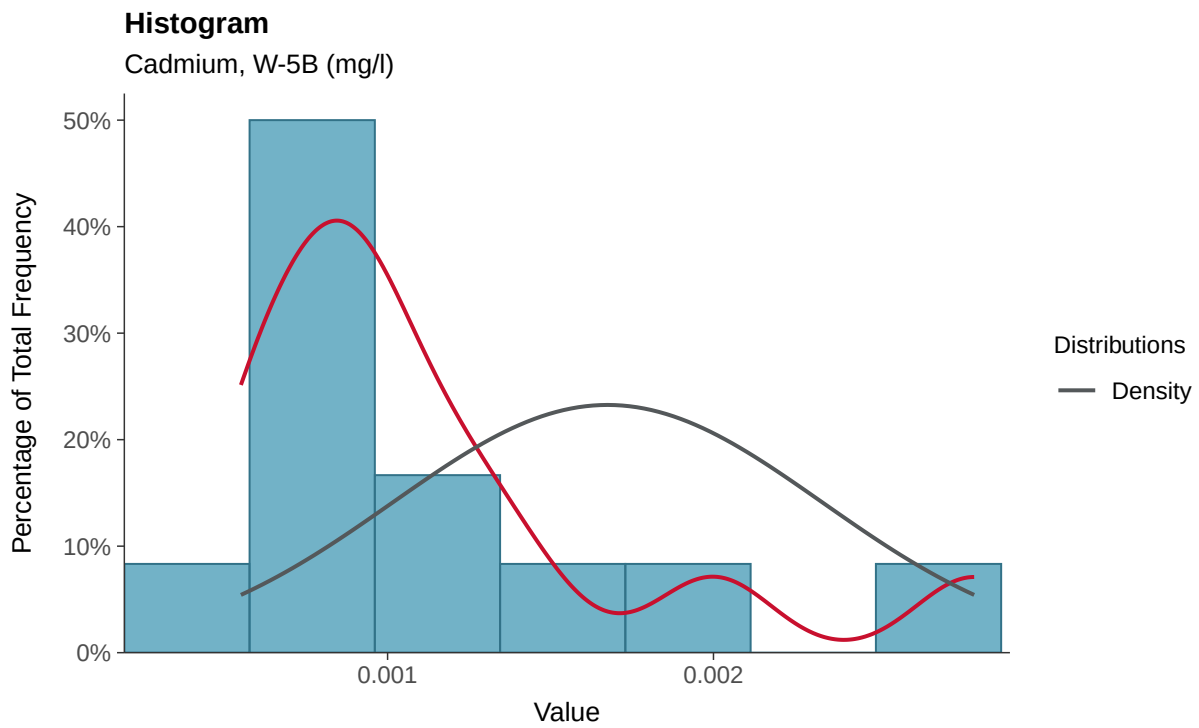
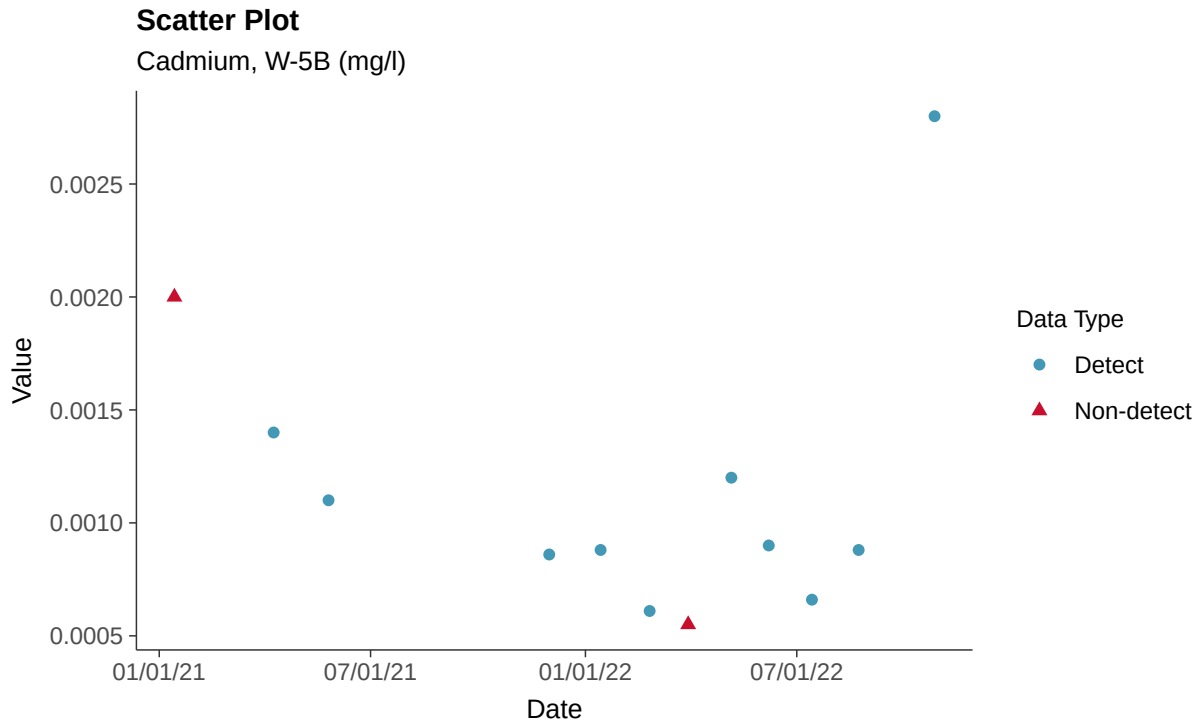
Trend Regression: Piecewise Linear-Linear-Linear

Beryllium, W-5B (mg/l)



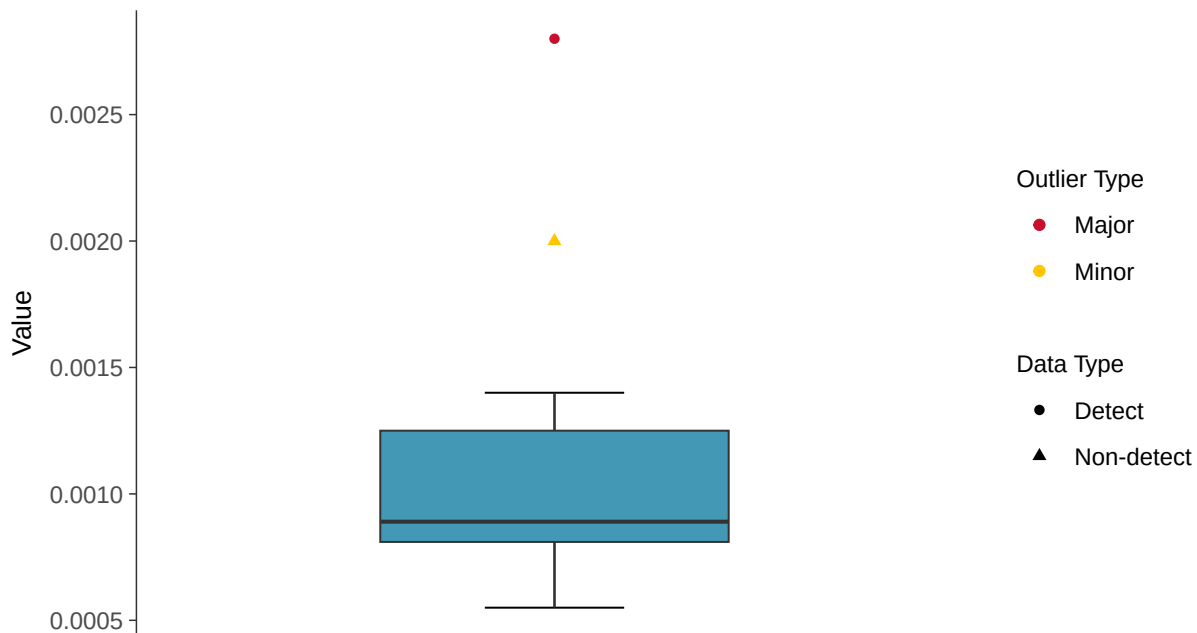
Appendix IV: Cadmium, W-5B

ID: 7_2_106



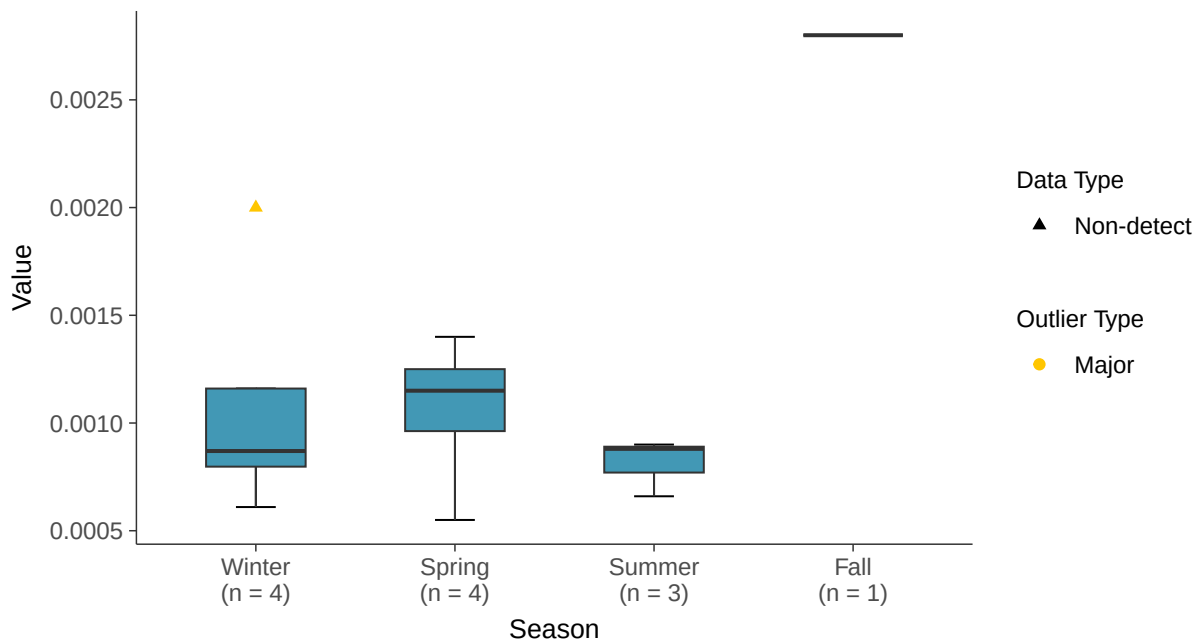
Boxplot

Cadmium, W-5B (mg/l)



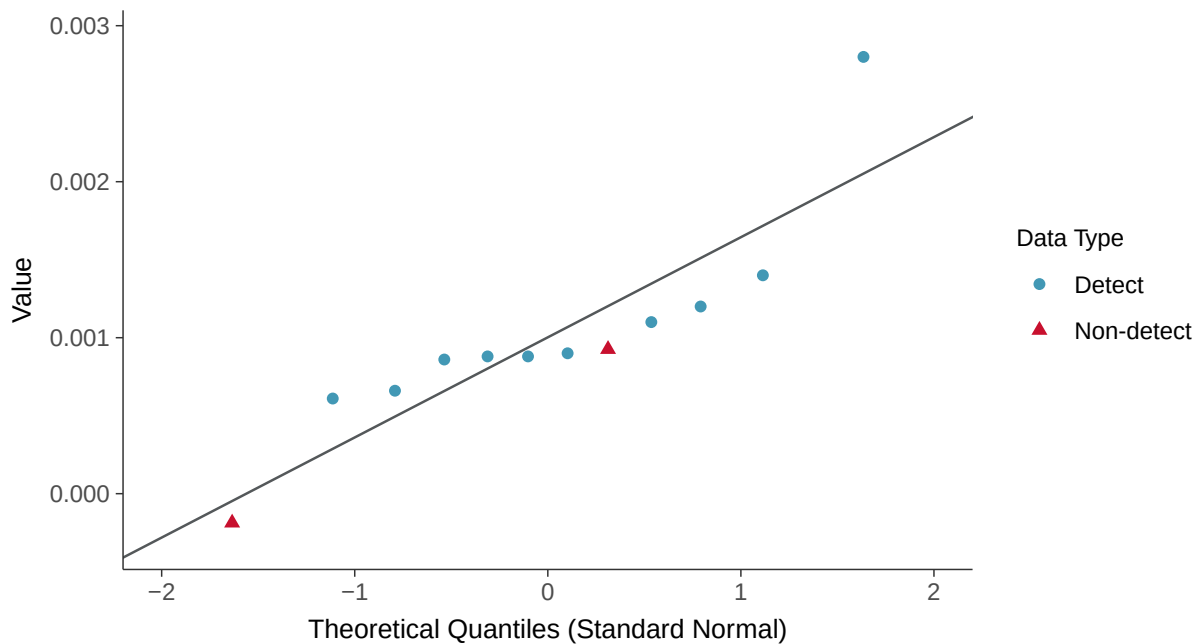
Boxplot by Season

Cadmium, W-5B (mg/l)



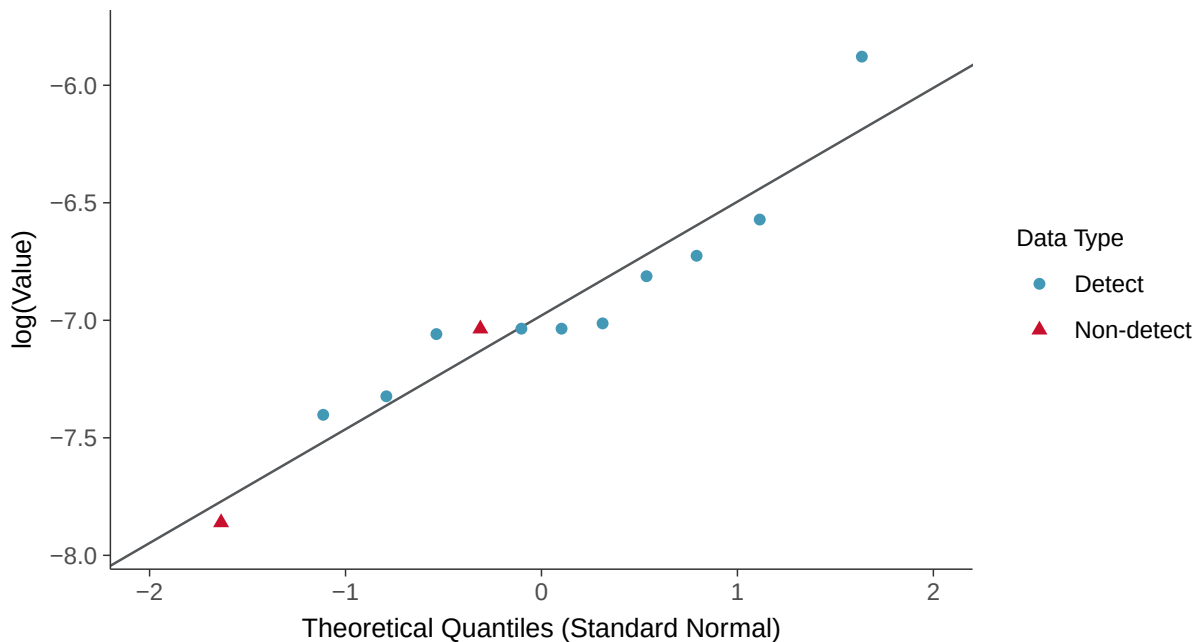
Normal Q-Q plot using ROS Imputed Estimates

Cadmium, W-5B (mg/l)



Lognormal Q-Q plot using ROS Imputed Estimates

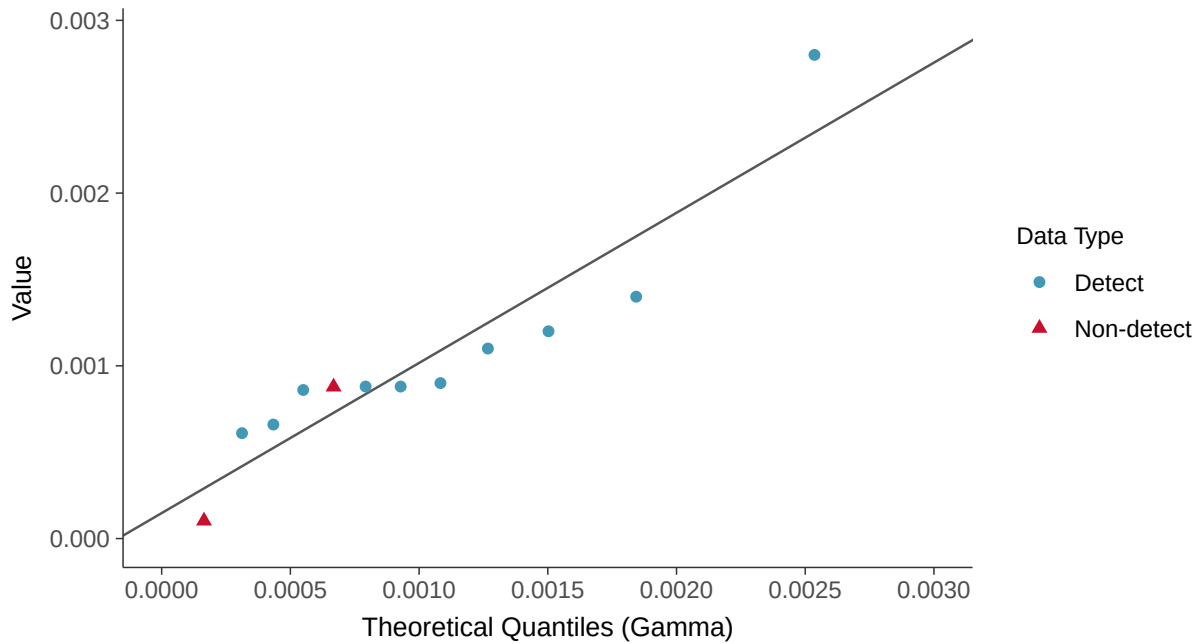
Cadmium, W-5B (mg/l)





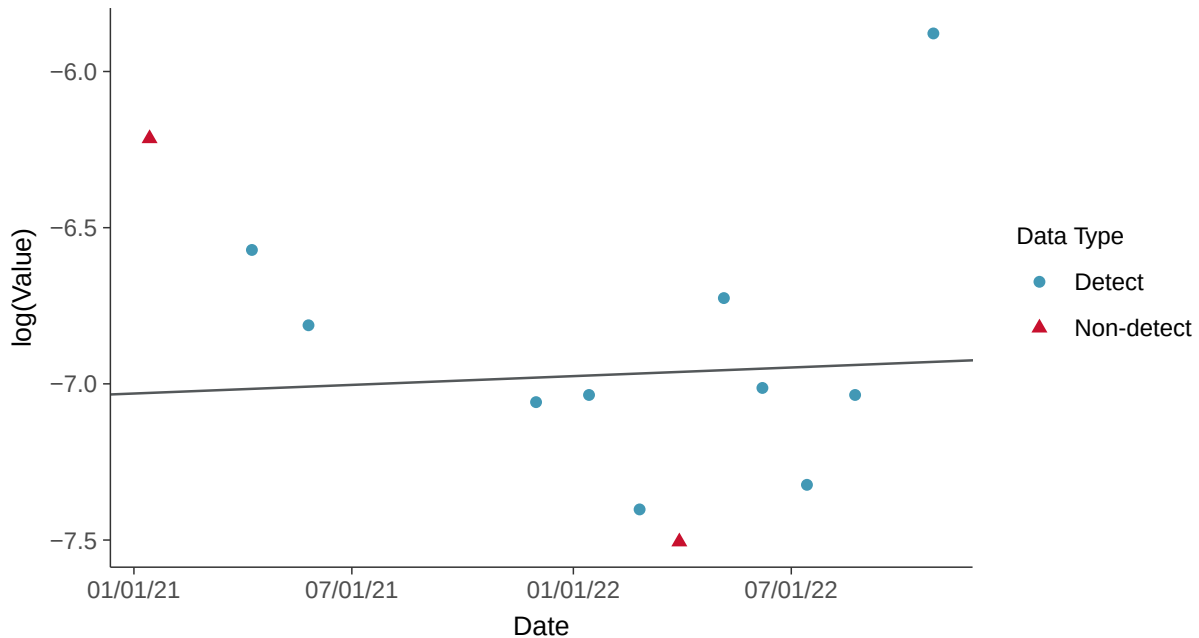
Gamma Q-Q plot using ROS Imputed Estimates

Cadmium, W-5B (mg/l)



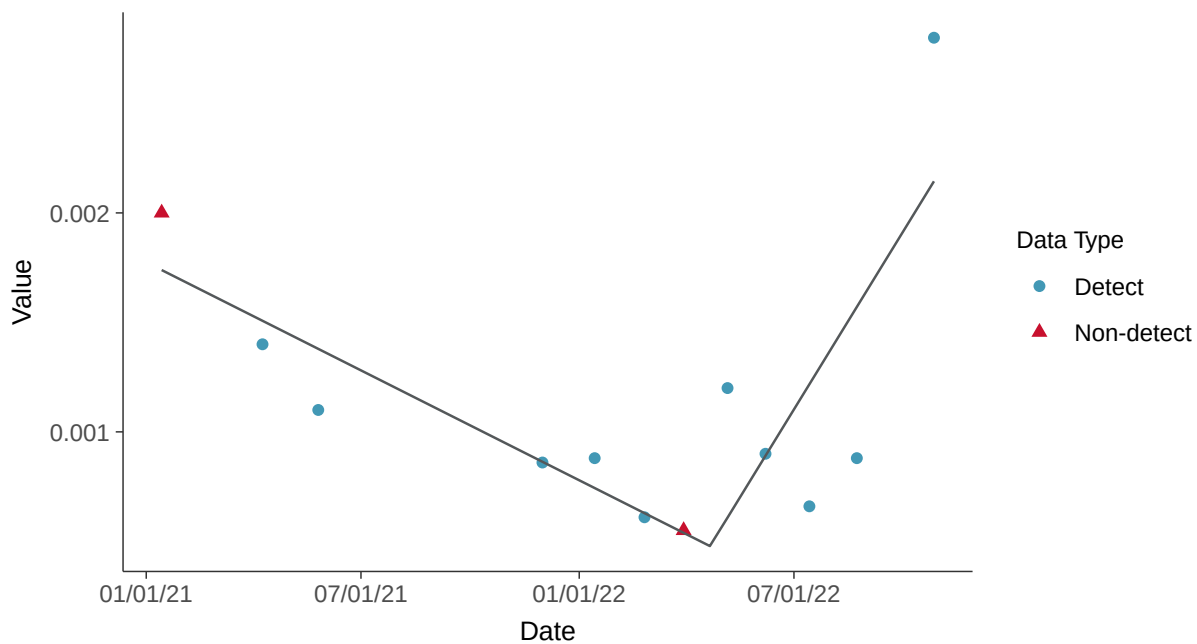
Trend Regression: Lognormal MLE

Cadmium, W-5B (mg/l)



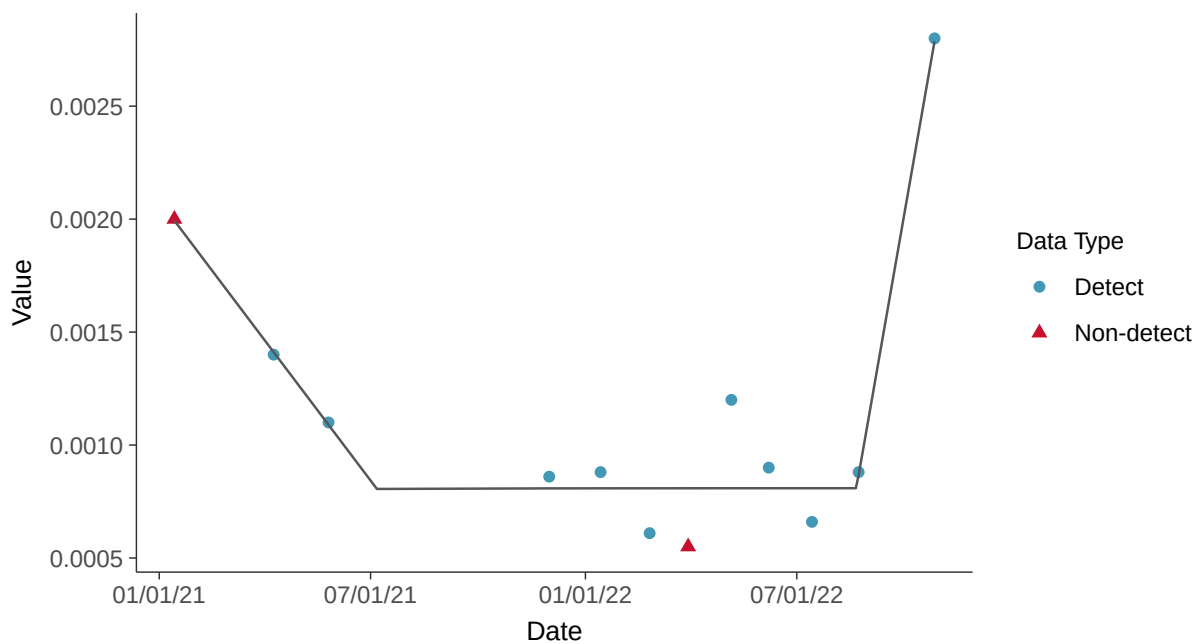
Trend Regression: Piecewise Linear-Linear

Cadmium, W-5B (mg/l)



Trend Regression: Piecewise Linear-Linear-Linear

Cadmium, W-5B (mg/l)



Scatter Plot
Chromium, Total, W-5B (mg/l)

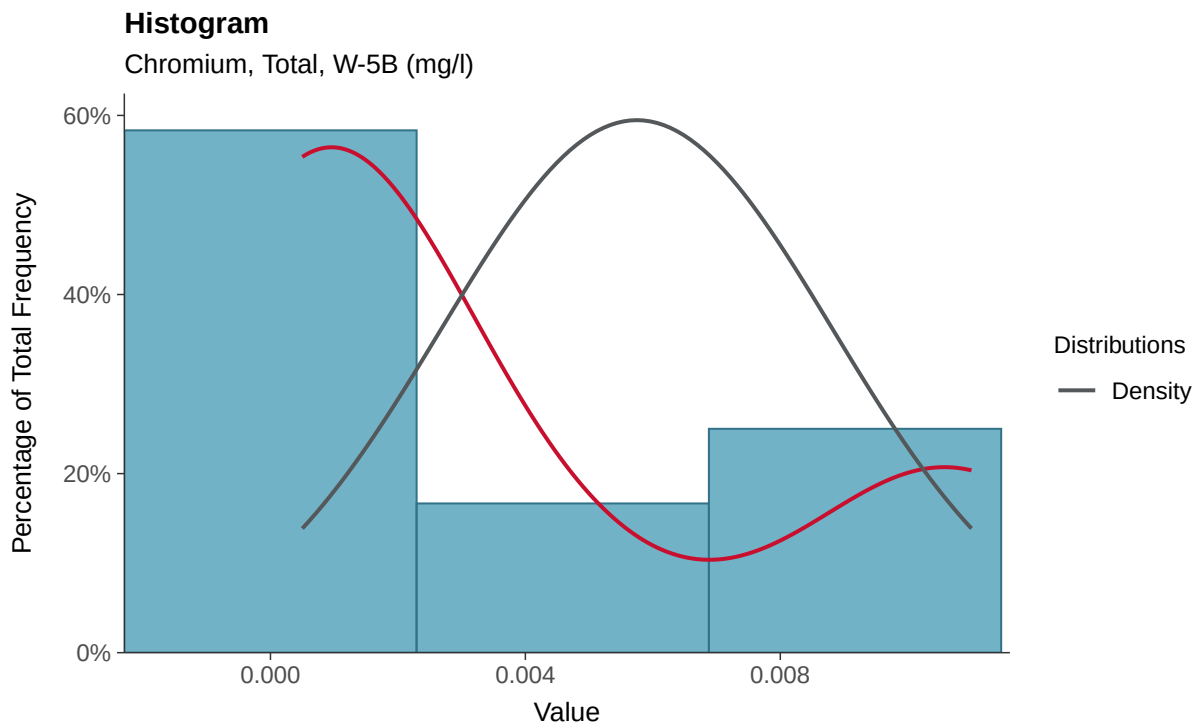
Value

Date

Data Type

- Detect
- Non-detect

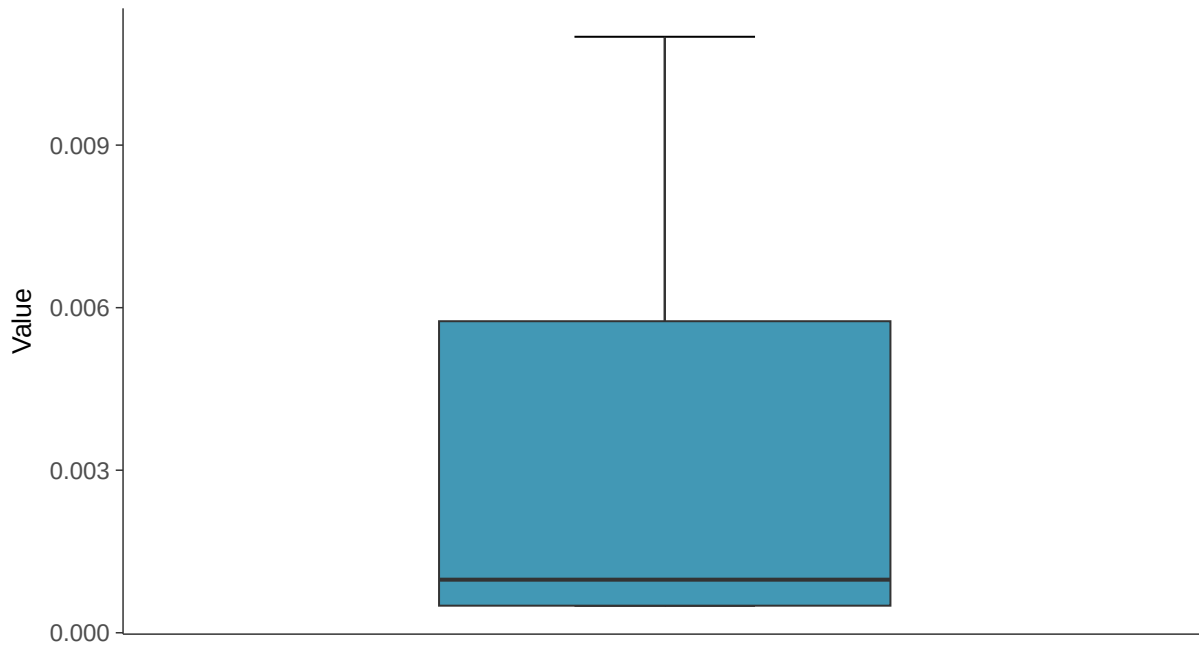
Date	Value (mg/l)	Data Type
01/01/21	0.0095	Non-detect
03/01/21	0.0010	Non-detect
05/01/21	0.0010	Non-detect
09/01/21	0.0022	Non-detect
11/01/21	0.0045	Non-detect
01/01/22	0.0098	Non-detect
03/01/22	0.0098	Non-detect
05/01/22	0.0005	Non-detect
07/01/22	0.0005	Non-detect
09/01/22	0.0005	Detect
11/01/22	0.0005	Non-detect
01/01/23	0.0005	Non-detect





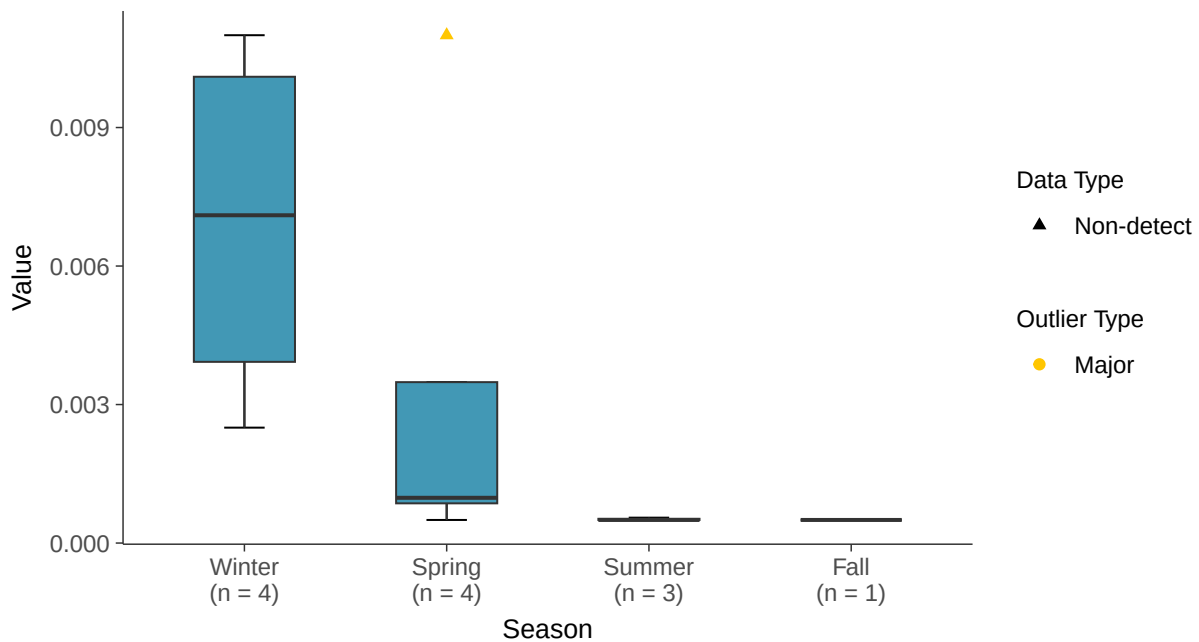
Boxplot

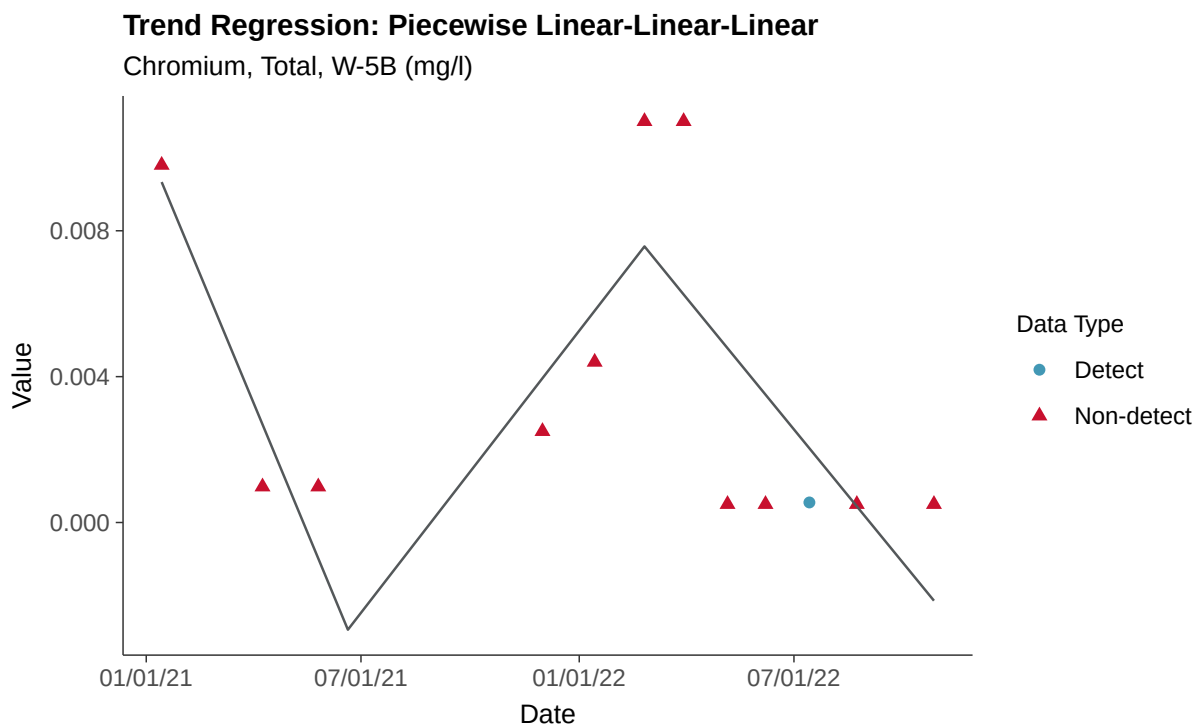
Chromium, Total, W-5B (mg/l)



Boxplot by Season

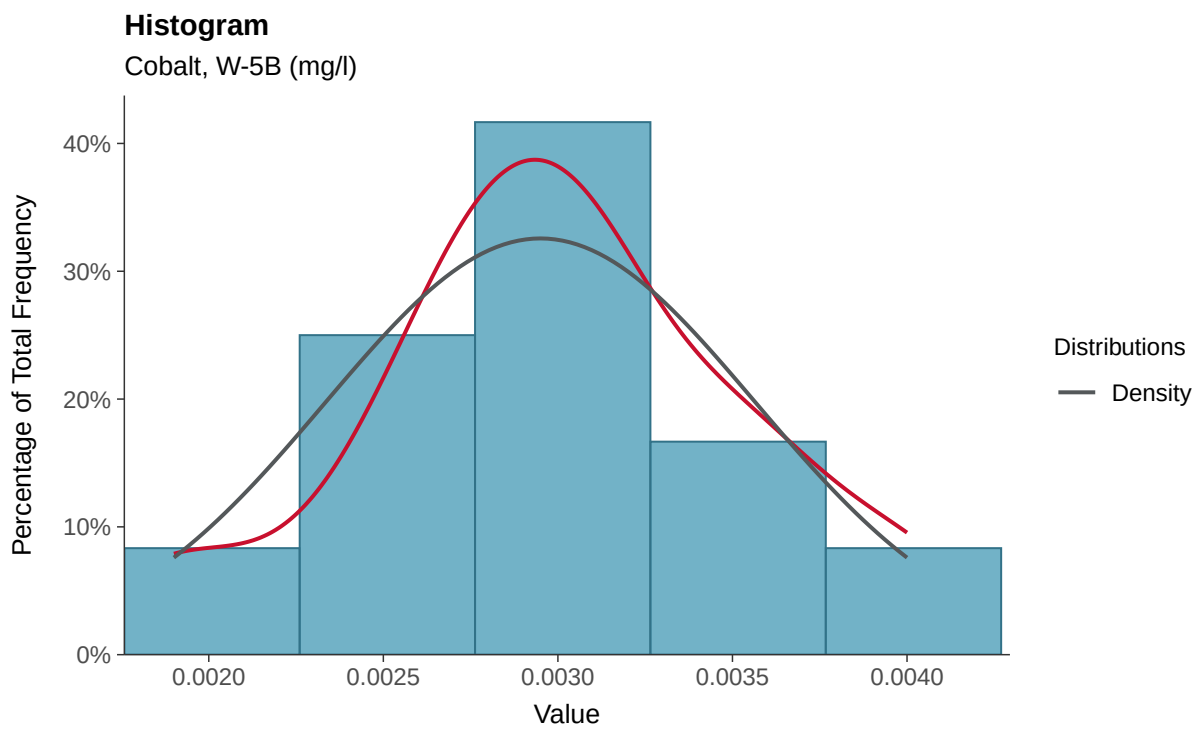
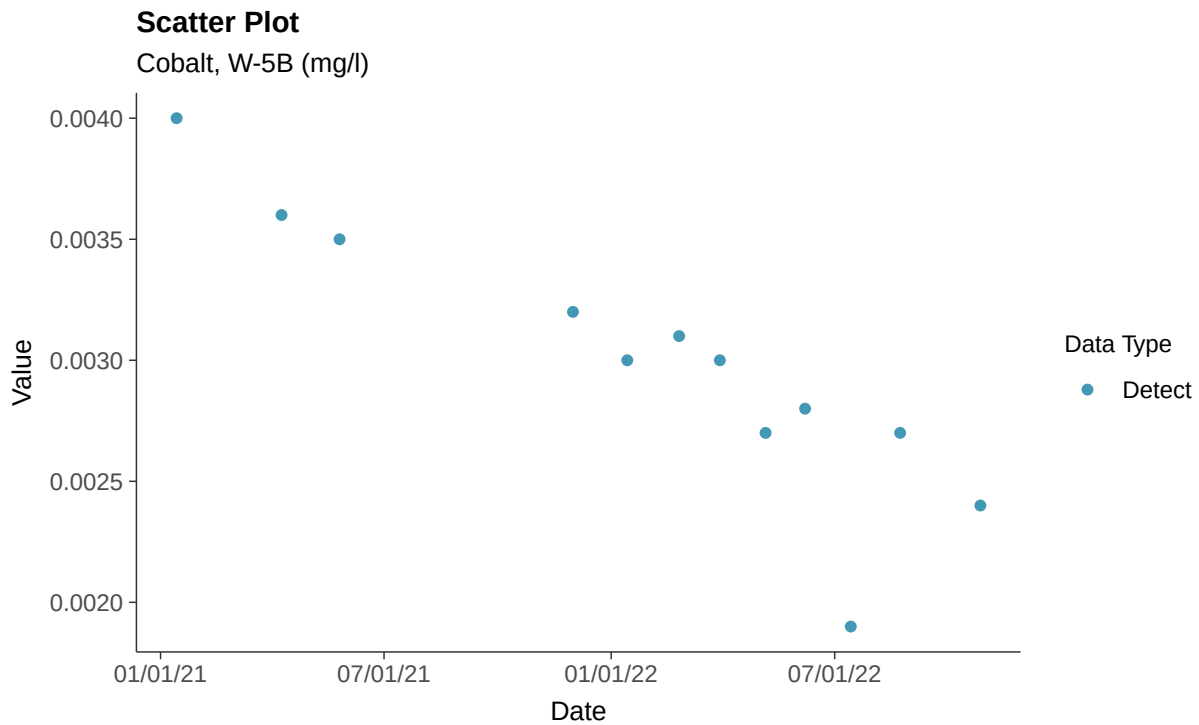
Chromium, Total, W-5B (mg/l)





Appendix IV: Cobalt, W-5B

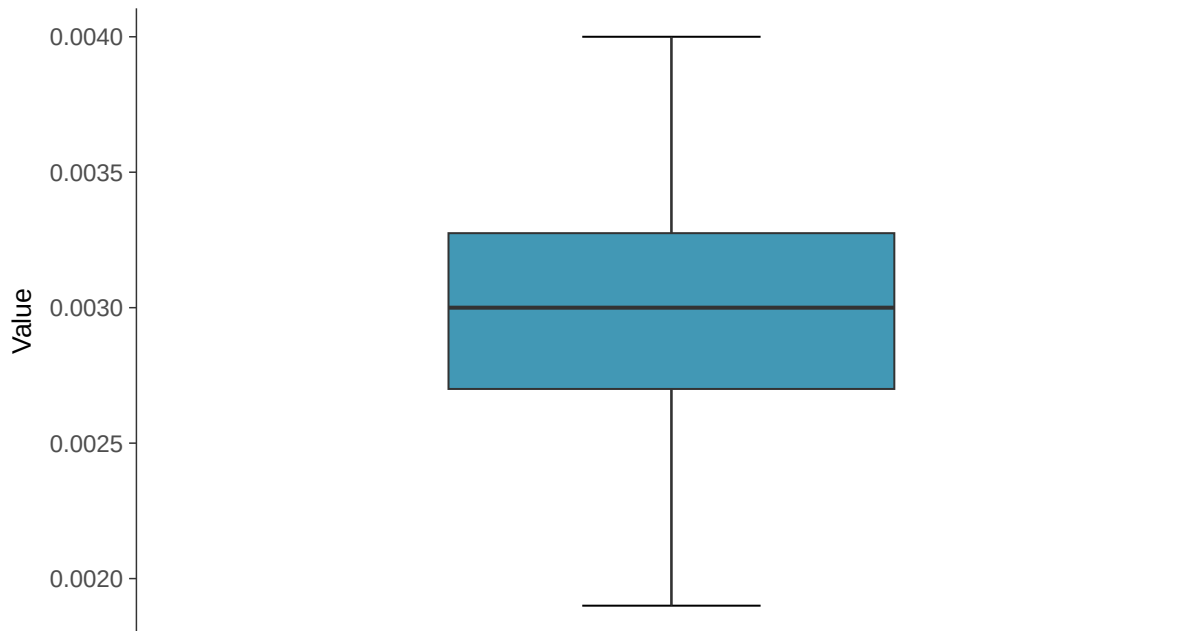
ID: 7_2_110





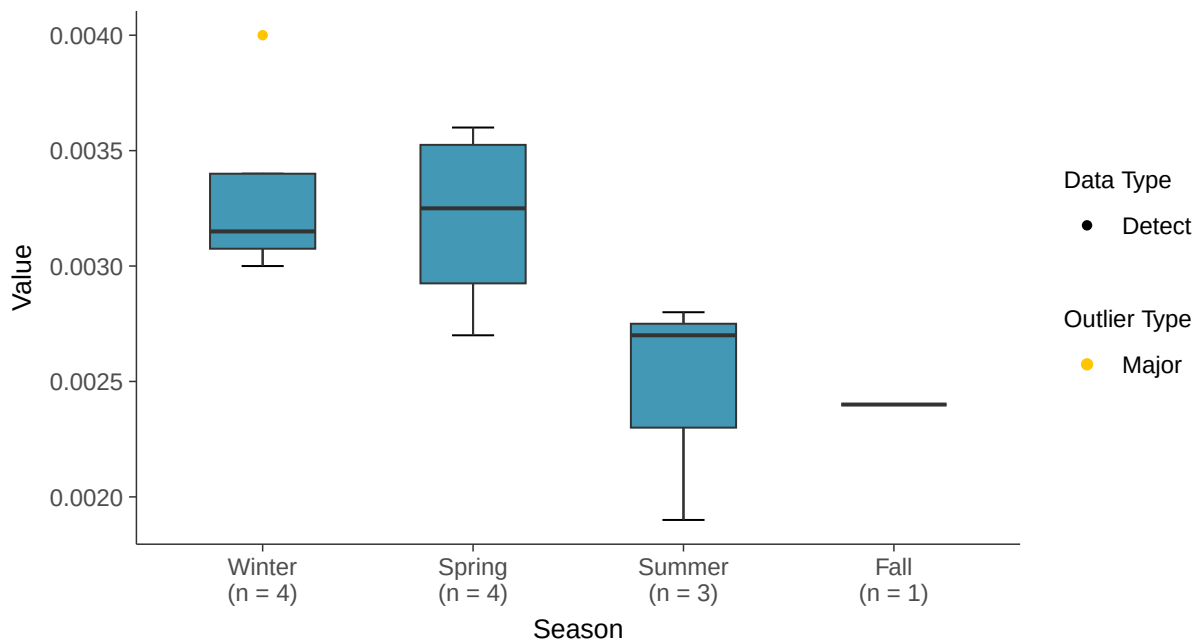
Boxplot

Cobalt, W-5B (mg/l)



Boxplot by Season

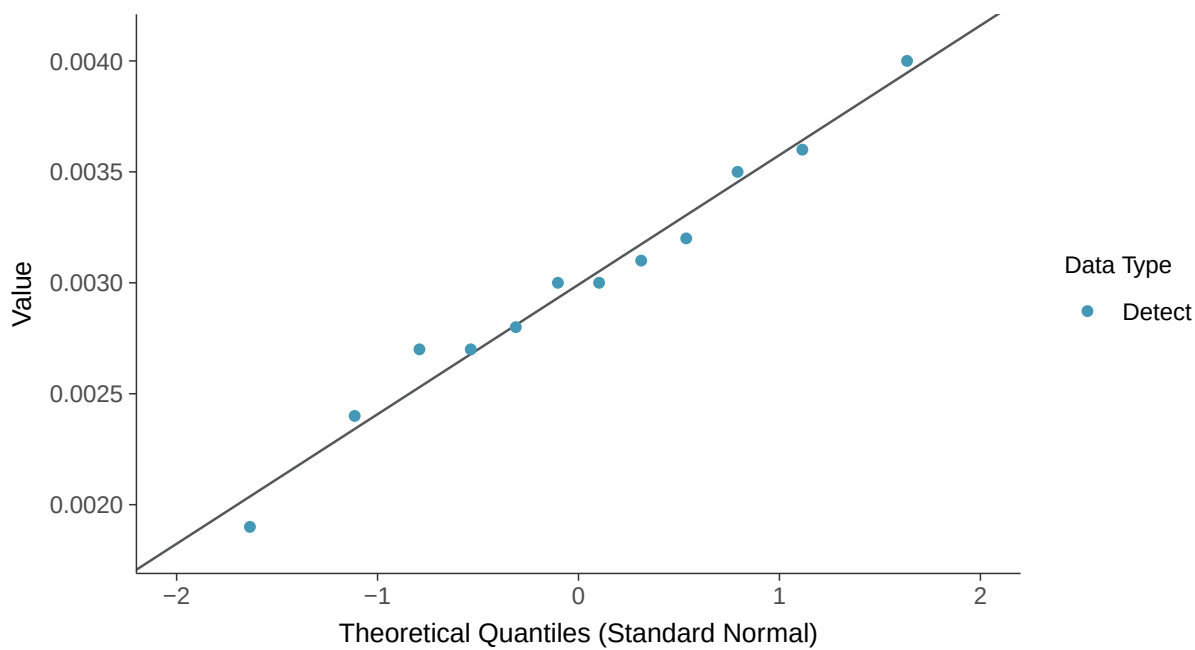
Cobalt, W-5B (mg/l)





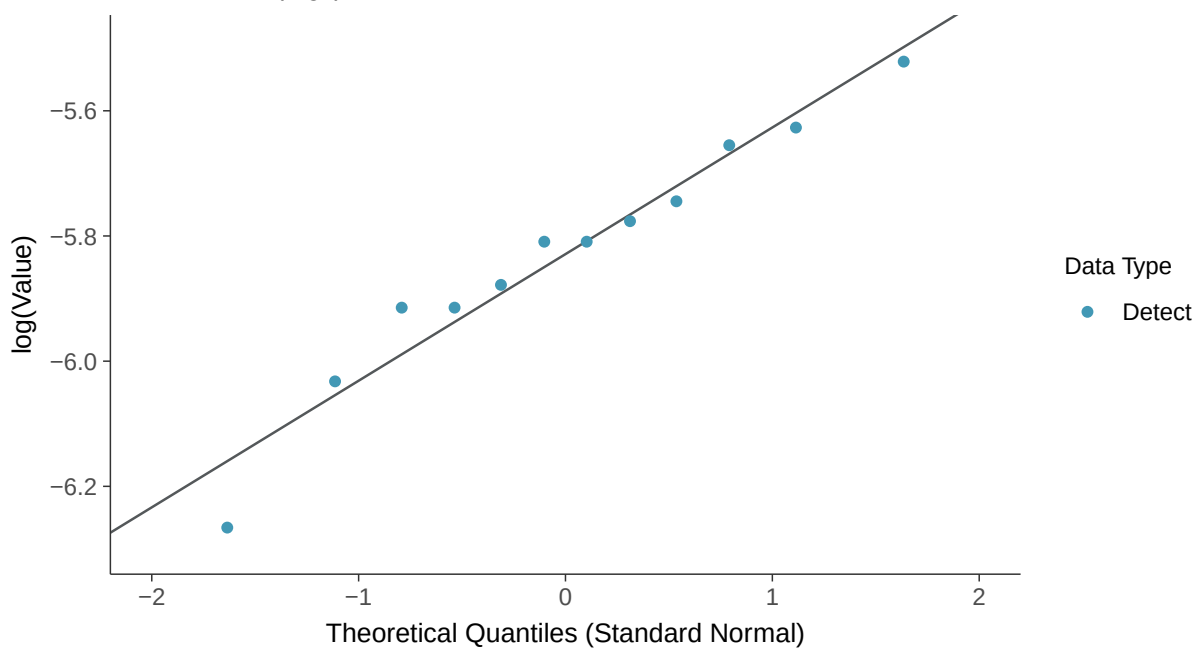
Normal Q-Q plot

Cobalt, W-5B (mg/l)



Lognormal Q-Q plot

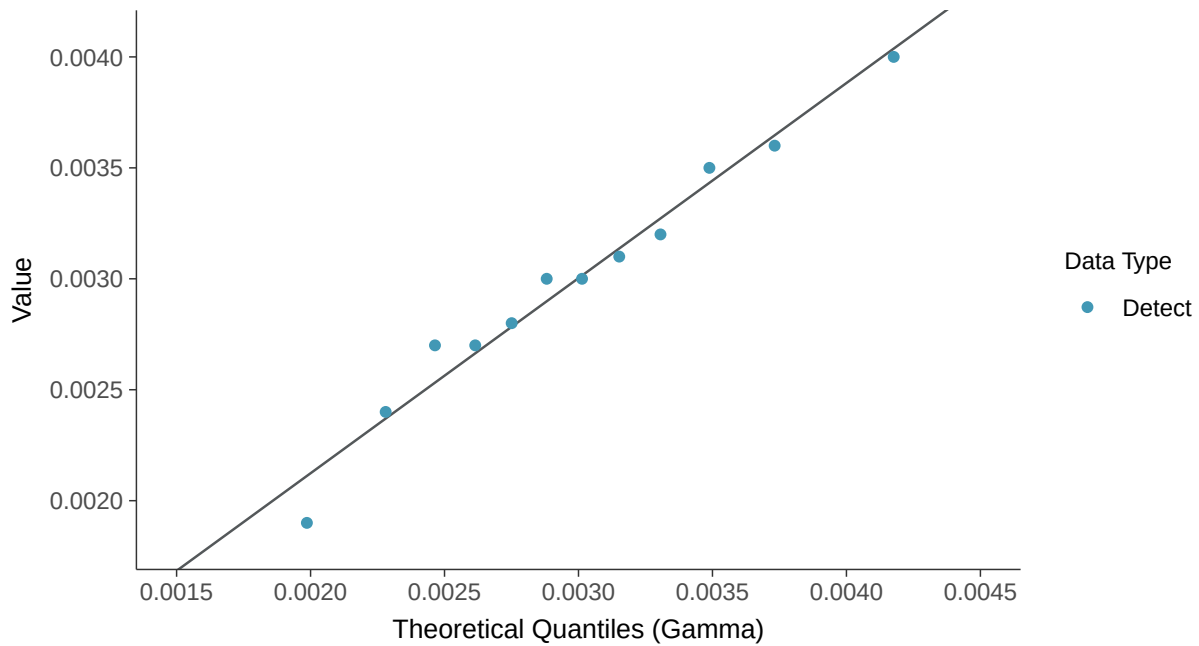
Cobalt, W-5B (mg/l)





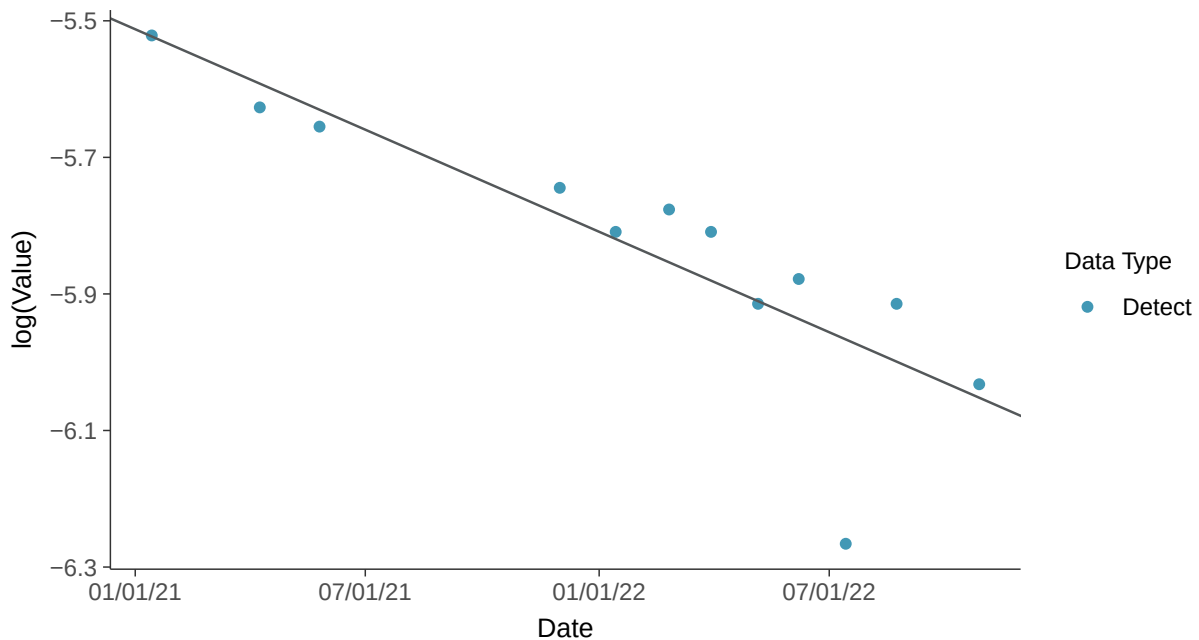
Gamma Q-Q plot

Cobalt, W-5B (mg/l)



Trend Regression: Lognormal MLE

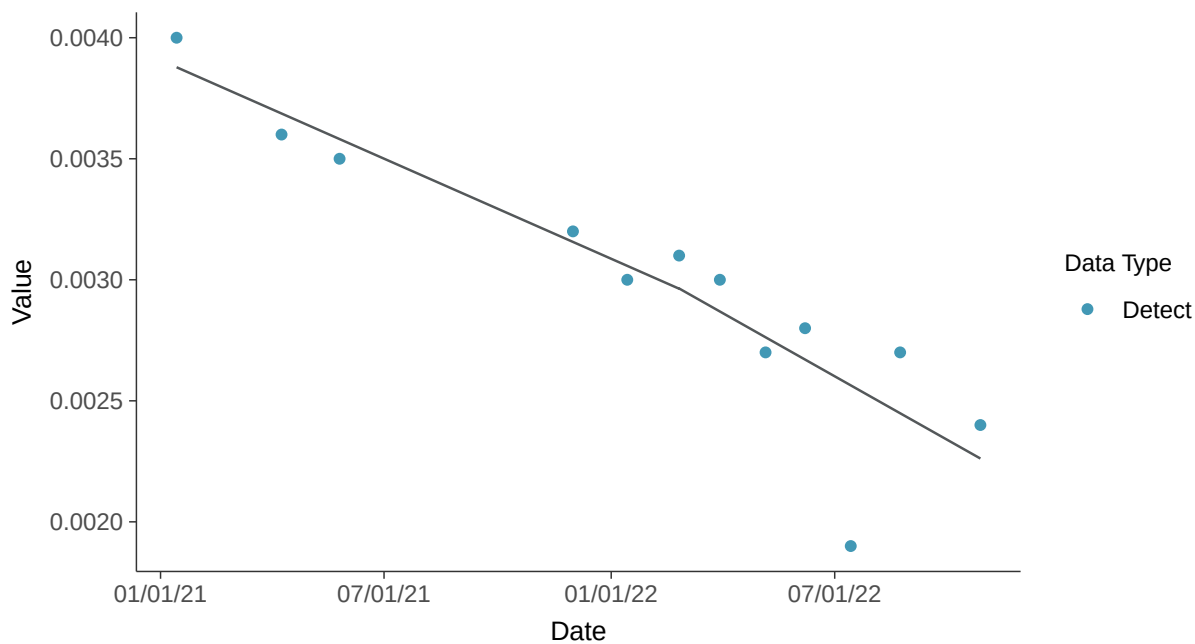
Cobalt, W-5B (mg/l)





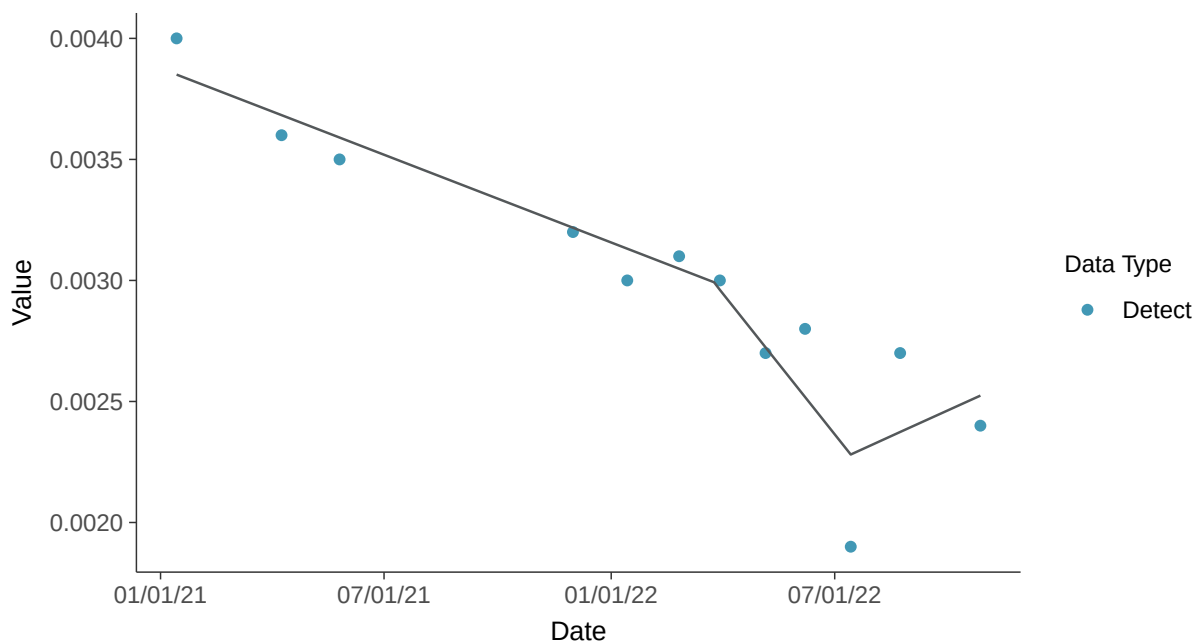
Trend Regression: Piecewise Linear-Linear

Cobalt, W-5B (mg/l)



Trend Regression: Piecewise Linear-Linear-Linear

Cobalt, W-5B (mg/l)

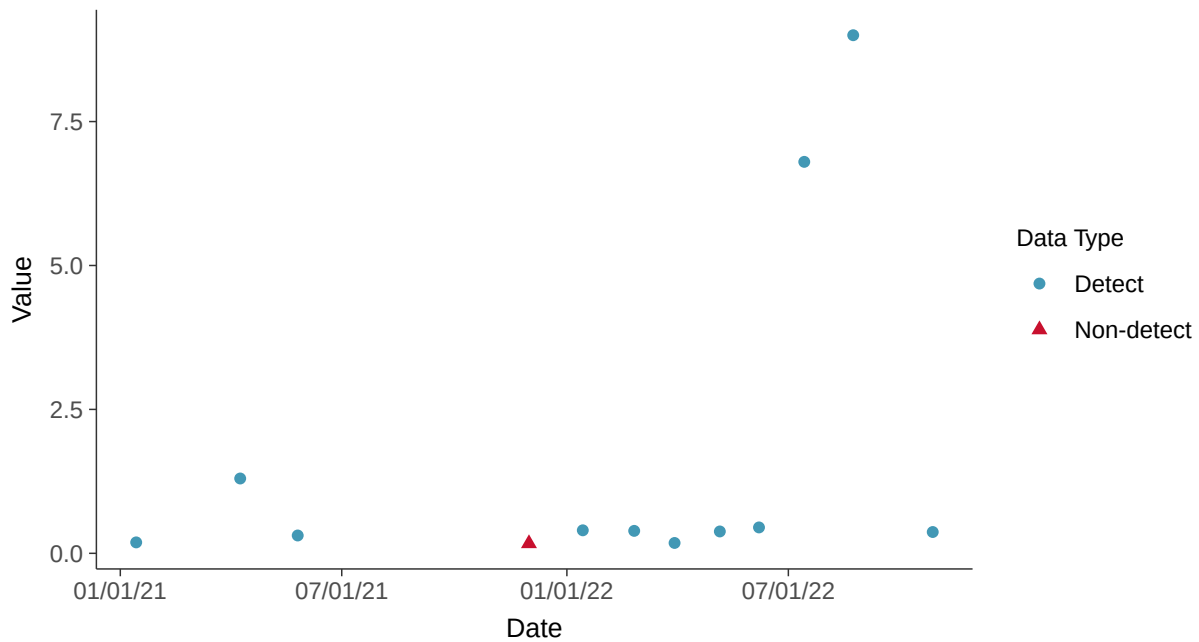


Appendix IV: Fluoride (App IV), W-5B

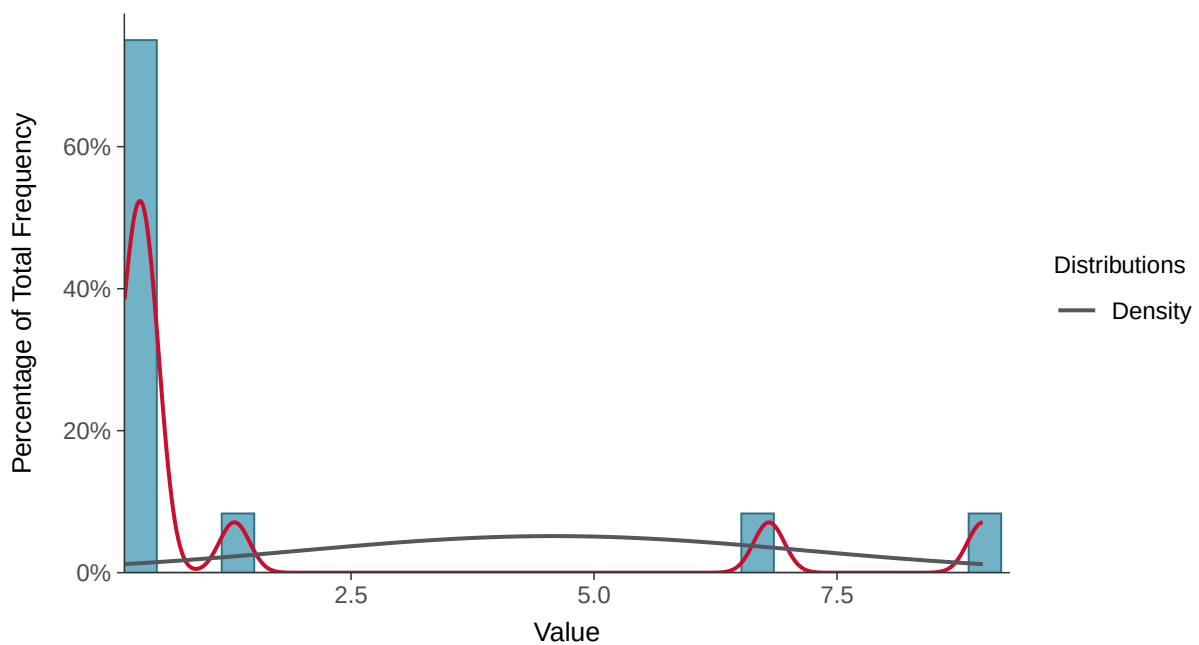
ID: 7_2_112

Scatter Plot

Fluoride (App IV), W-5B (mg/l)

**Histogram**

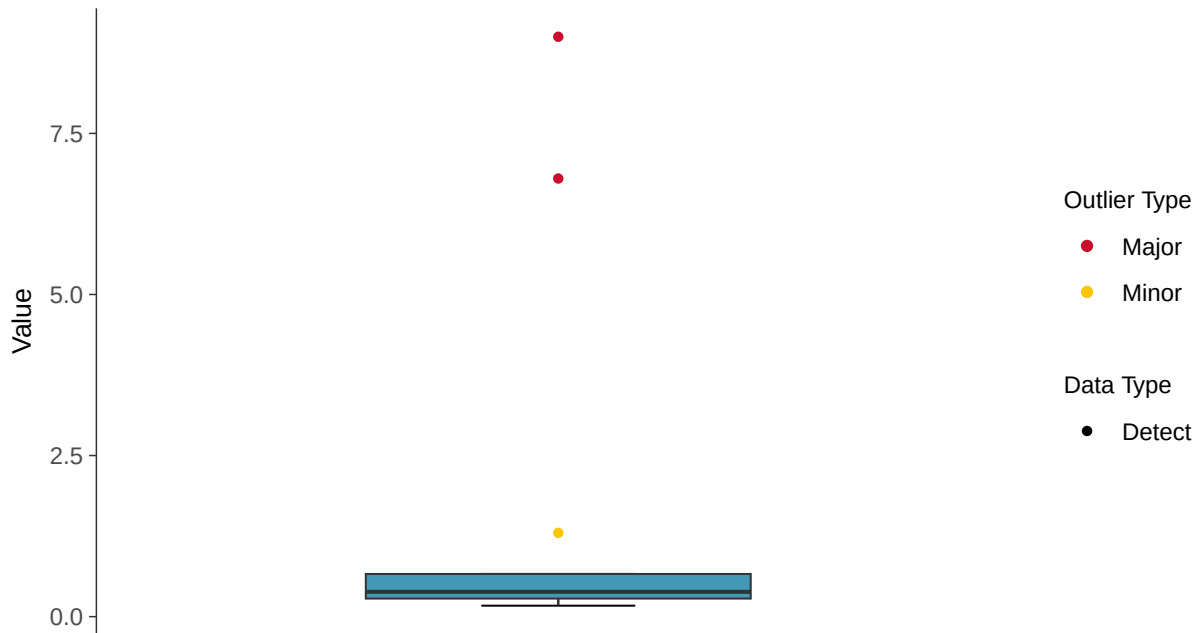
Fluoride (App IV), W-5B (mg/l)



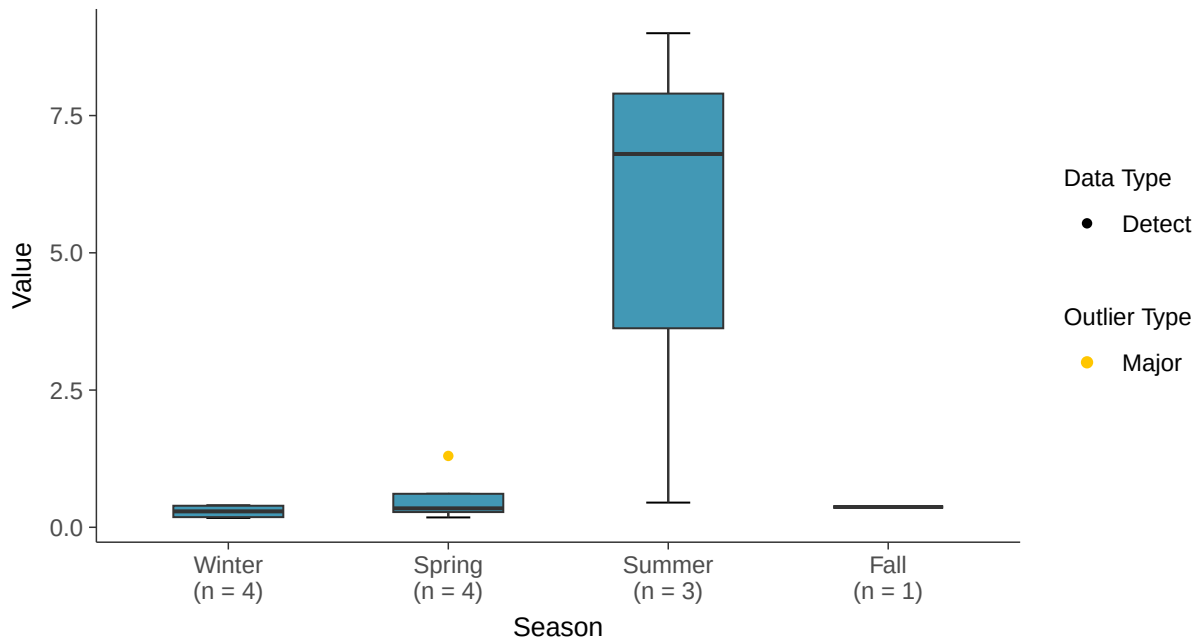
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Fluoride (App IV), W-5B (mg/l)

**Boxplot by Season**

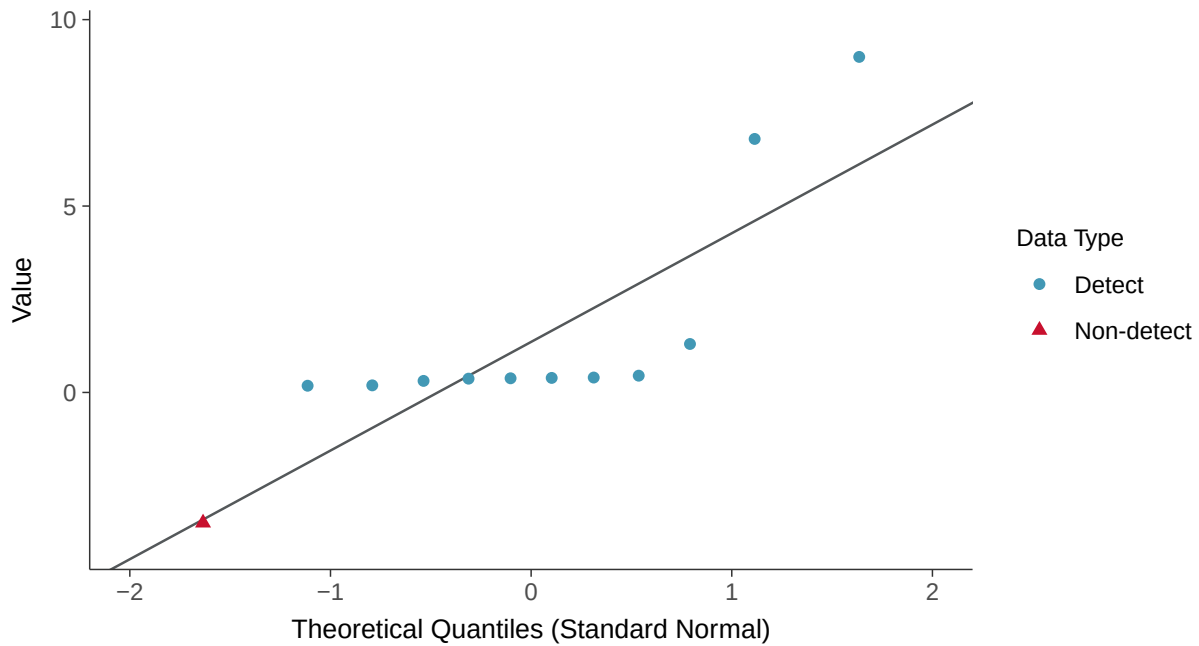
Fluoride (App IV), W-5B (mg/l)



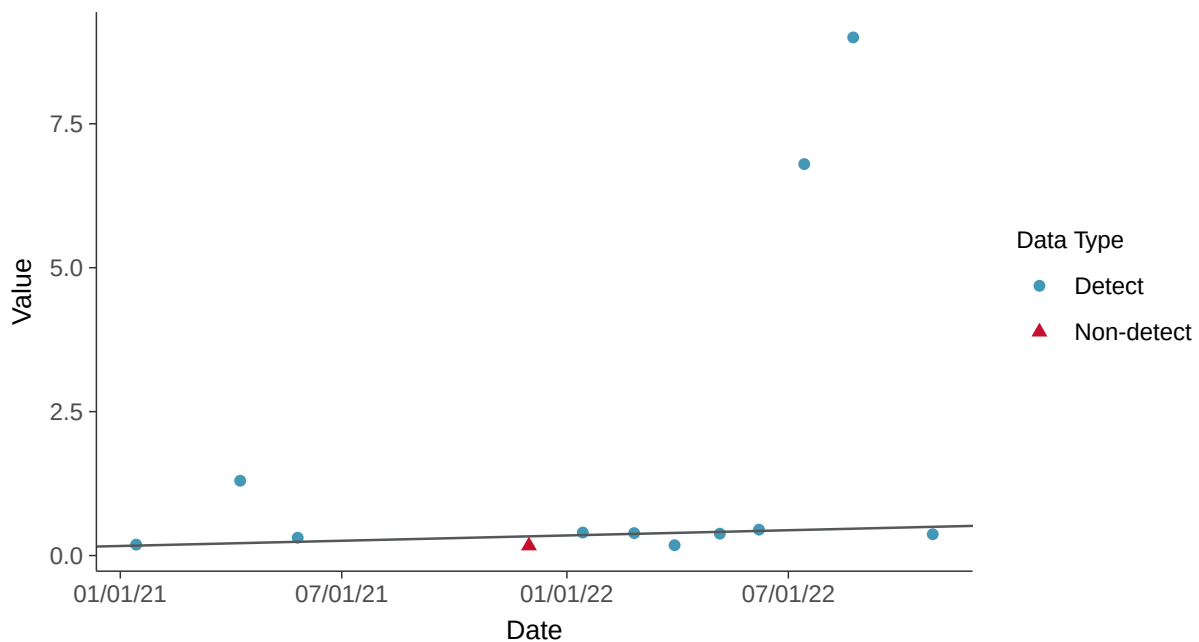
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Normal Q-Q plot using ROS Imputed Estimates

Fluoride (App IV), W-5B (mg/l)

**Trend Regression: Mann-Kendall/Theil-Sen Estimate**

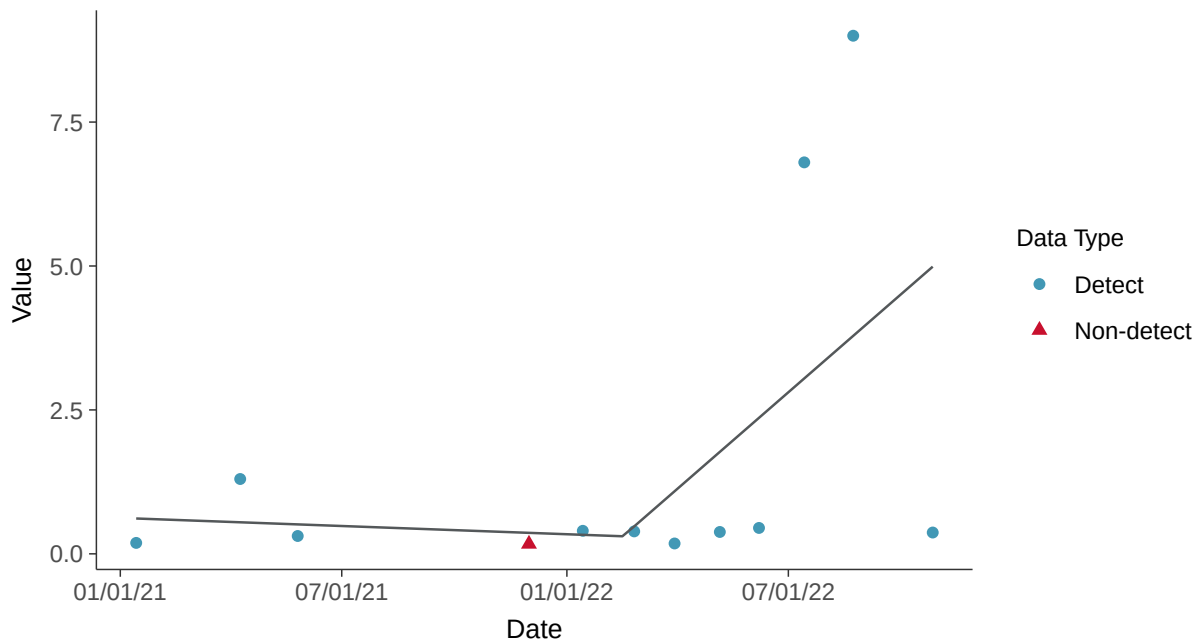
Fluoride (App IV), W-5B (mg/l)



Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

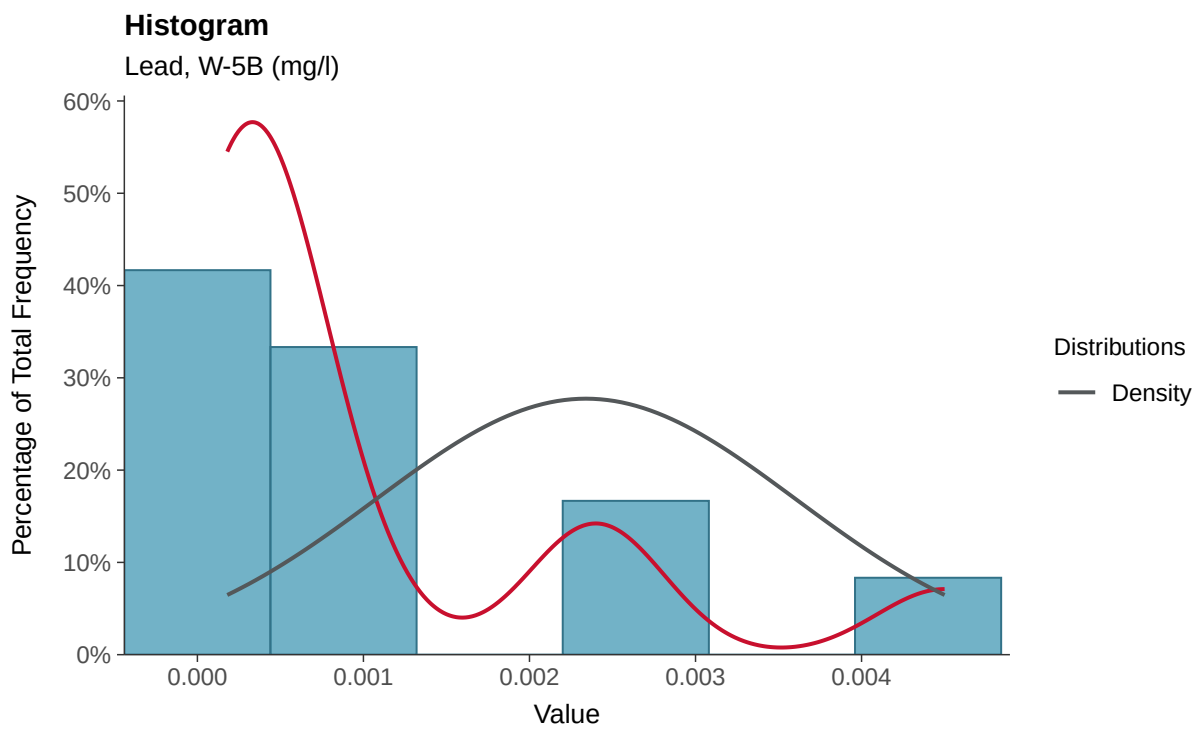
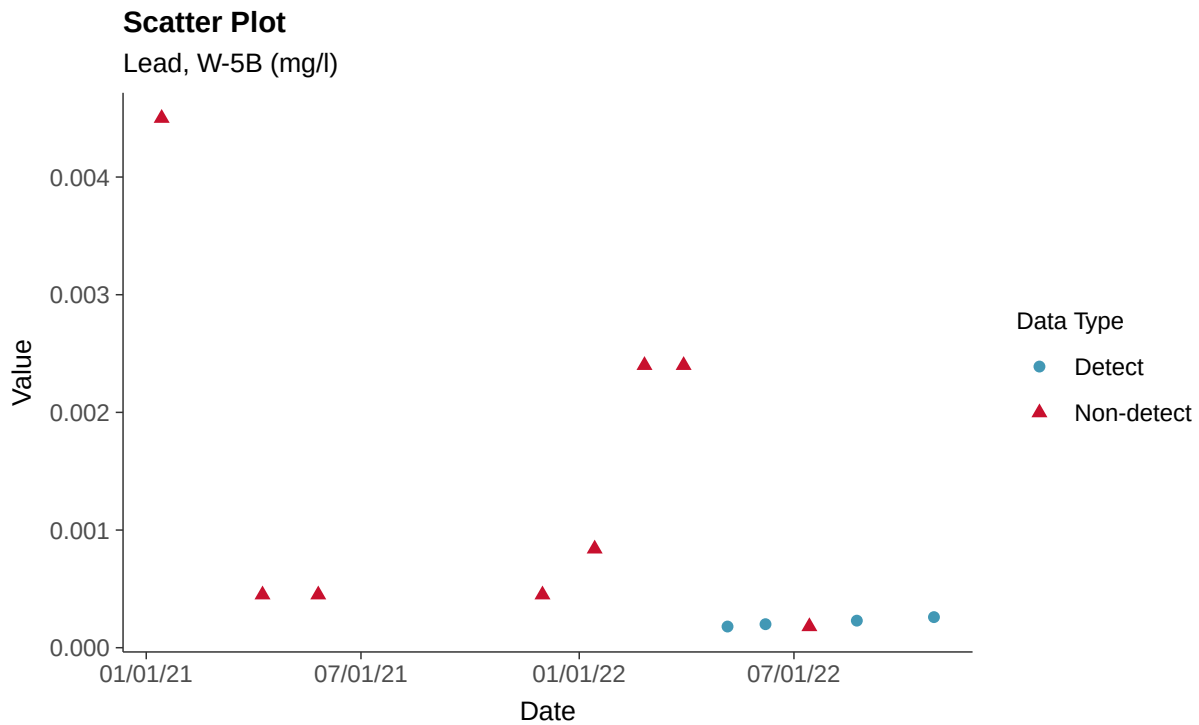
Trend Regression: Piecewise Linear-Linear

Fluoride (App IV), W-5B (mg/l)



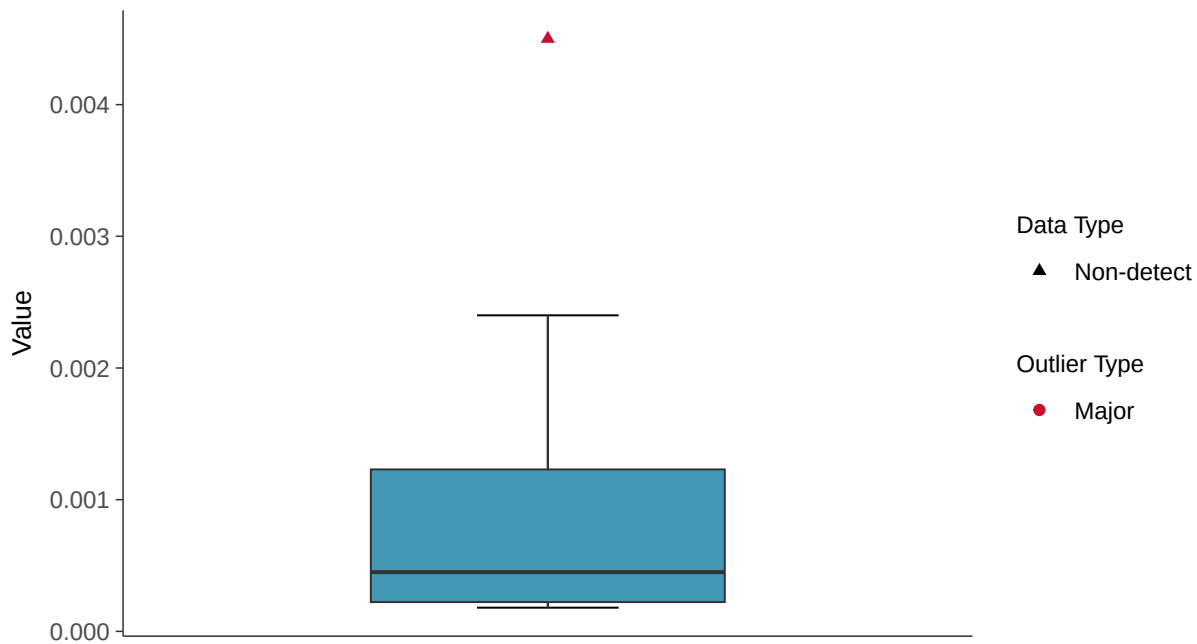
Appendix IV: Lead, W-5B

ID: 7_2_113



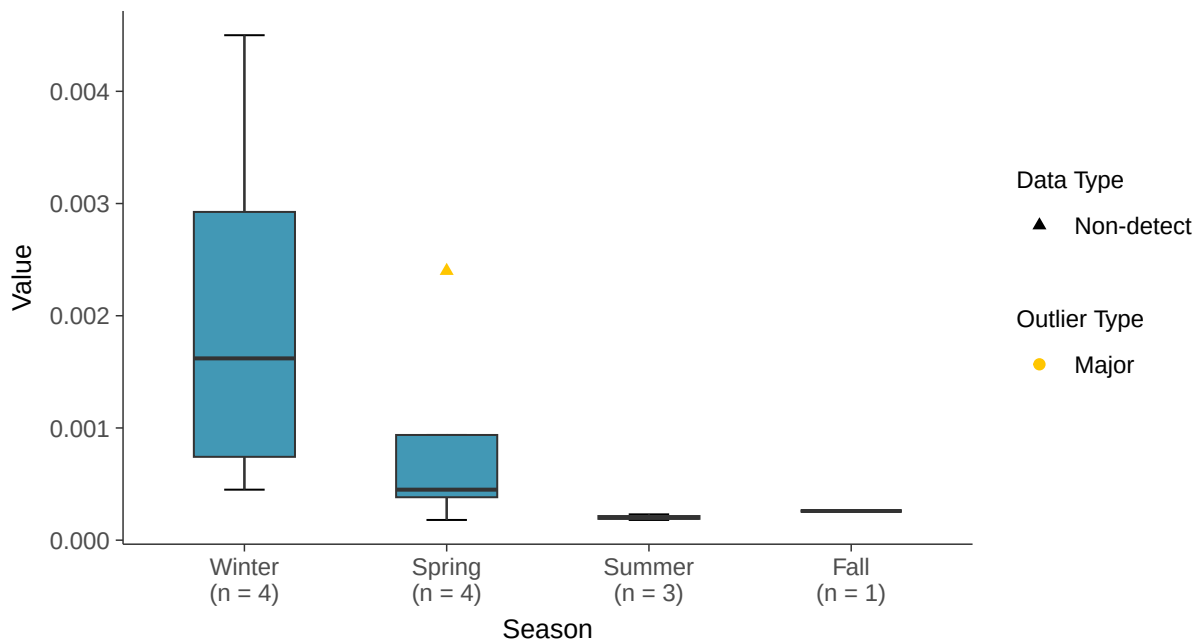
Boxplot

Lead, W-5B (mg/l)



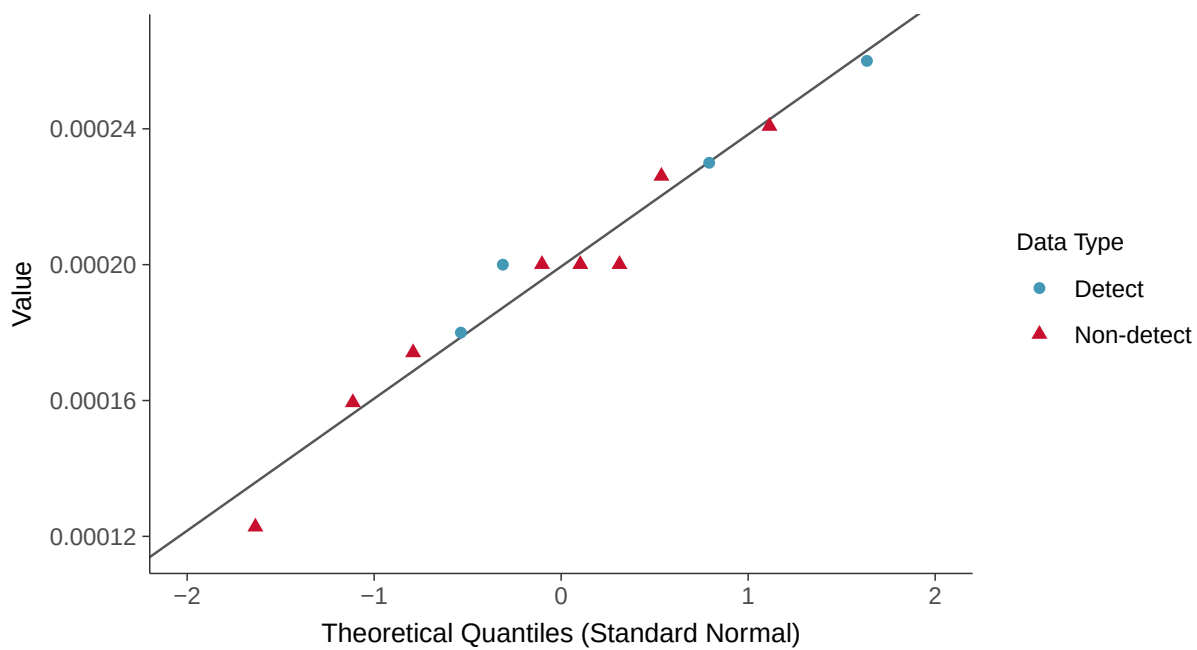
Boxplot by Season

Lead, W-5B (mg/l)



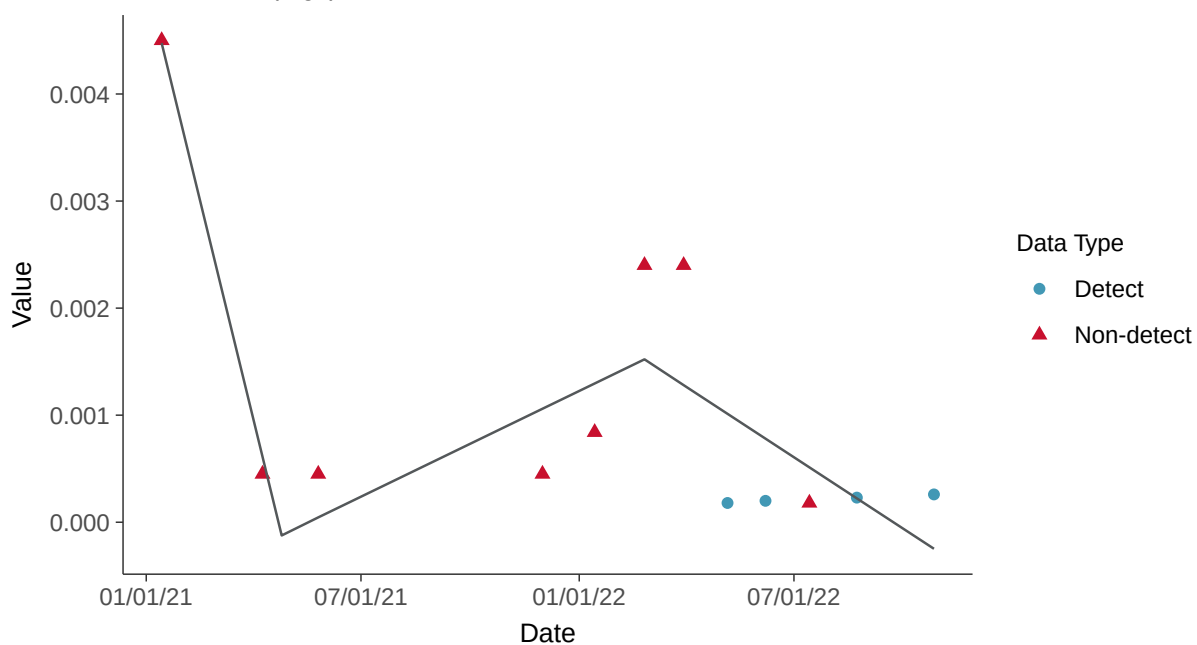
Normal Q-Q plot using ROS Imputed Estimates

Lead, W-5B (mg/l)



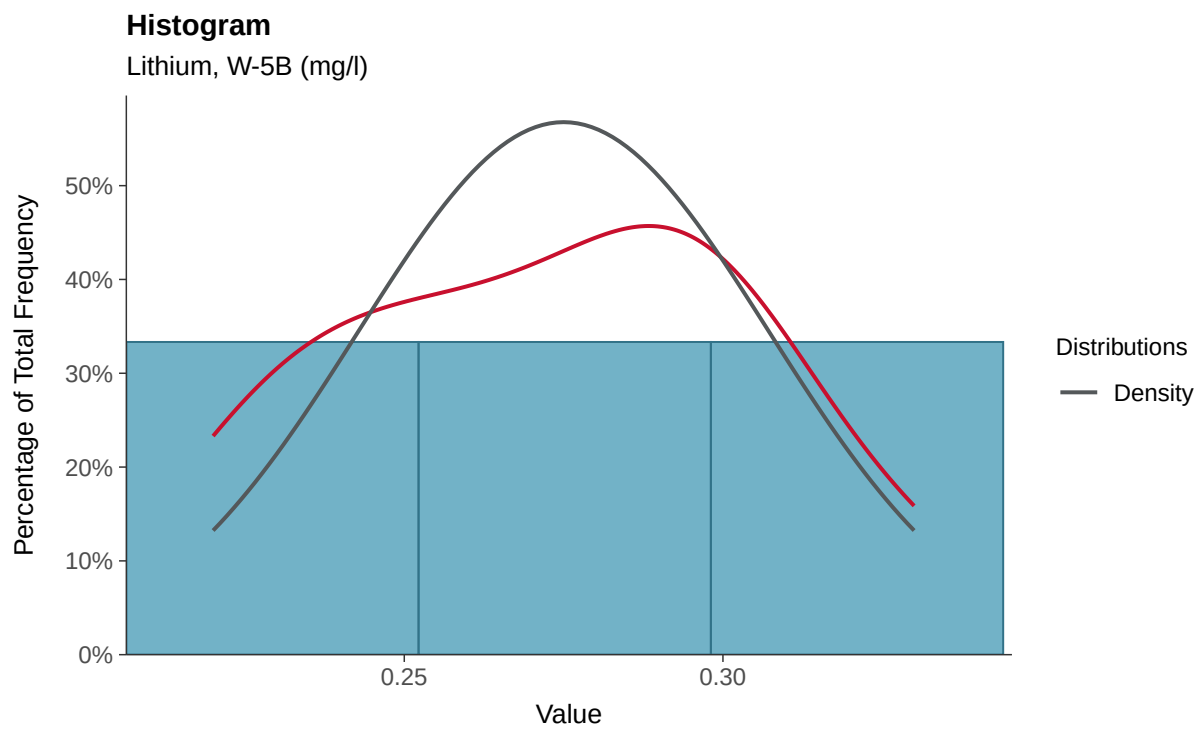
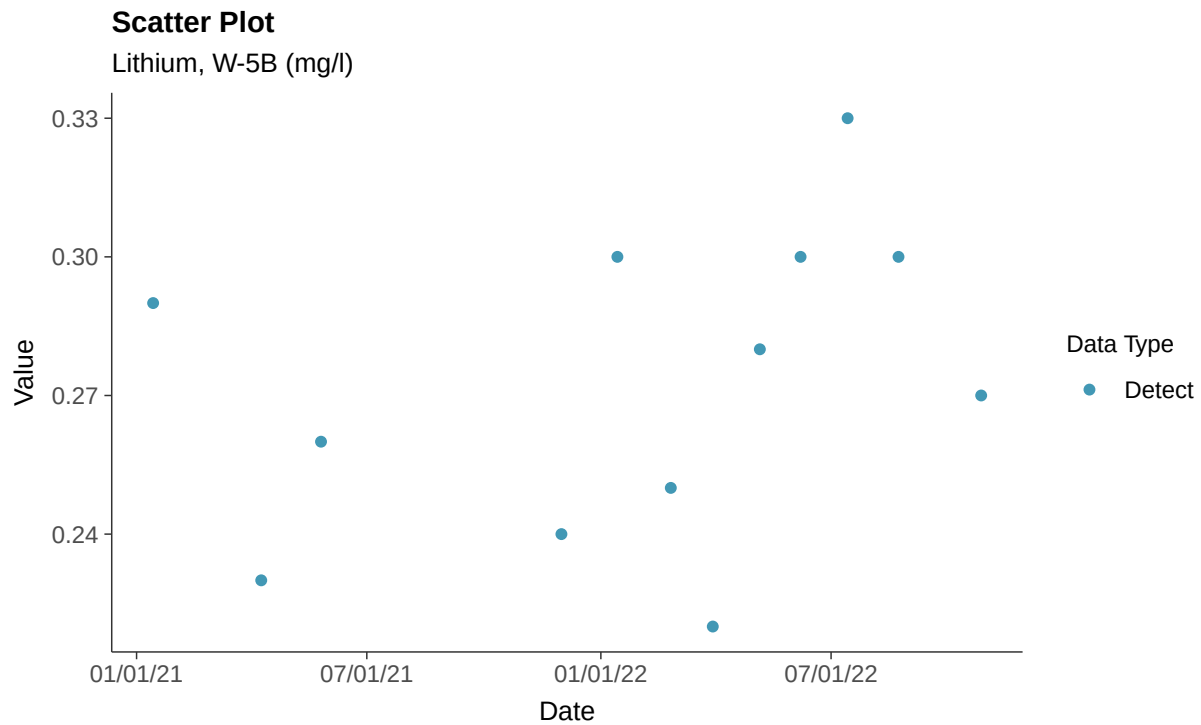
Trend Regression: Piecewise Linear-Linear-Linear

Lead, W-5B (mg/l)



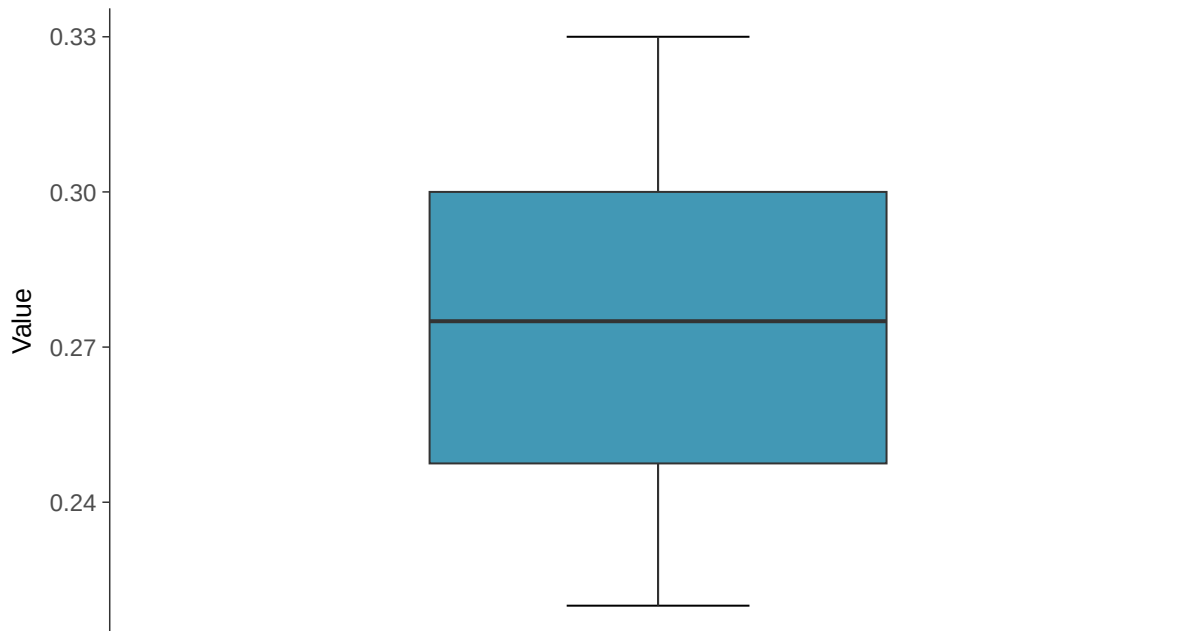
Appendix IV: Lithium, W-5B

ID: 7_2_114



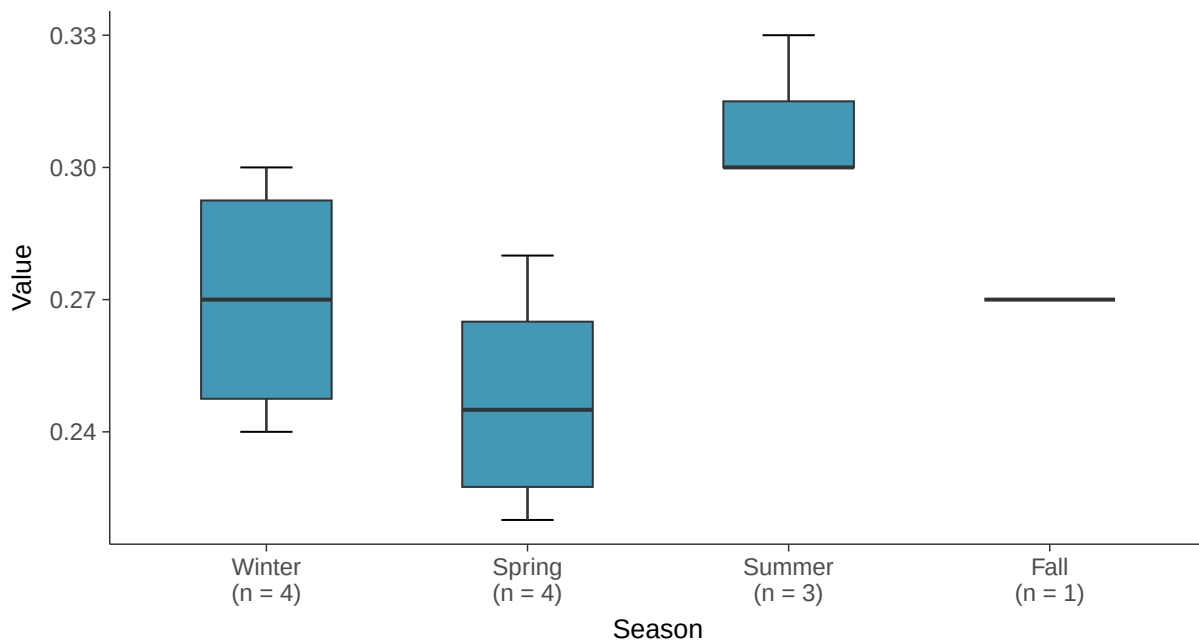
Boxplot

Lithium, W-5B (mg/l)



Boxplot by Season

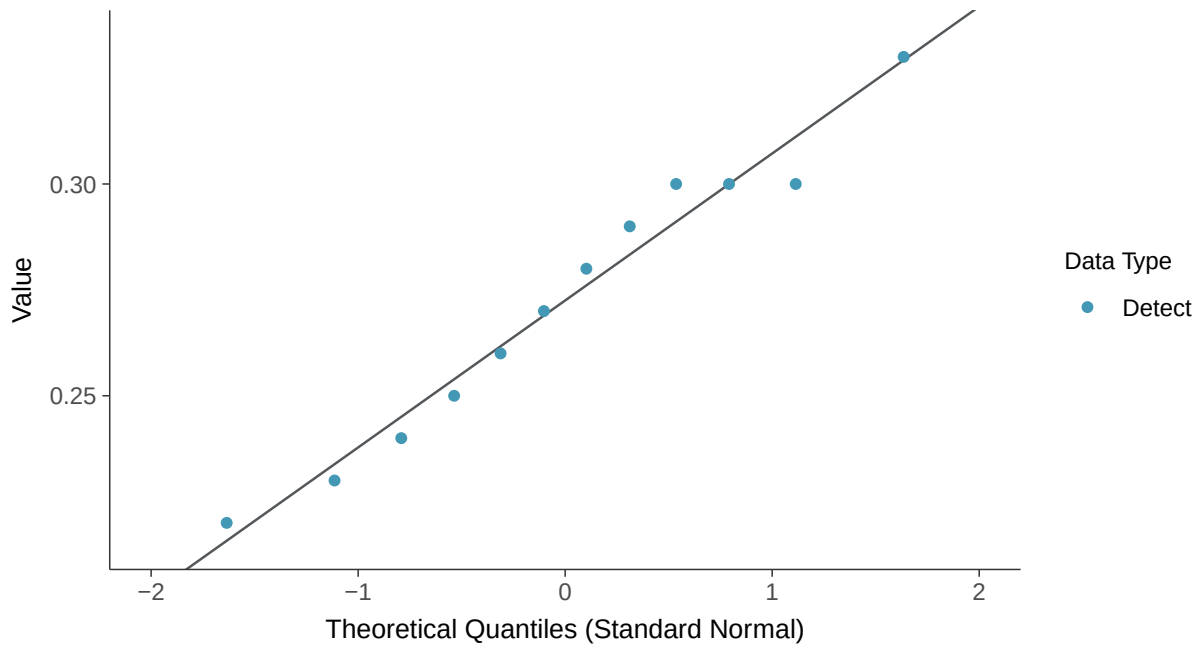
Lithium, W-5B (mg/l)



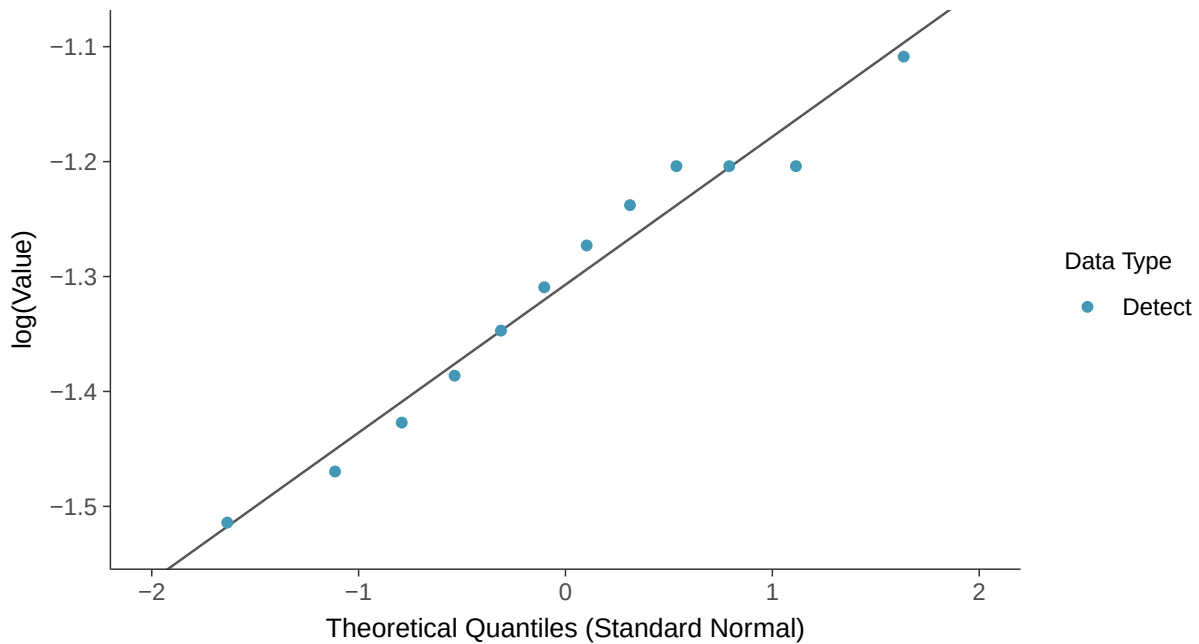
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Normal Q-Q plot

Lithium, W-5B (mg/l)

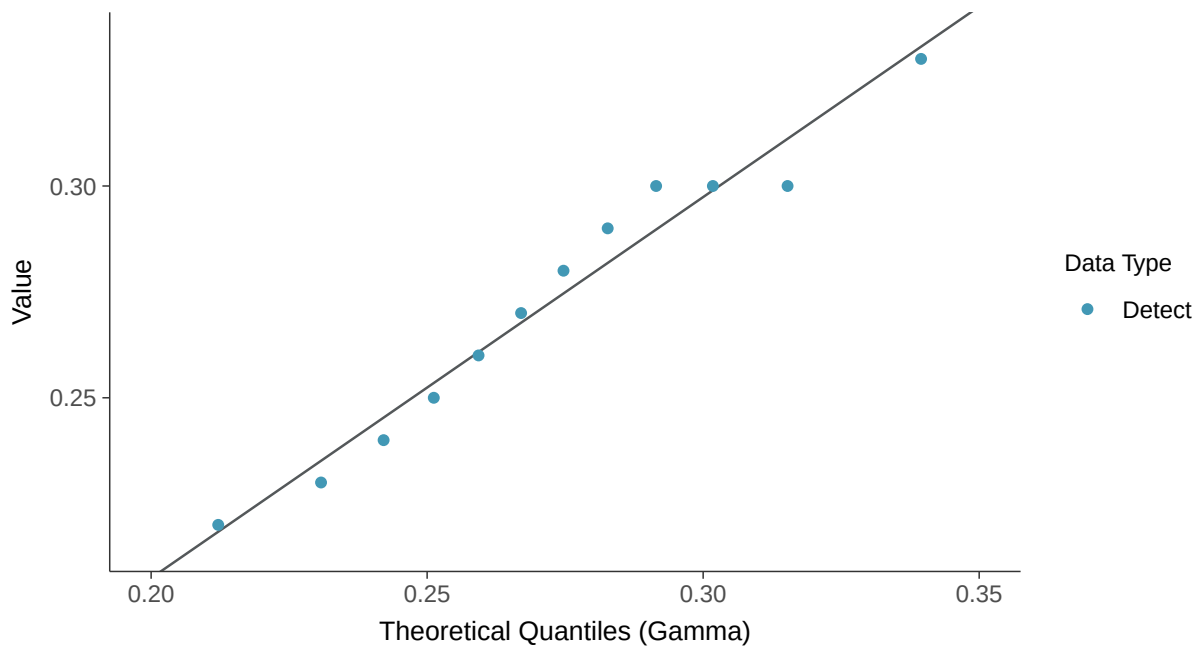
**Lognormal Q-Q plot**

Lithium, W-5B (mg/l)



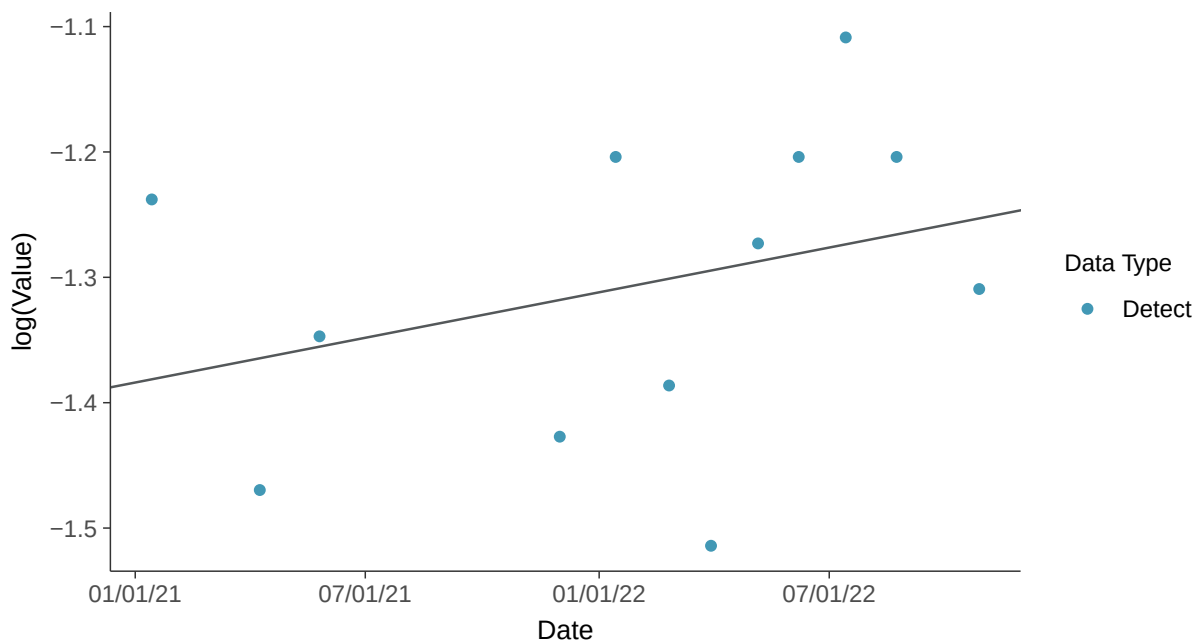
Gamma Q-Q plot

Lithium, W-5B (mg/l)



Trend Regression: Lognormal MLE

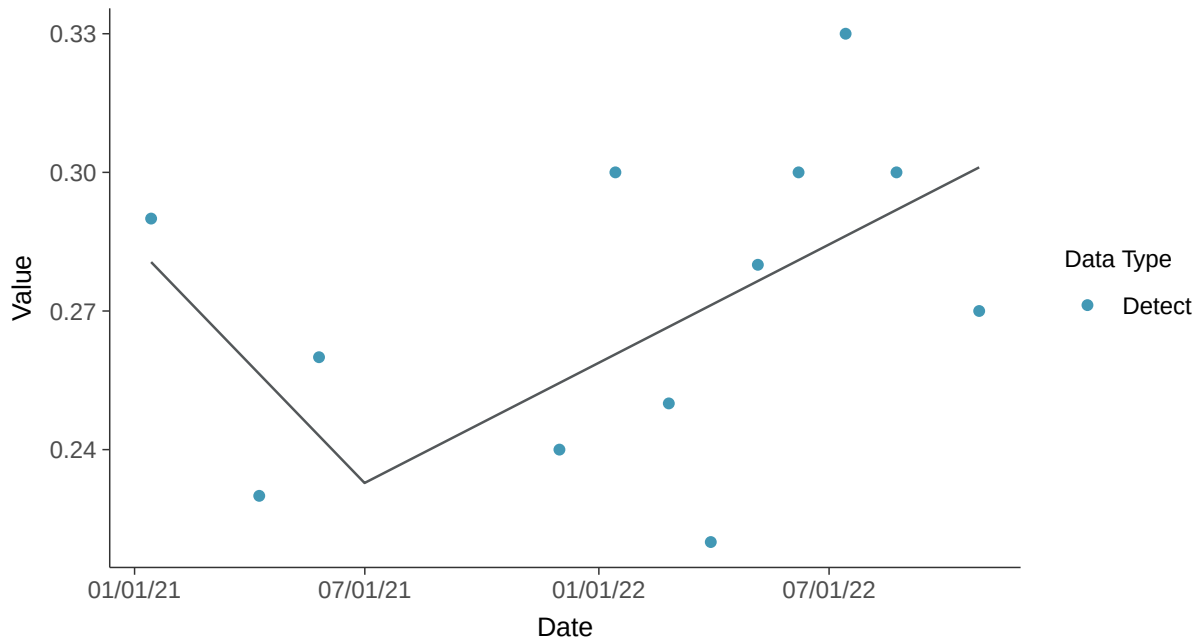
Lithium, W-5B (mg/l)





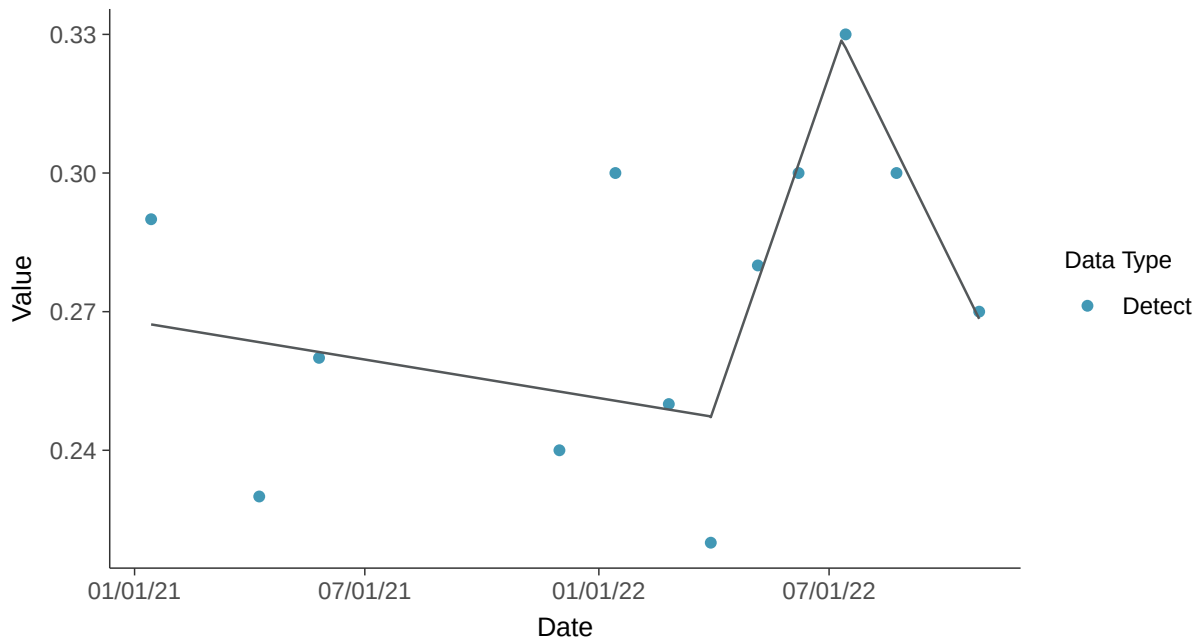
Trend Regression: Piecewise Linear-Linear

Lithium, W-5B (mg/l)



Trend Regression: Piecewise Linear-Linear-Linear

Lithium, W-5B (mg/l)

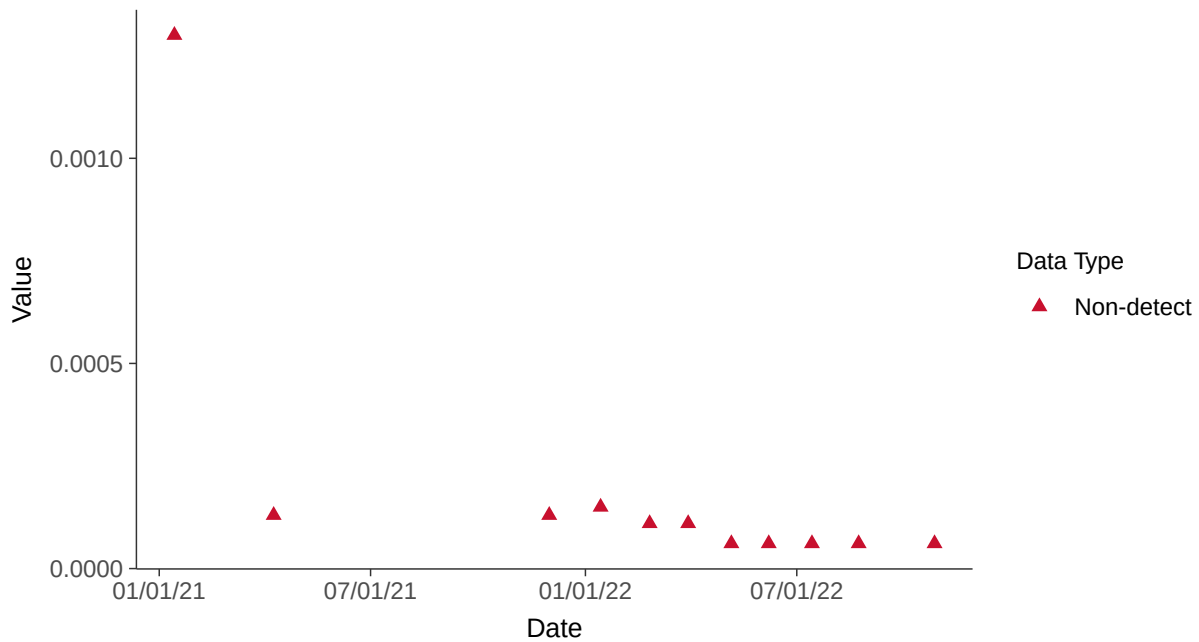


Appendix IV: Mercury, W-5B

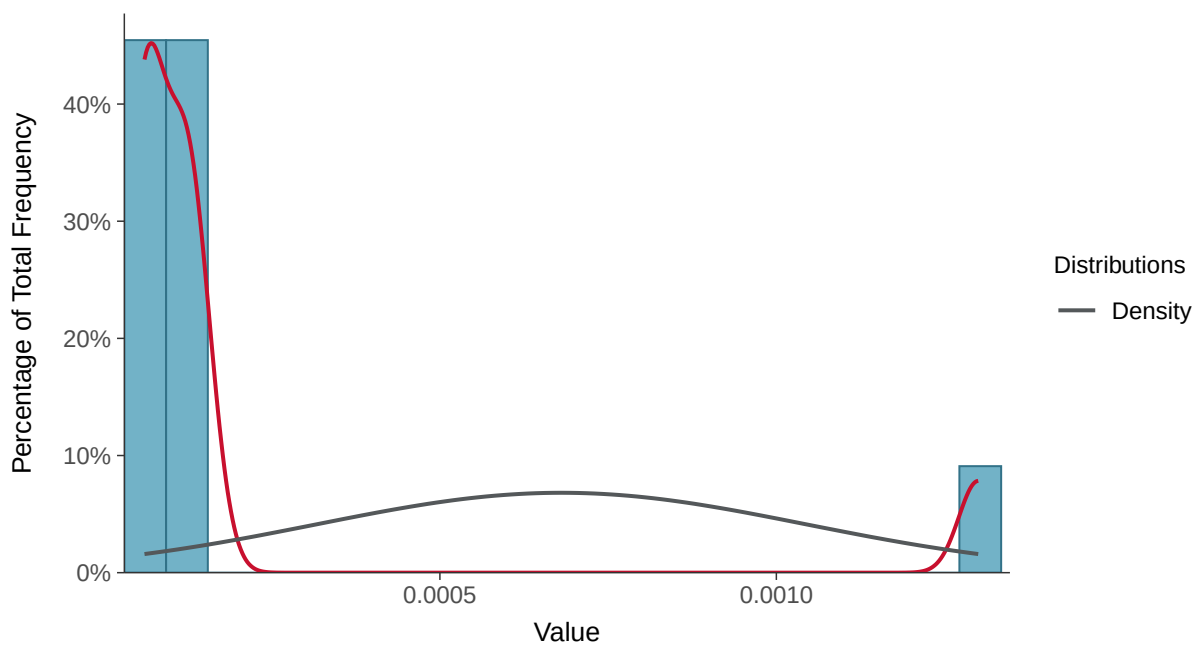
ID: 7_2_115

Scatter Plot

Mercury, W-5B (mg/l)

**Histogram**

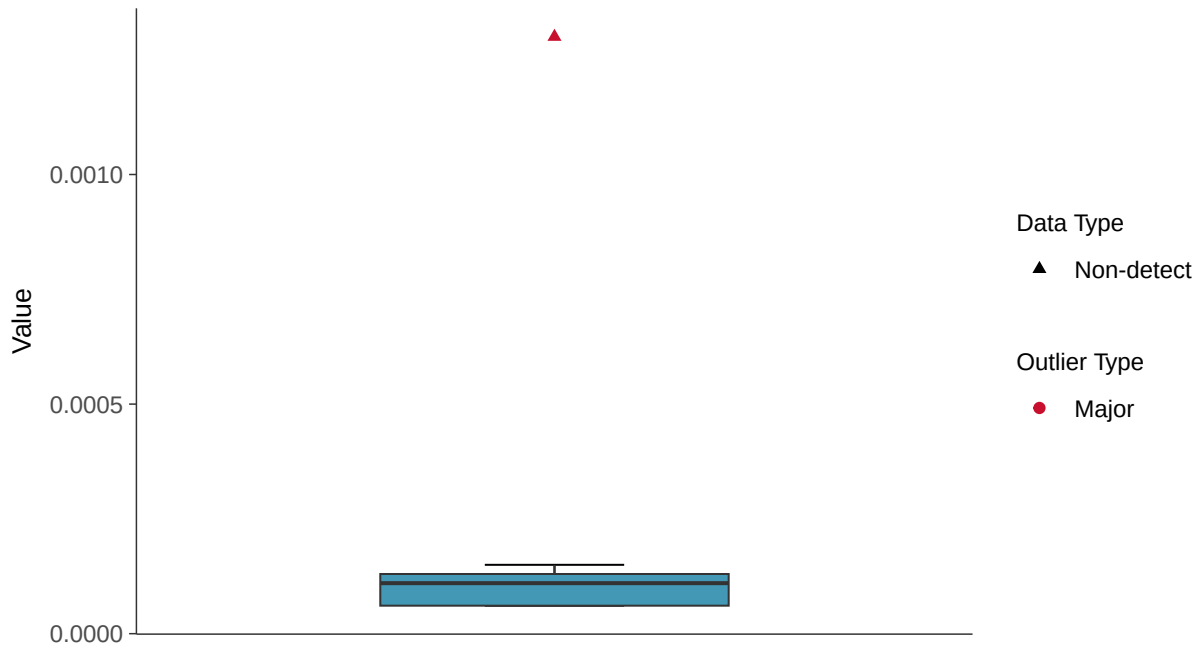
Mercury, W-5B (mg/l)



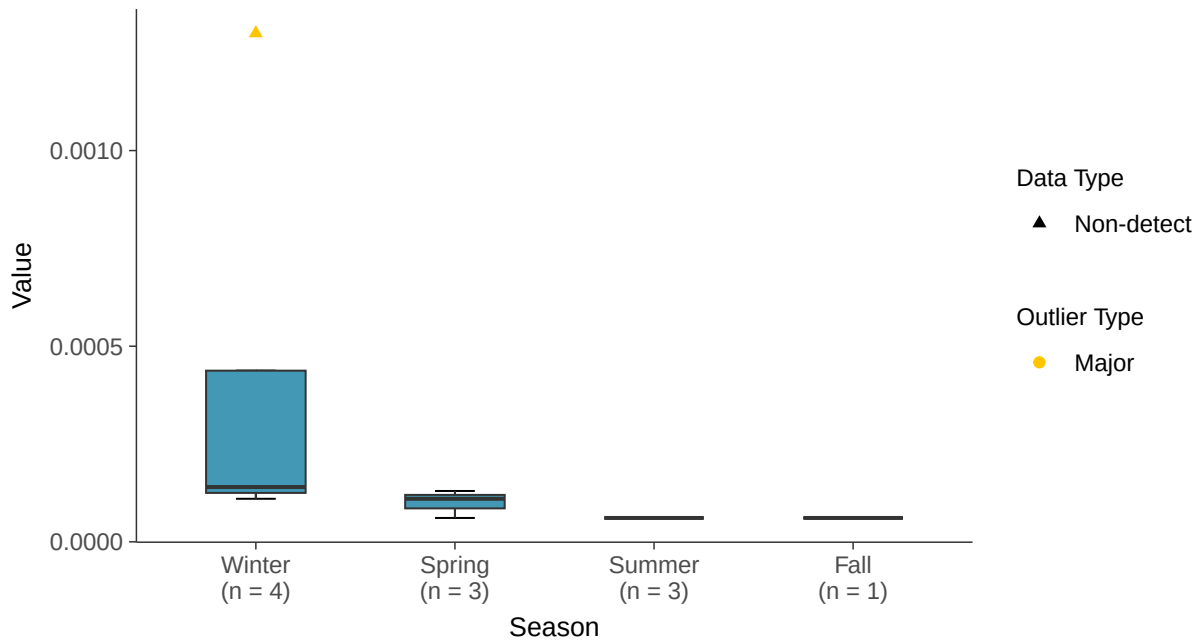
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Mercury, W-5B (mg/l)

**Boxplot by Season**

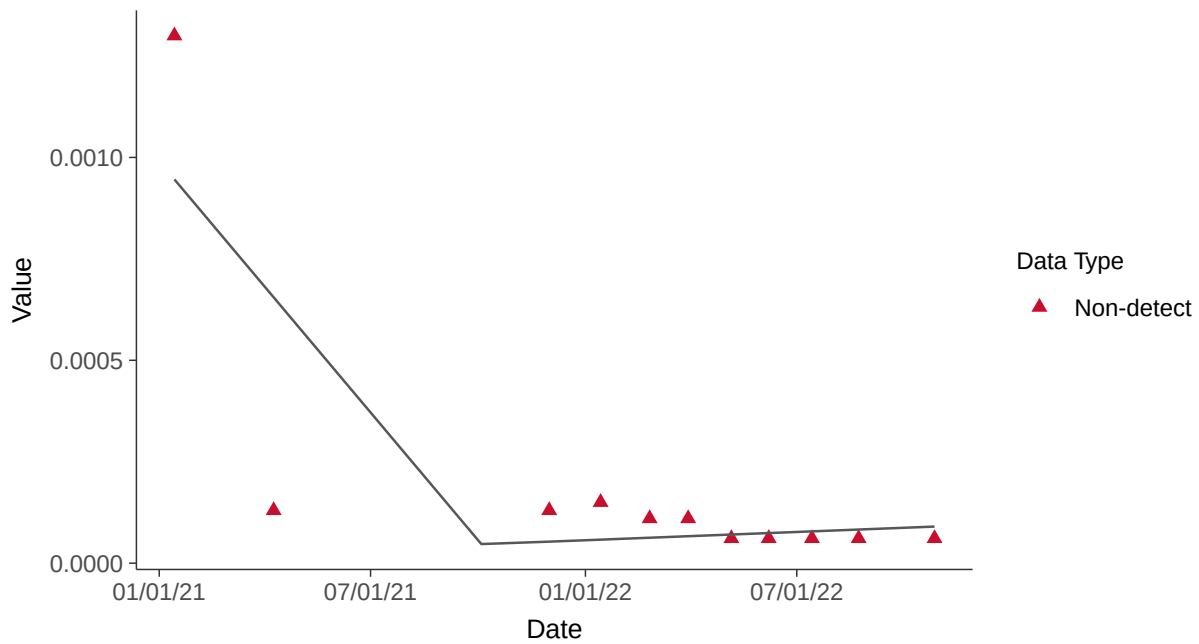
Mercury, W-5B (mg/l)





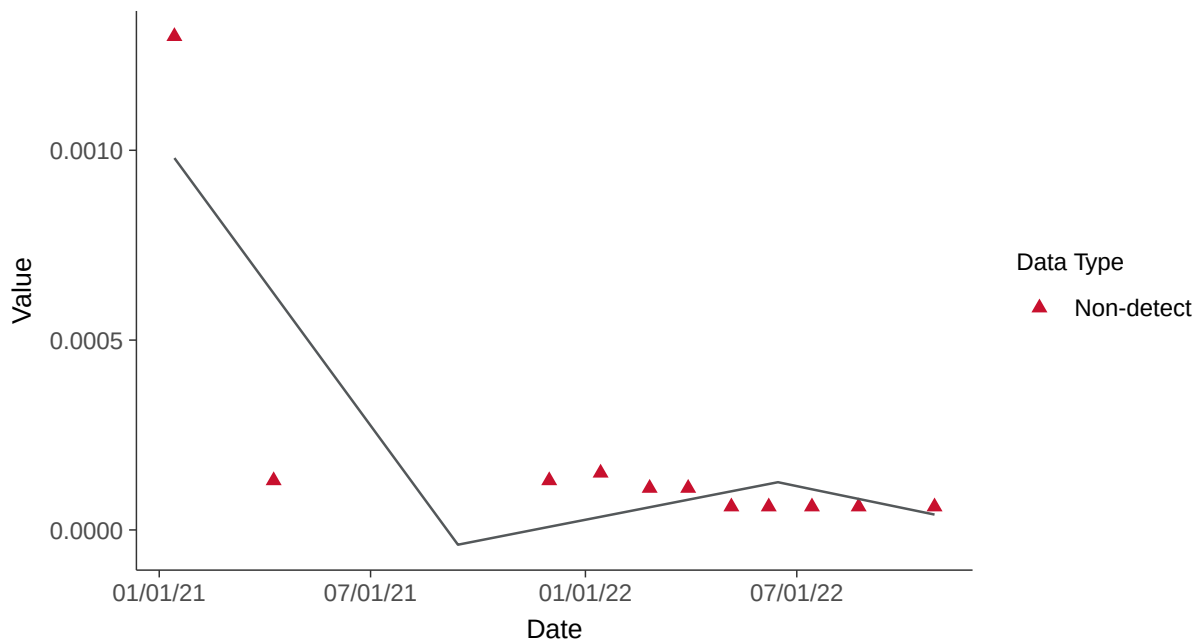
Trend Regression: Piecewise Linear-Linear

Mercury, W-5B (mg/l)



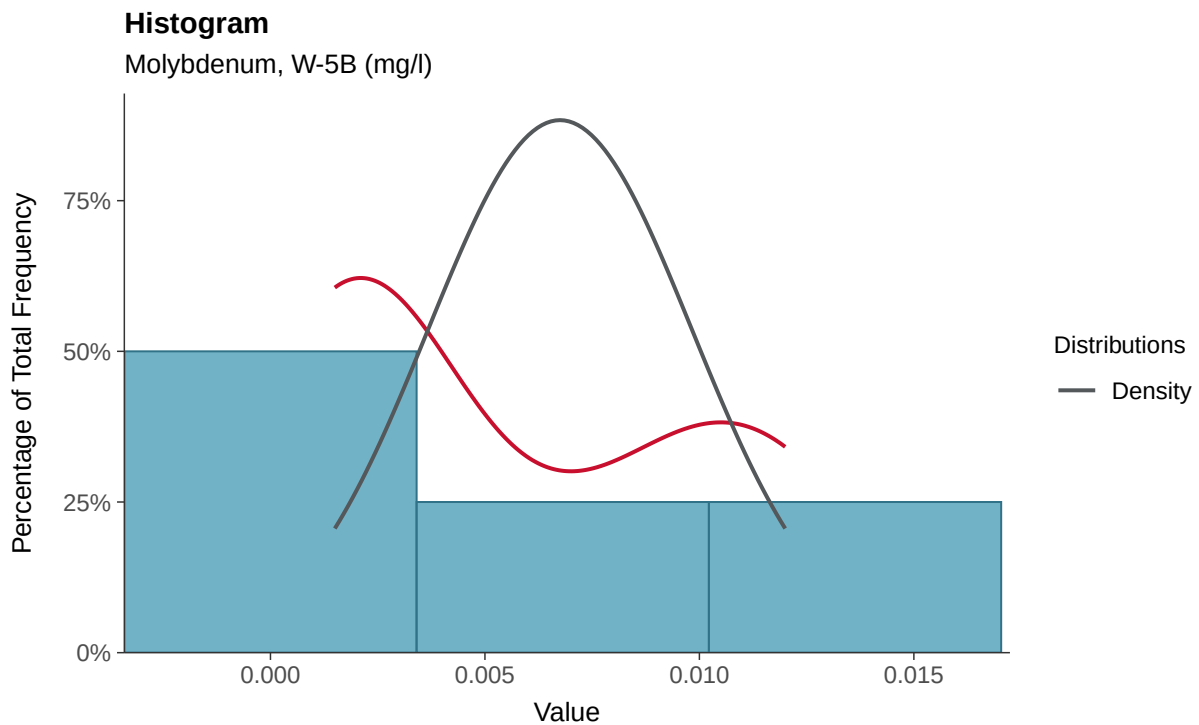
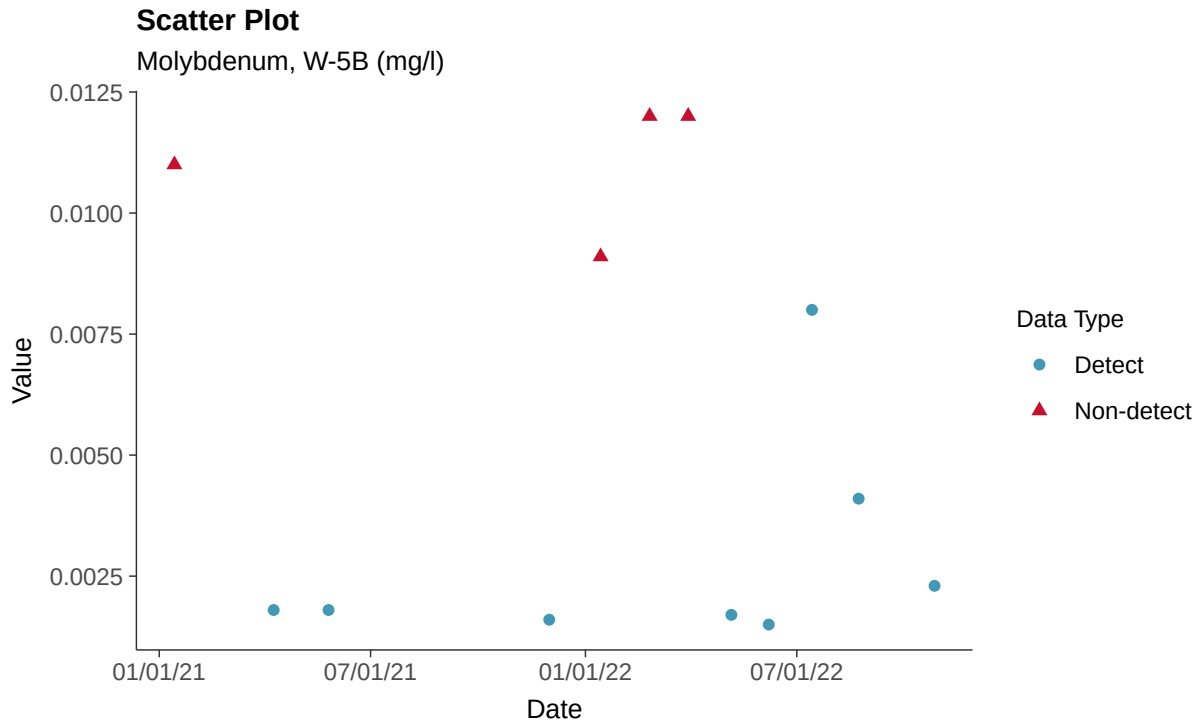
Trend Regression: Piecewise Linear-Linear-Linear

Mercury, W-5B (mg/l)



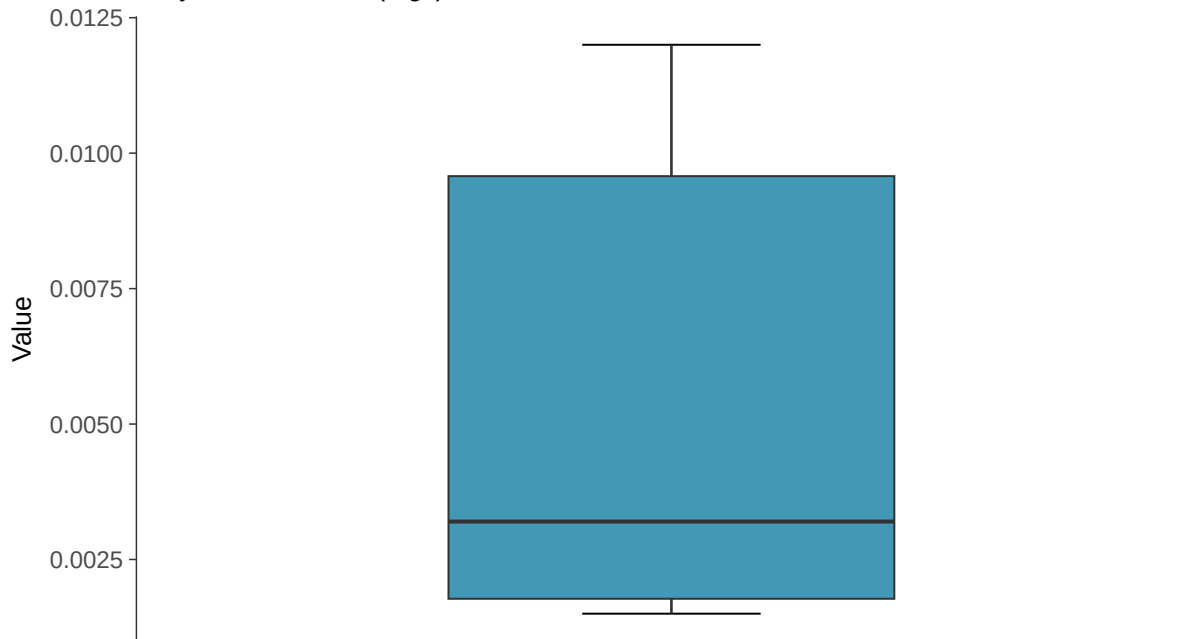
Appendix IV: Molybdenum, W-5B

ID: 7_2_116



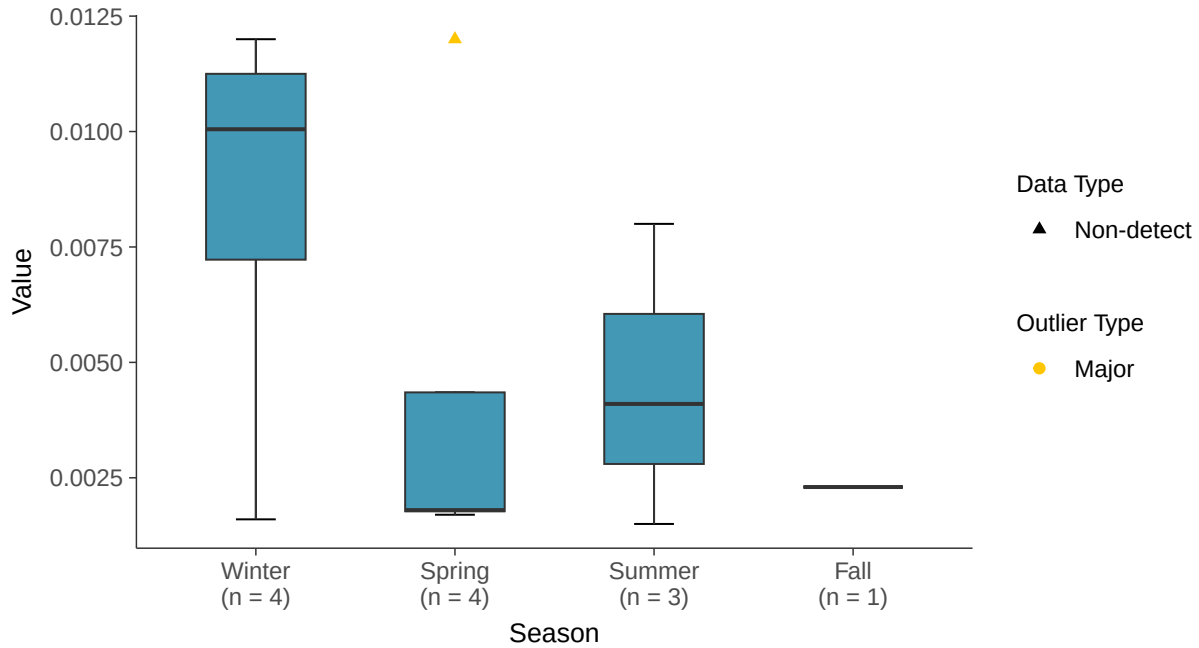
Boxplot

Molybdenum, W-5B (mg/l)



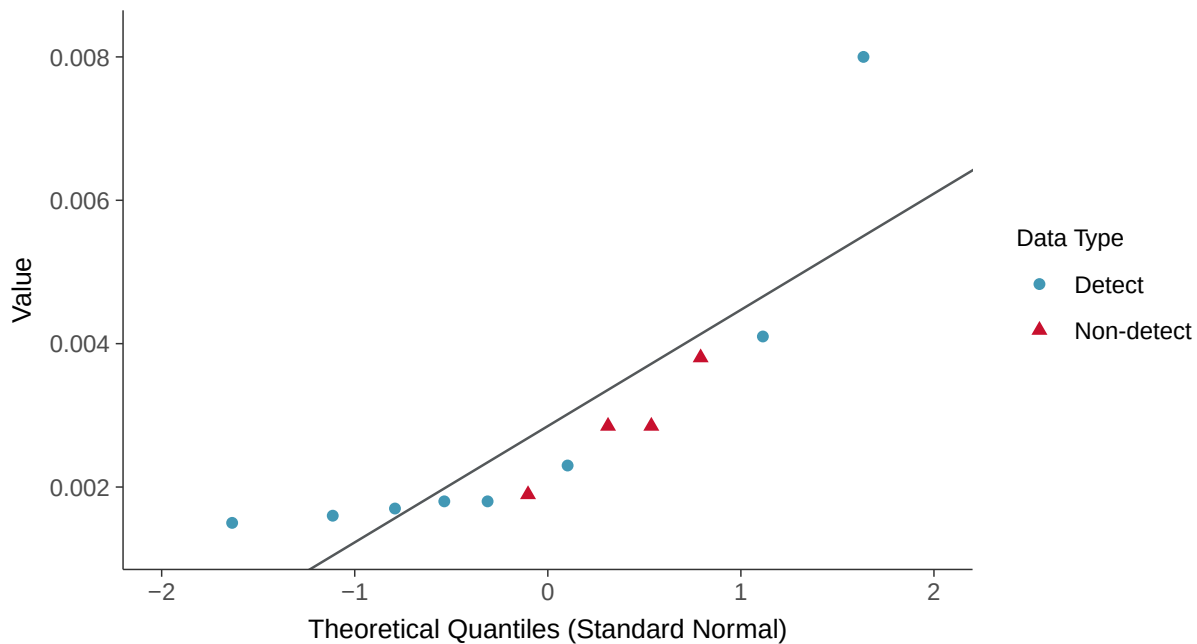
Boxplot by Season

Molybdenum, W-5B (mg/l)



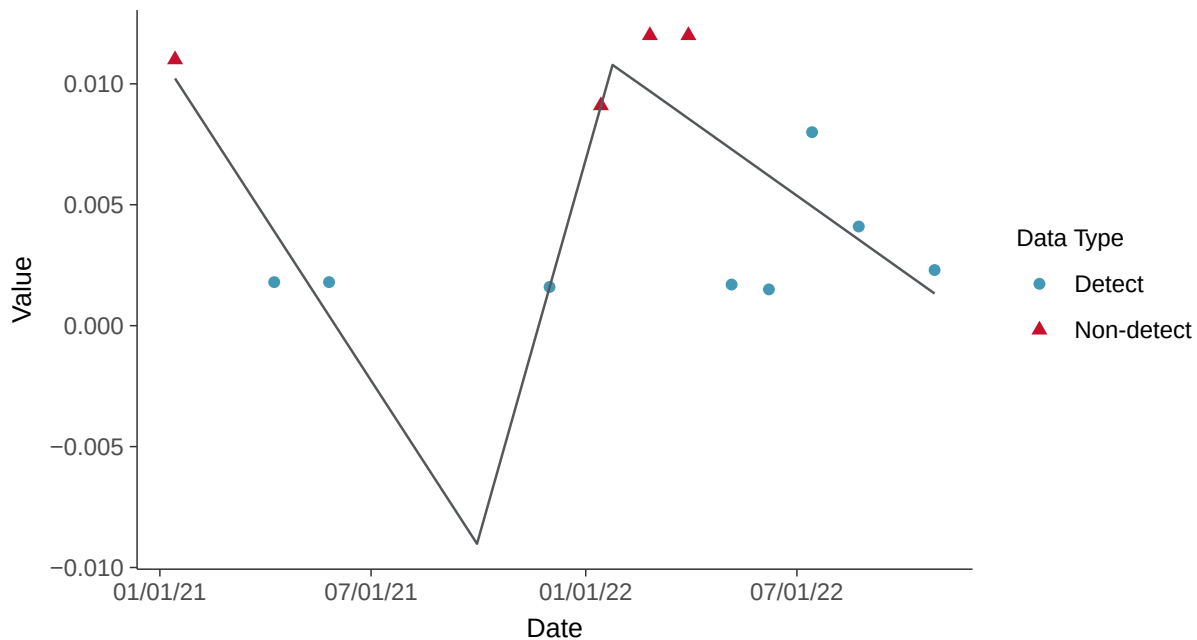
Normal Q-Q plot using ROS Imputed Estimates

Molybdenum, W-5B (mg/l)



Trend Regression: Piecewise Linear-Linear-Linear

Molybdenum, W-5B (mg/l)

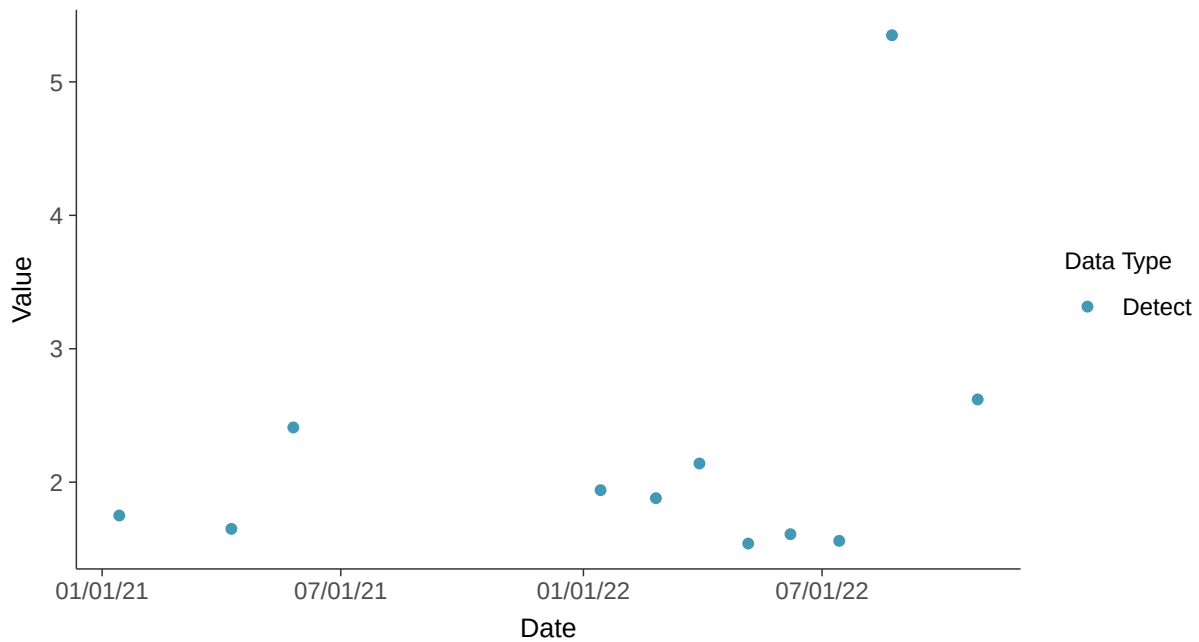


Appendix IV: Radium-226+228, W-5B

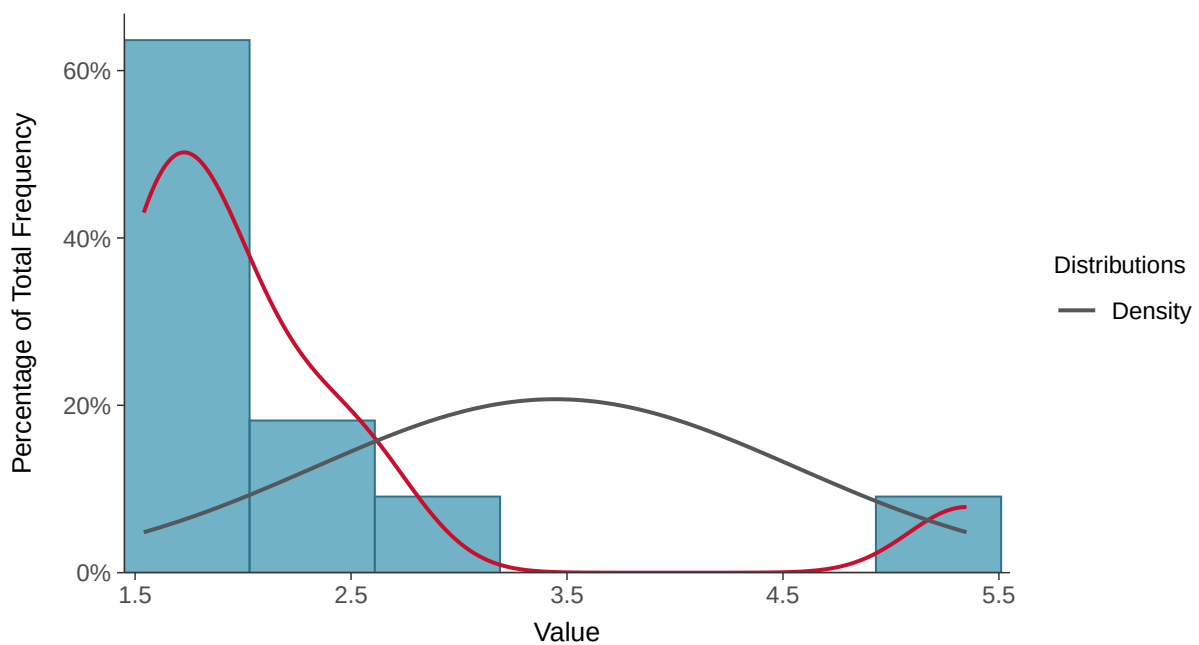
ID: 7_2_120

Scatter Plot

Radium-226+228, W-5B (pci/l)

**Histogram**

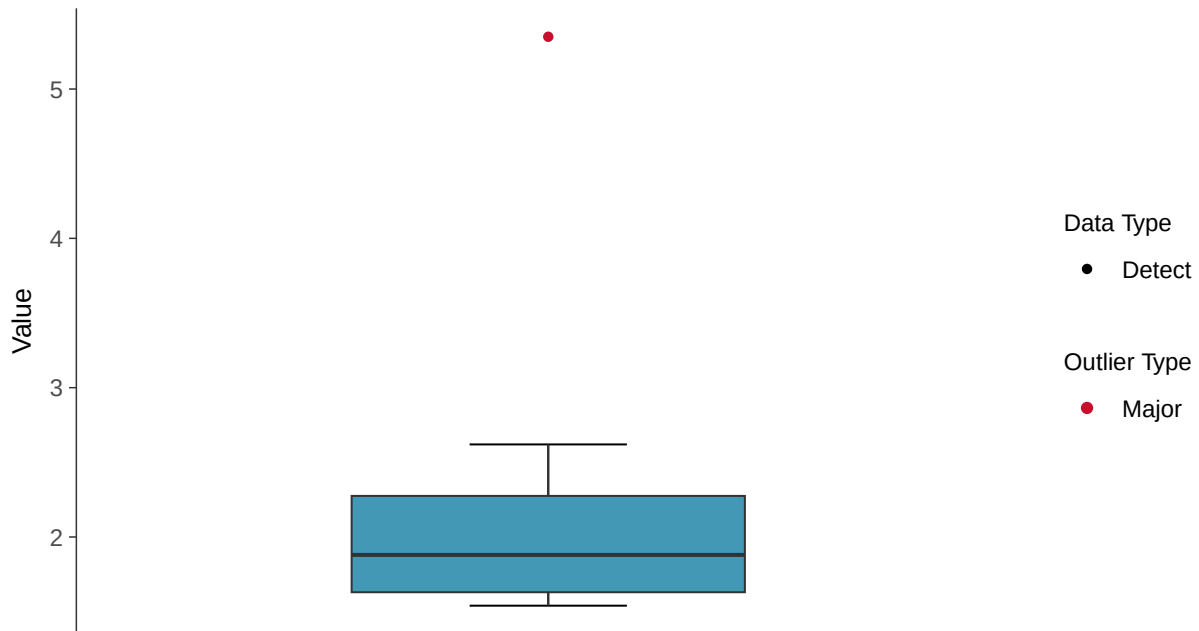
Radium-226+228, W-5B (pci/l)





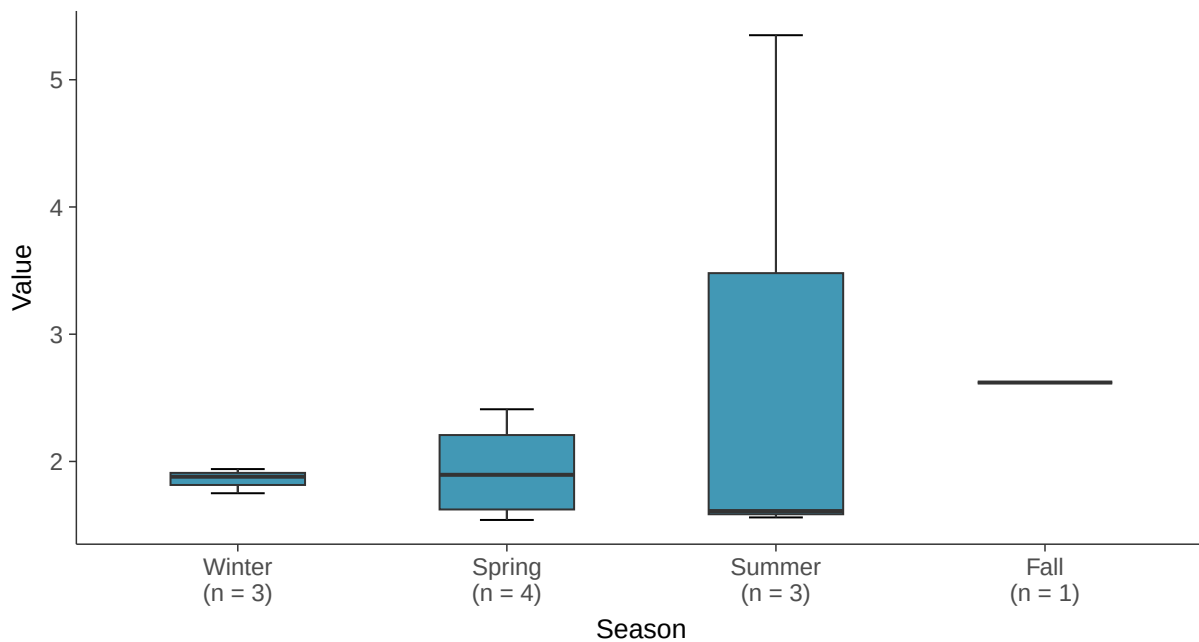
Boxplot

Radium-226+228, W-5B (pci/l)



Boxplot by Season

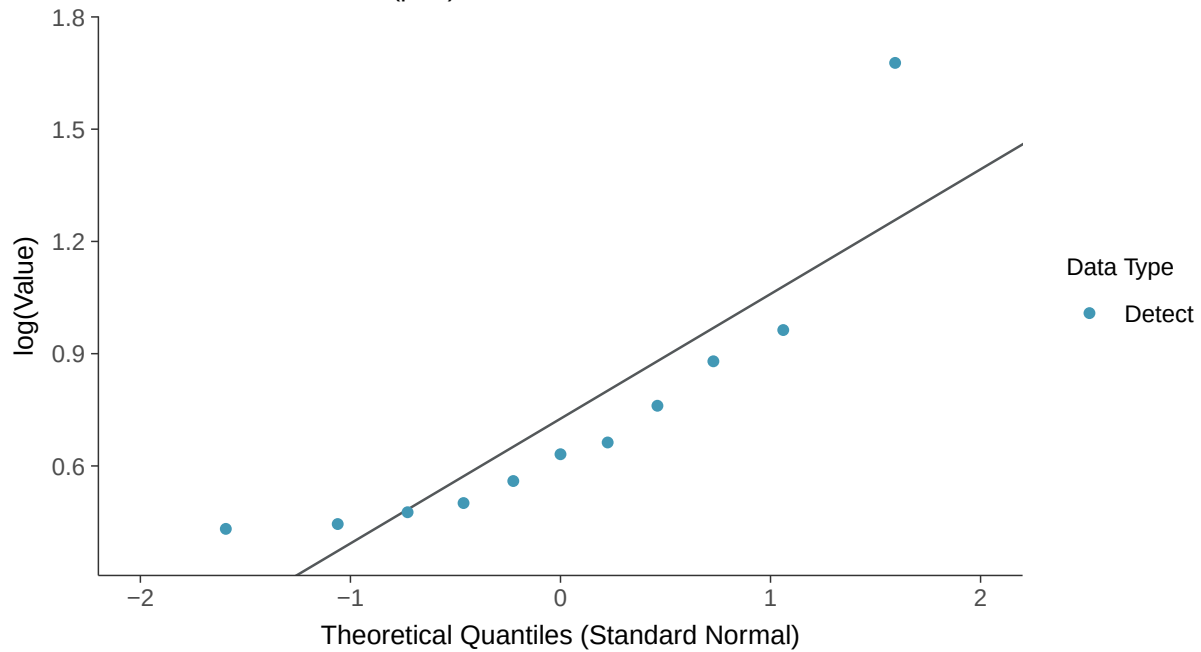
Radium-226+228, W-5B (pci/l)



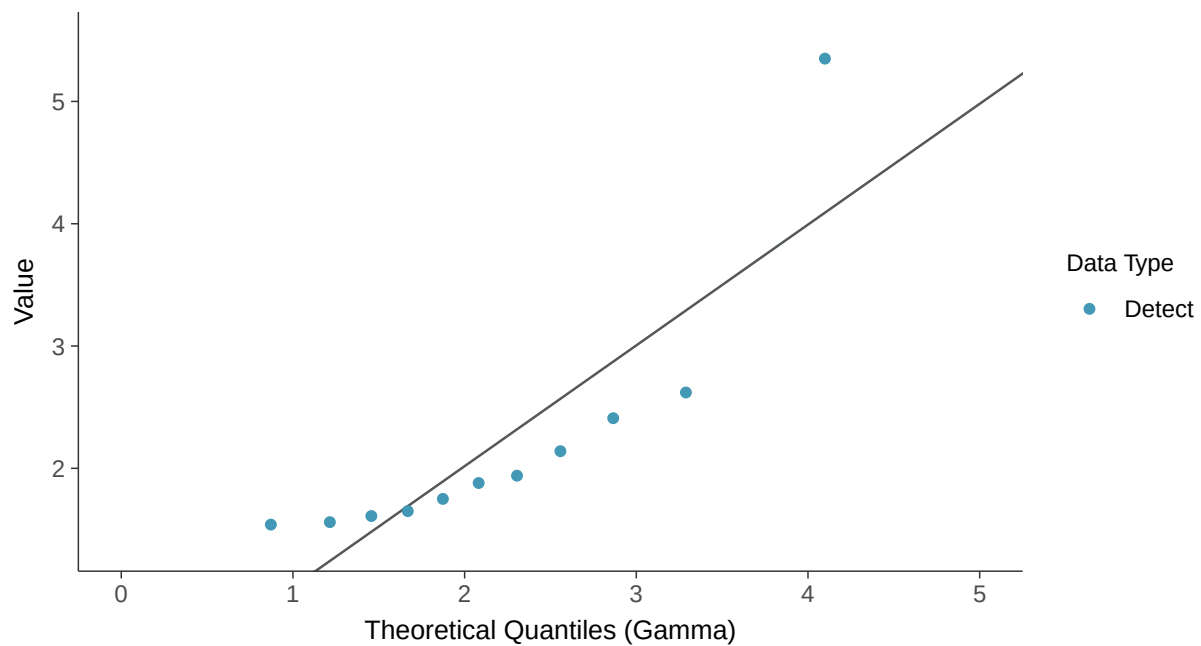
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Lognormal Q-Q plot

Radium-226+228, W-5B (pci/l)

**Gamma Q-Q plot**

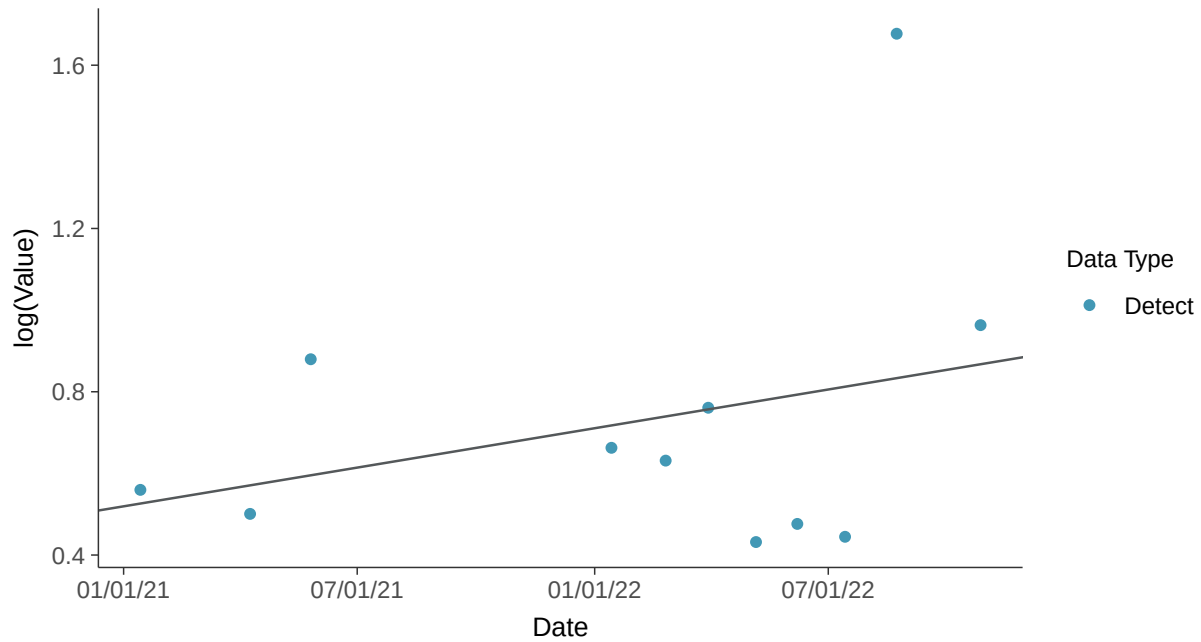
Radium-226+228, W-5B (pci/l)



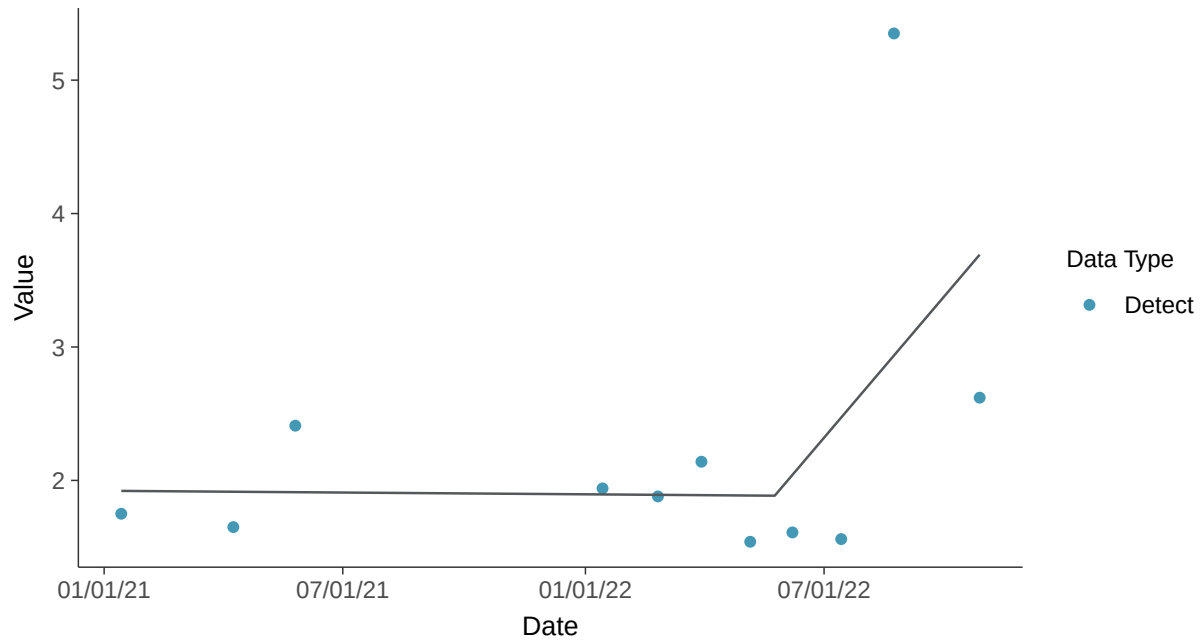
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Trend Regression: Lognormal MLE

Radium-226+228, W-5B (pci/l)

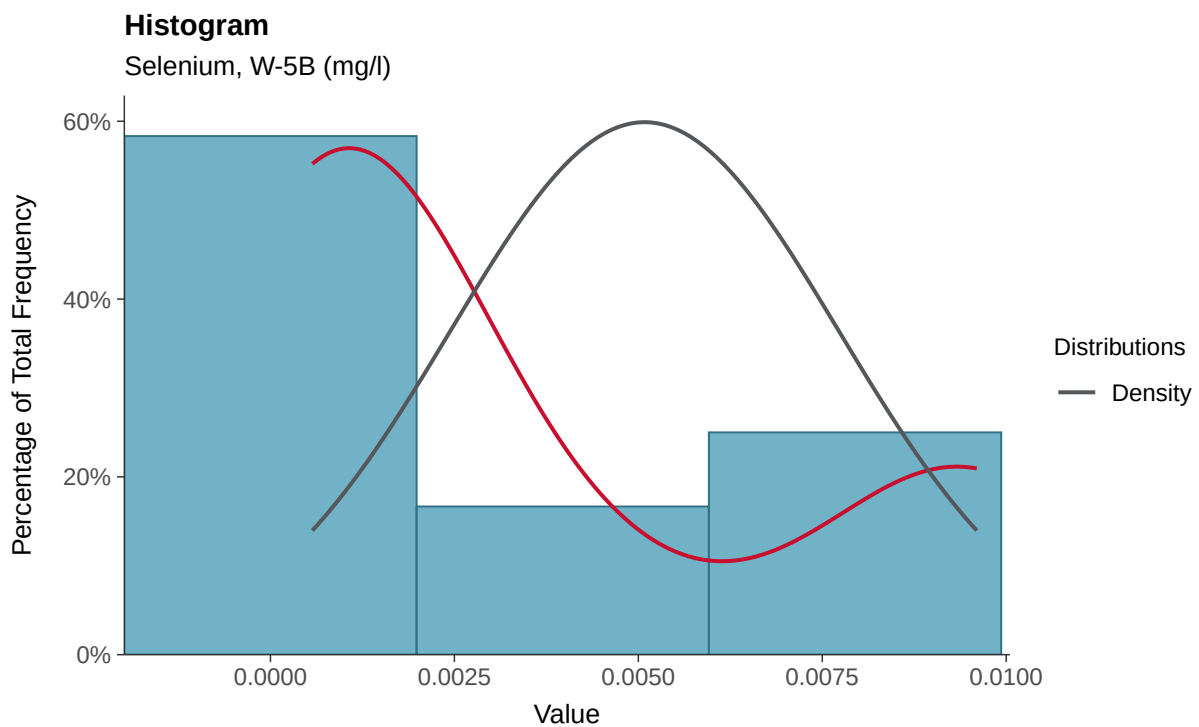
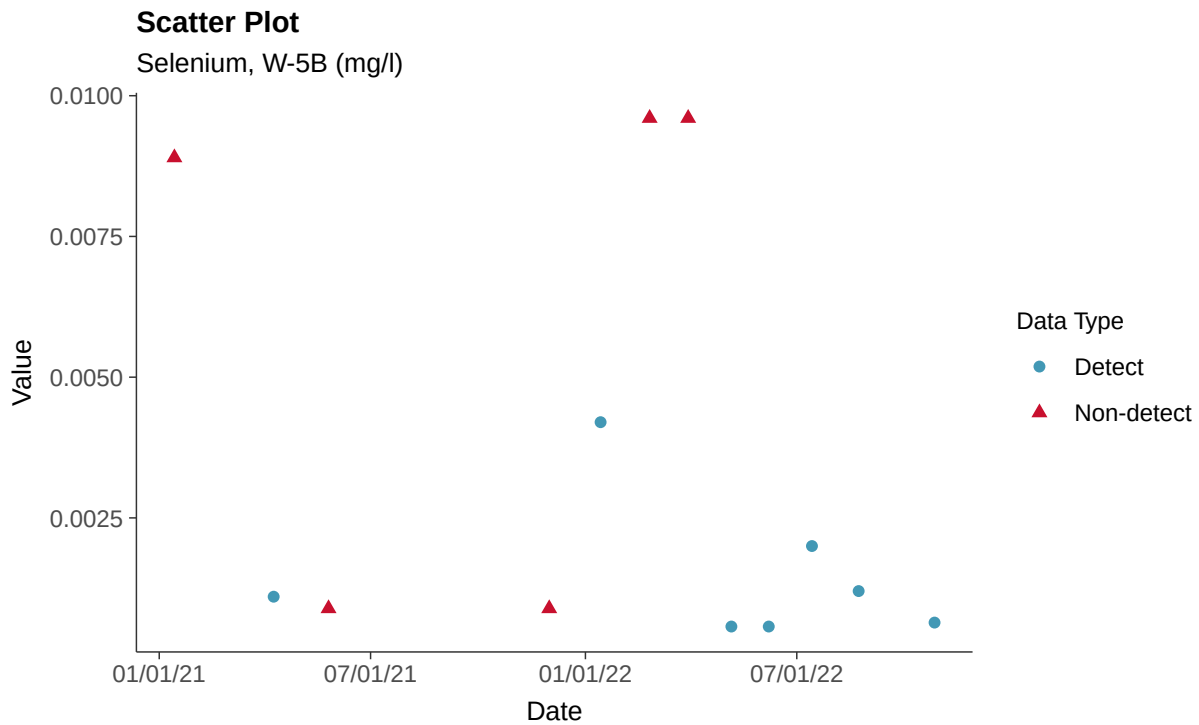
**Trend Regression: Piecewise Linear-Linear**

Radium-226+228, W-5B (pci/l)



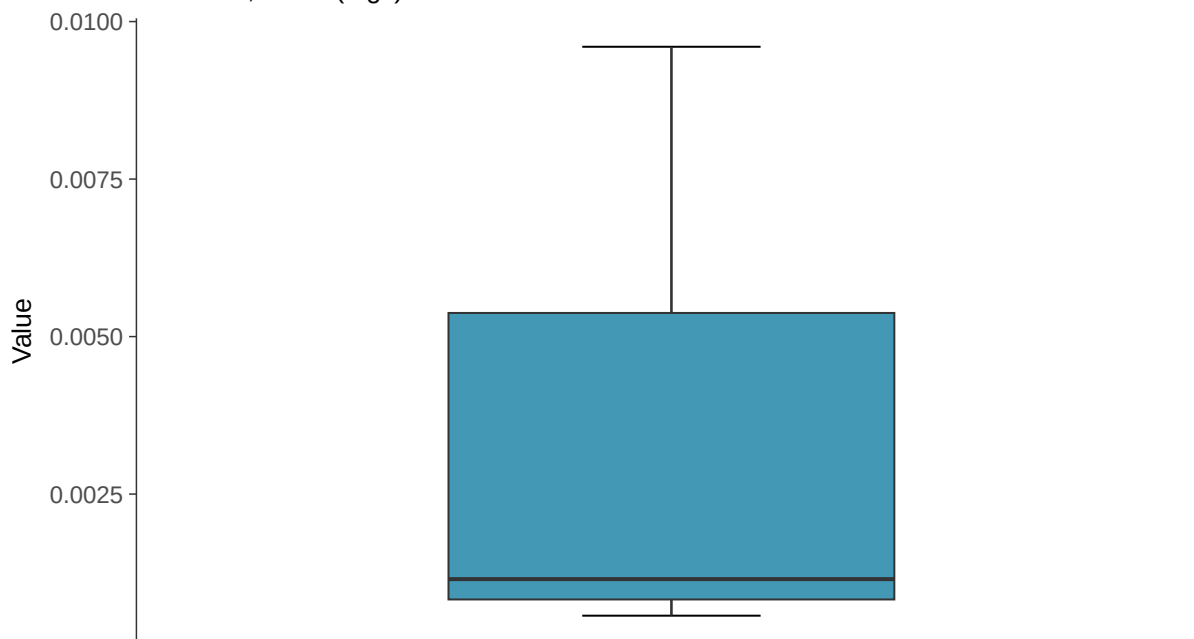
Appendix IV: Selenium, W-5B

ID: 7_2_122



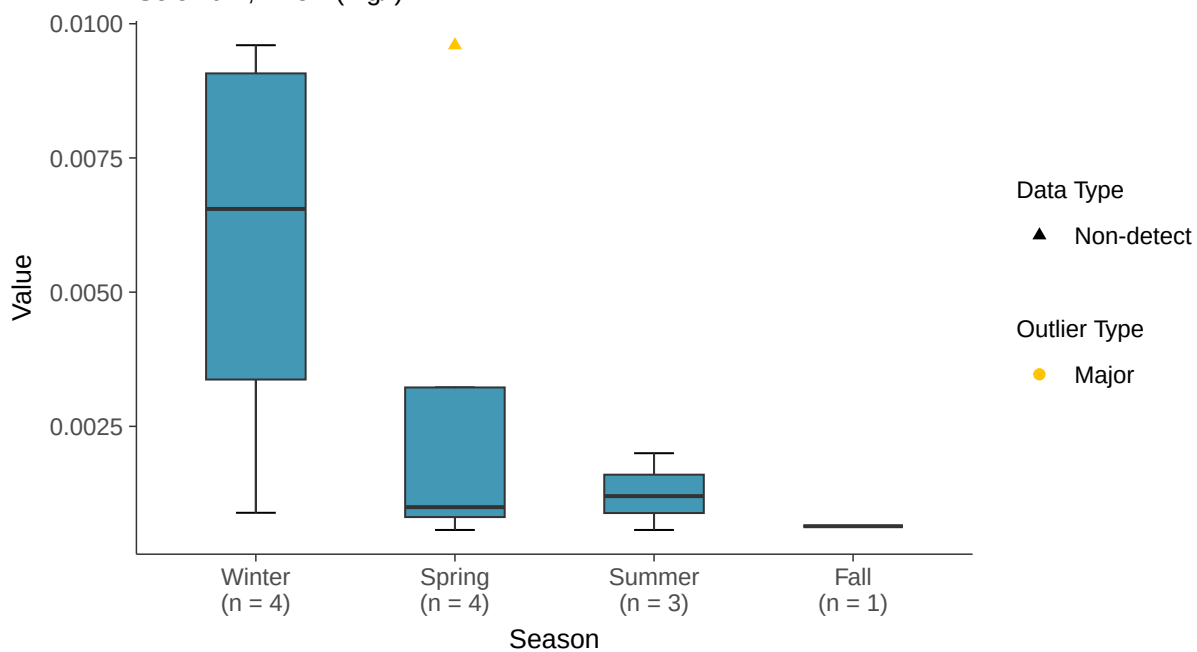
Boxplot

Selenium, W-5B (mg/l)



Boxplot by Season

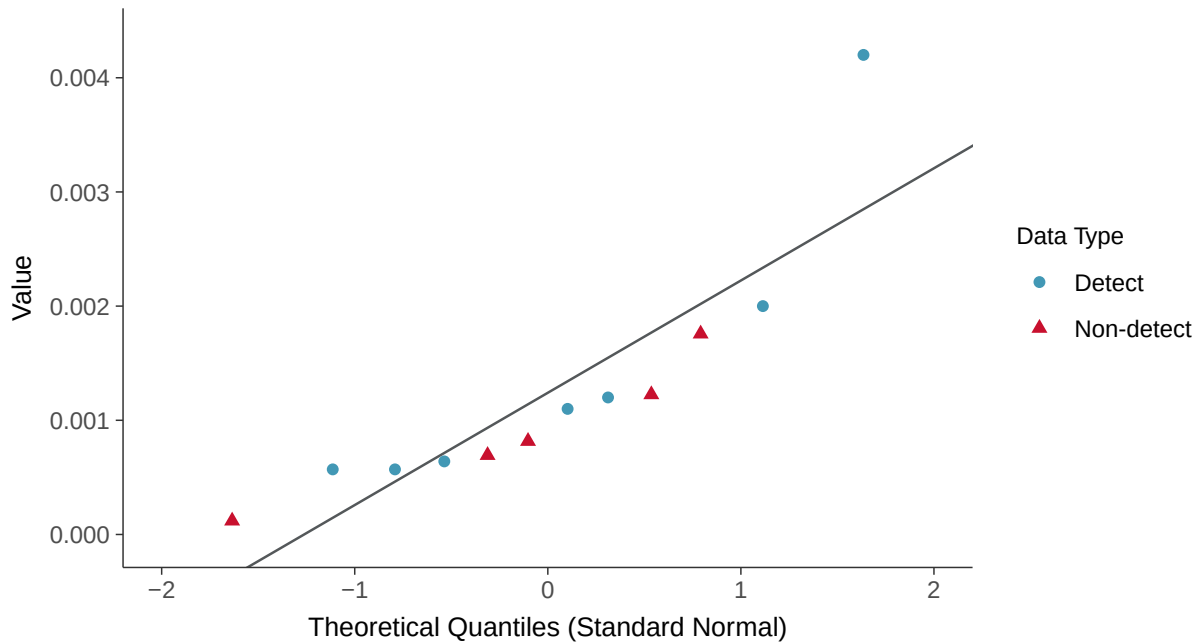
Selenium, W-5B (mg/l)



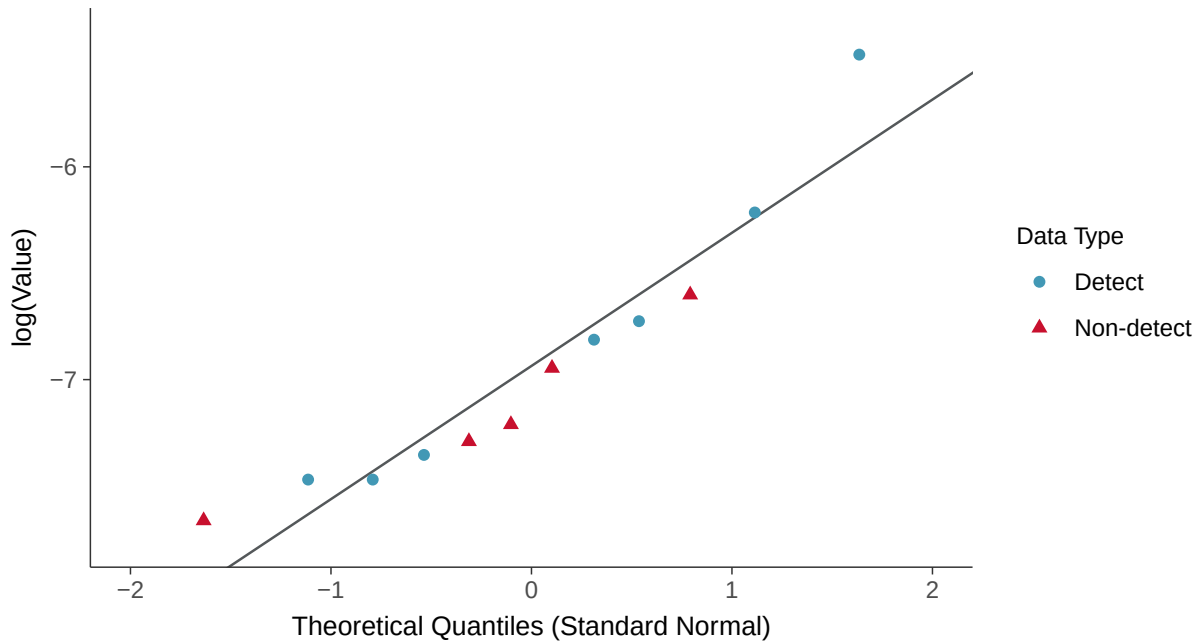
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Normal Q-Q plot using ROS Imputed Estimates

Selenium, W-5B (mg/l)

**Lognormal Q-Q plot using ROS Imputed Estimates**

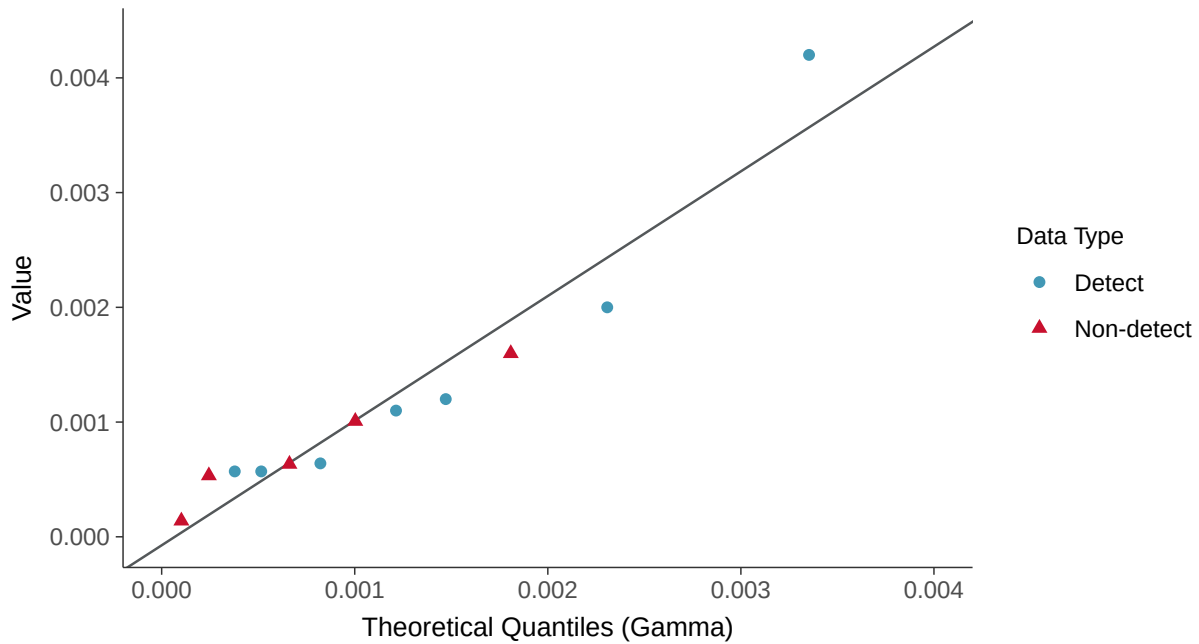
Selenium, W-5B (mg/l)



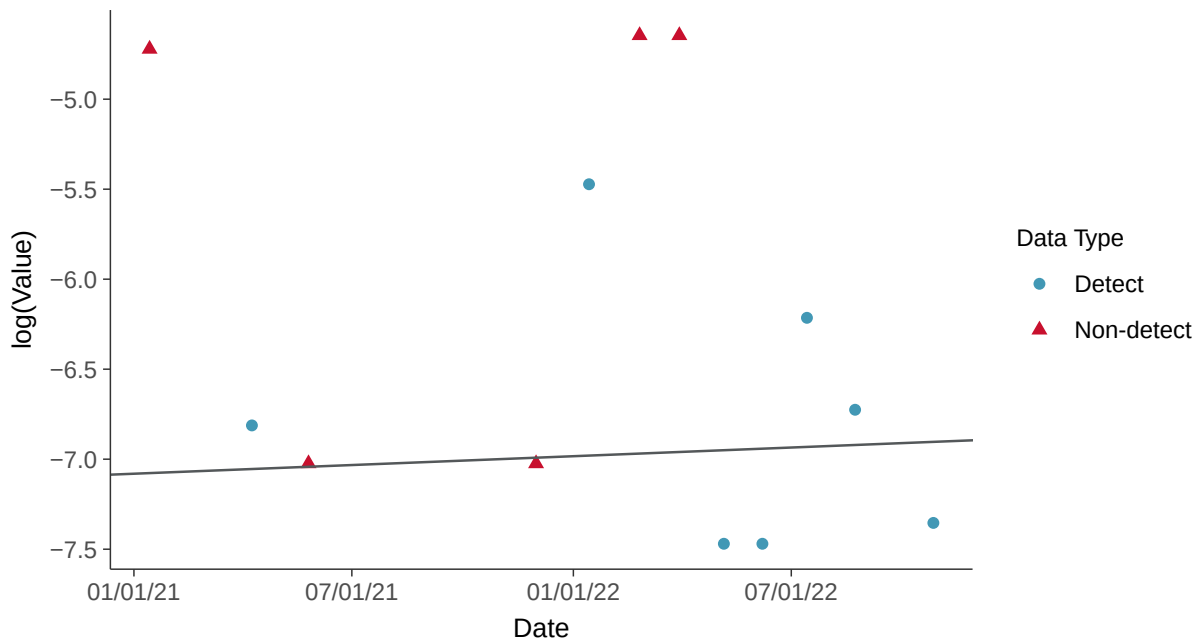
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Gamma Q-Q plot using ROS Imputed Estimates

Selenium, W-5B (mg/l)

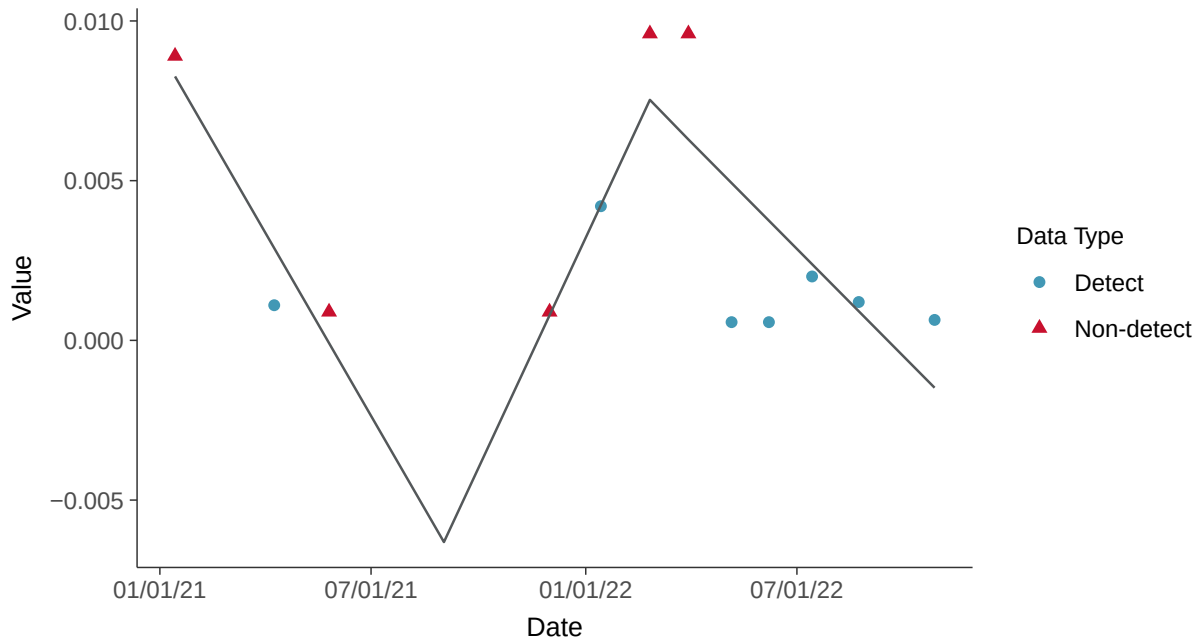
**Trend Regression: Lognormal MLE**

Selenium, W-5B (mg/l)



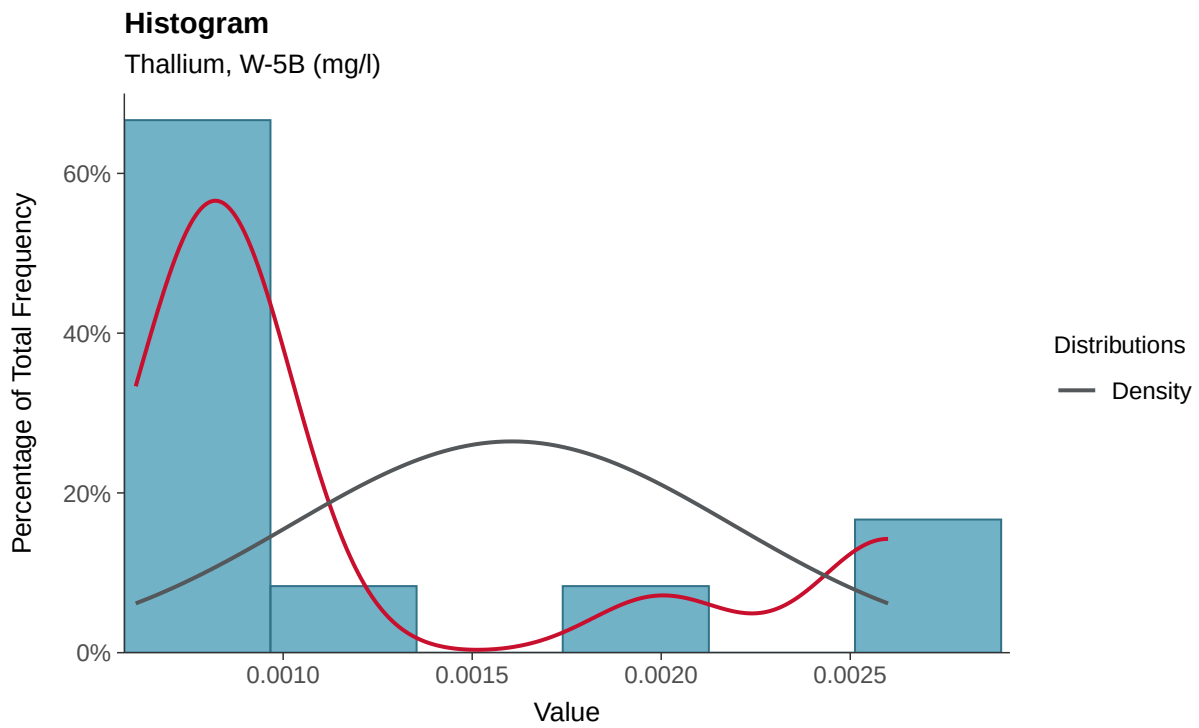
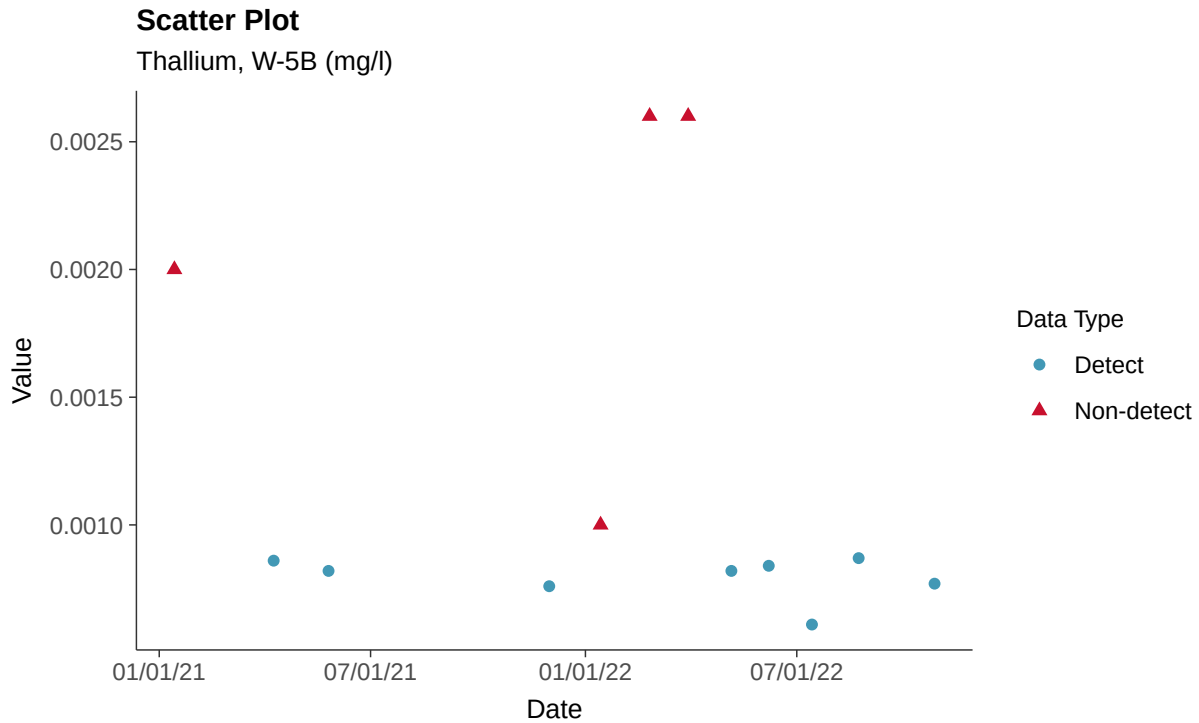
**Trend Regression: Piecewise Linear-Linear-Linear**

Selenium, W-5B (mg/l)



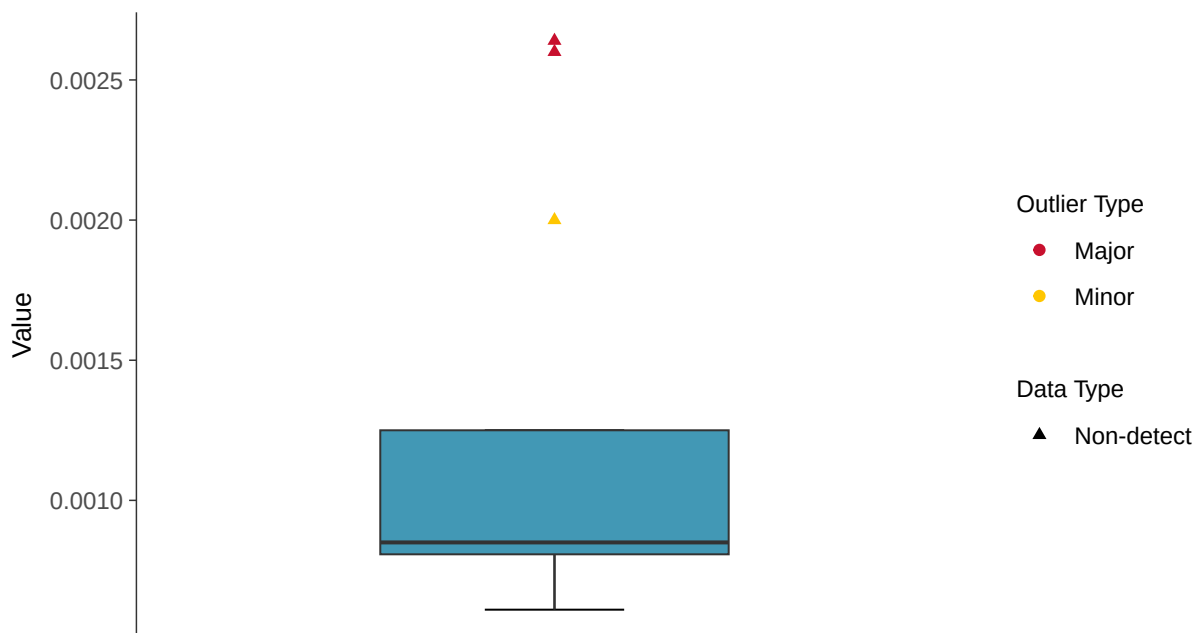
Appendix IV: Thallium, W-5B

ID: 7_2_126



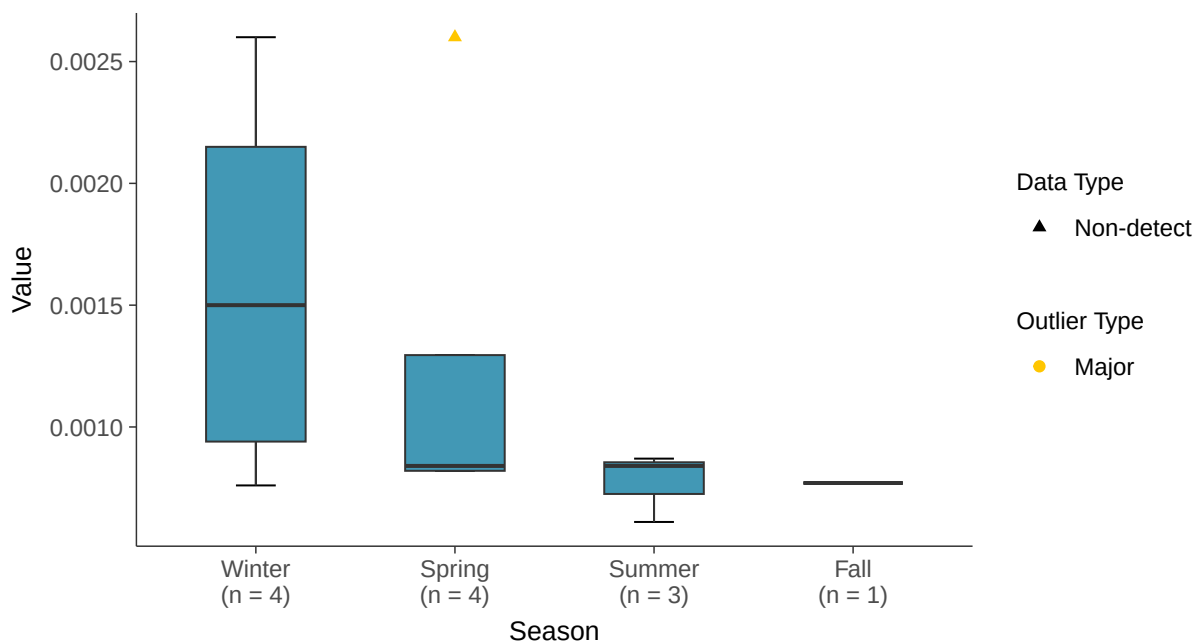
Boxplot

Thallium, W-5B (mg/l)



Boxplot by Season

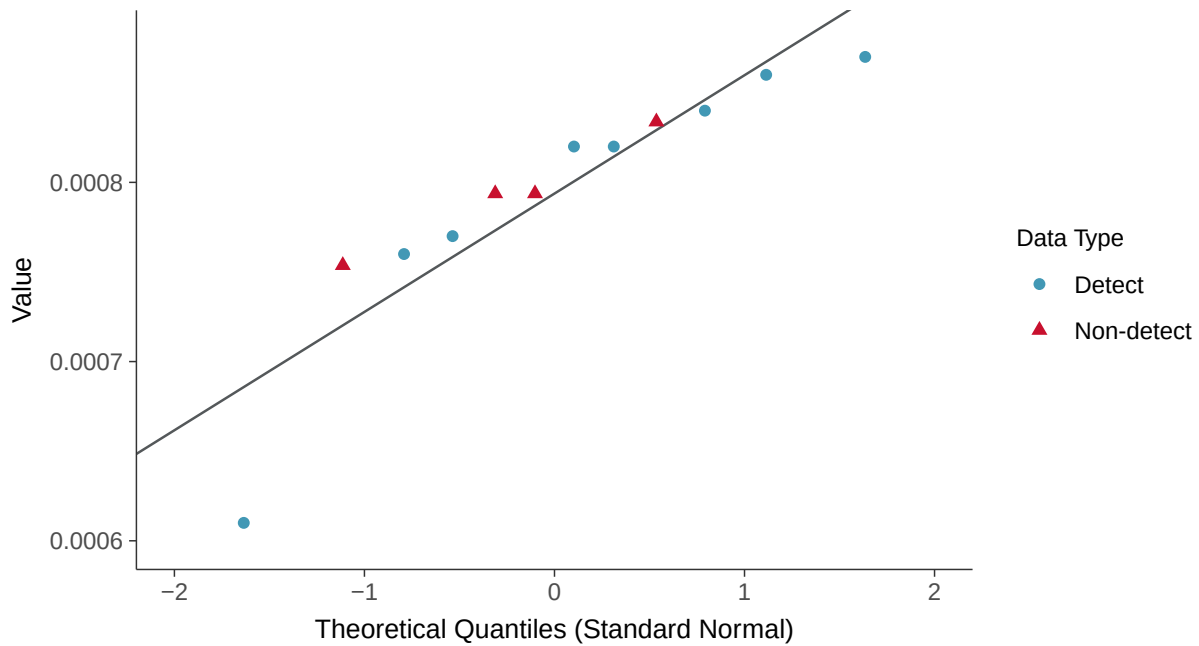
Thallium, W-5B (mg/l)



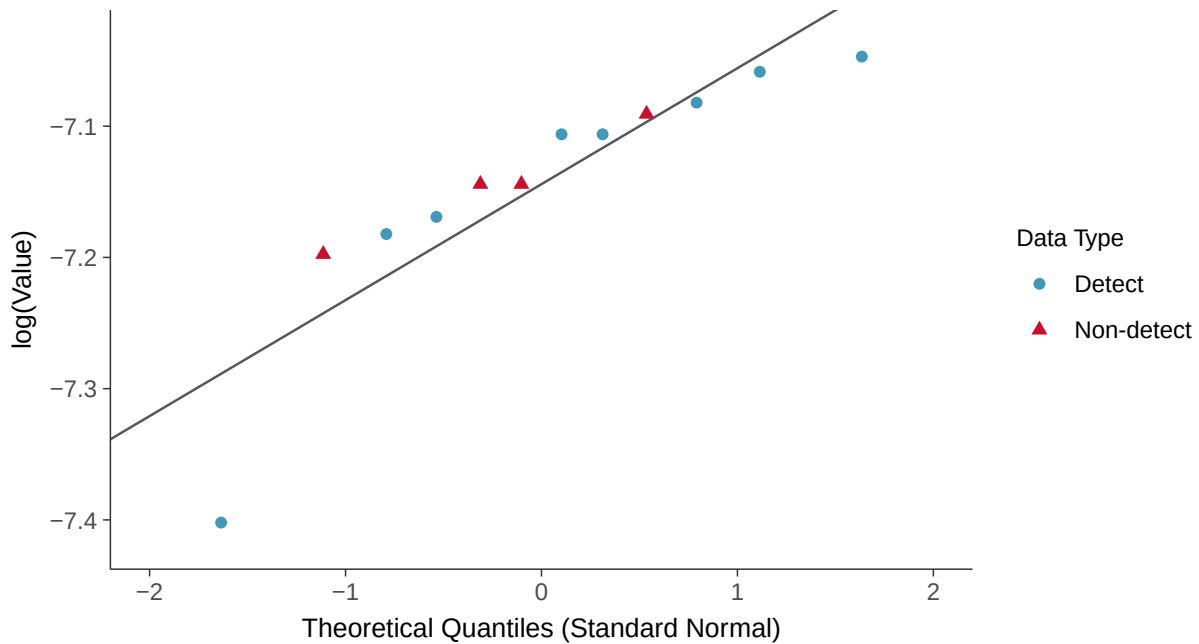
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Normal Q-Q plot using ROS Imputed Estimates

Thallium, W-5B (mg/l)

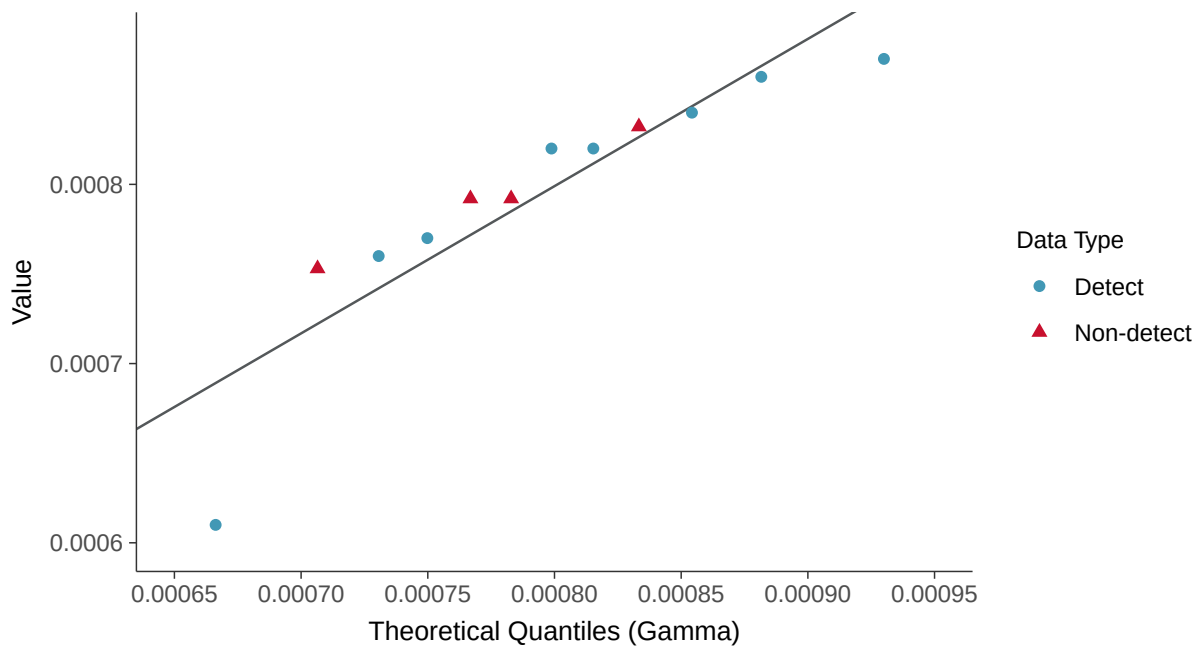
**Lognormal Q-Q plot using ROS Imputed Estimates**

Thallium, W-5B (mg/l)



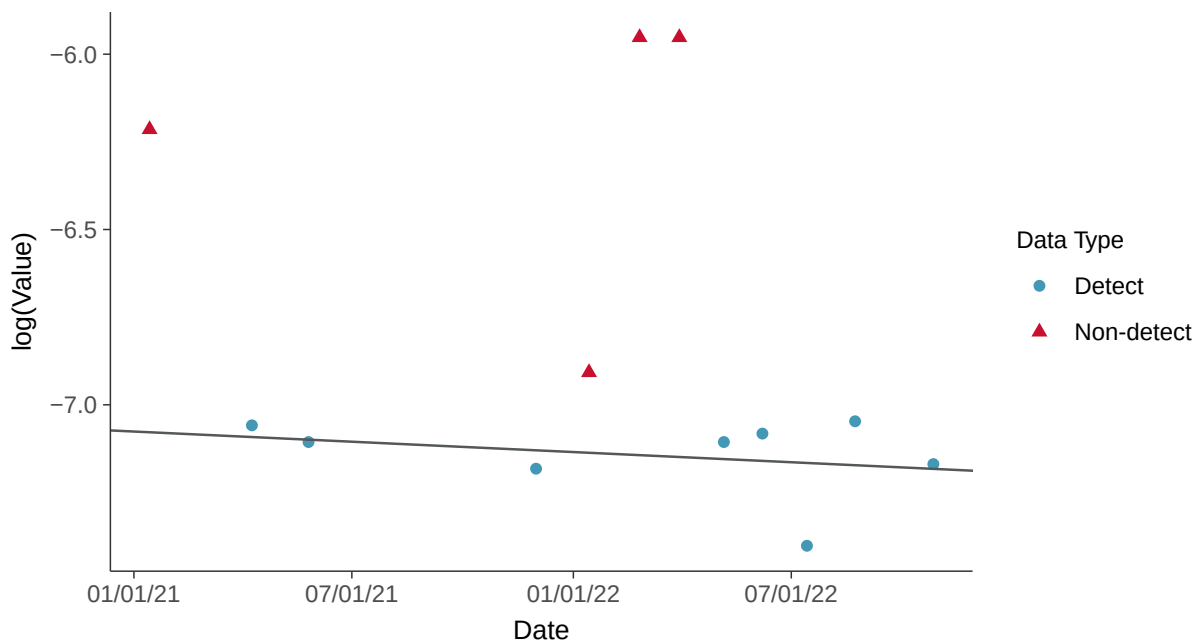
Gamma Q-Q plot using ROS Imputed Estimates

Thallium, W-5B (mg/l)



Trend Regression: Lognormal MLE

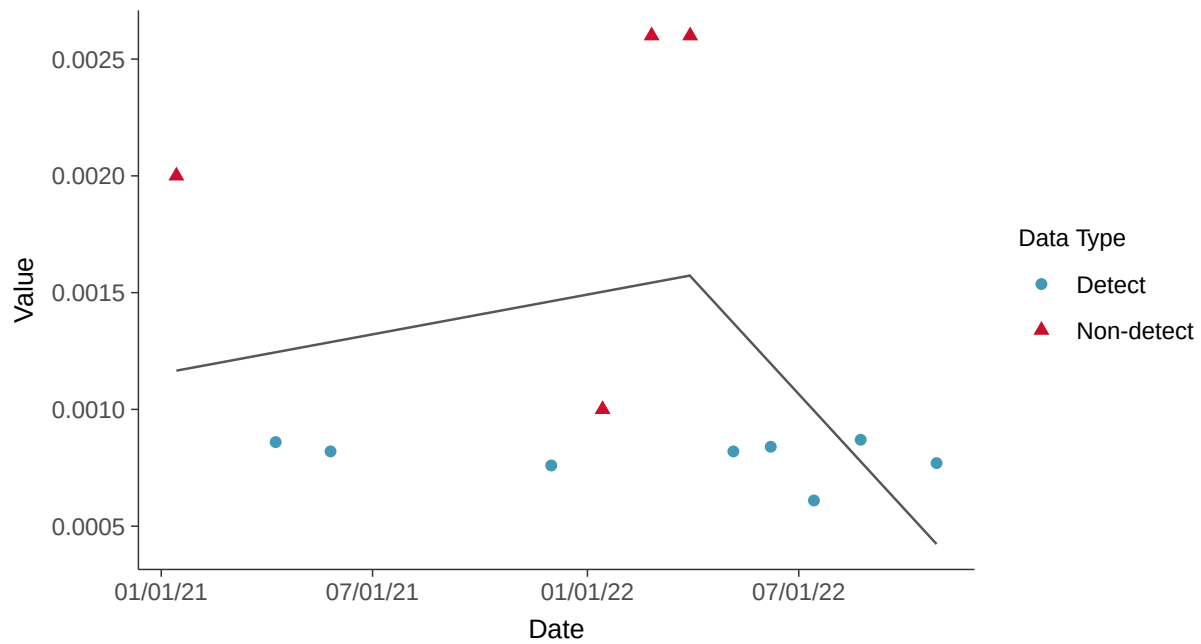
Thallium, W-5B (mg/l)





Trend Regression: Piecewise Linear-Linear

Thallium, W-5B (mg/l)

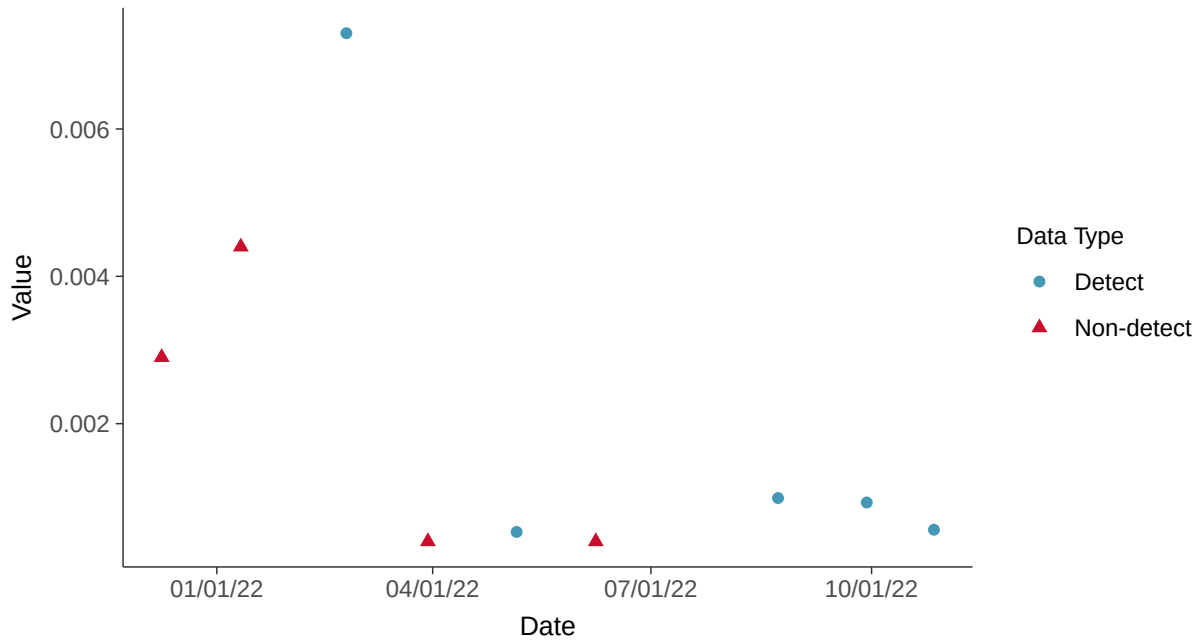


Appendix IV: Antimony, W-6B1

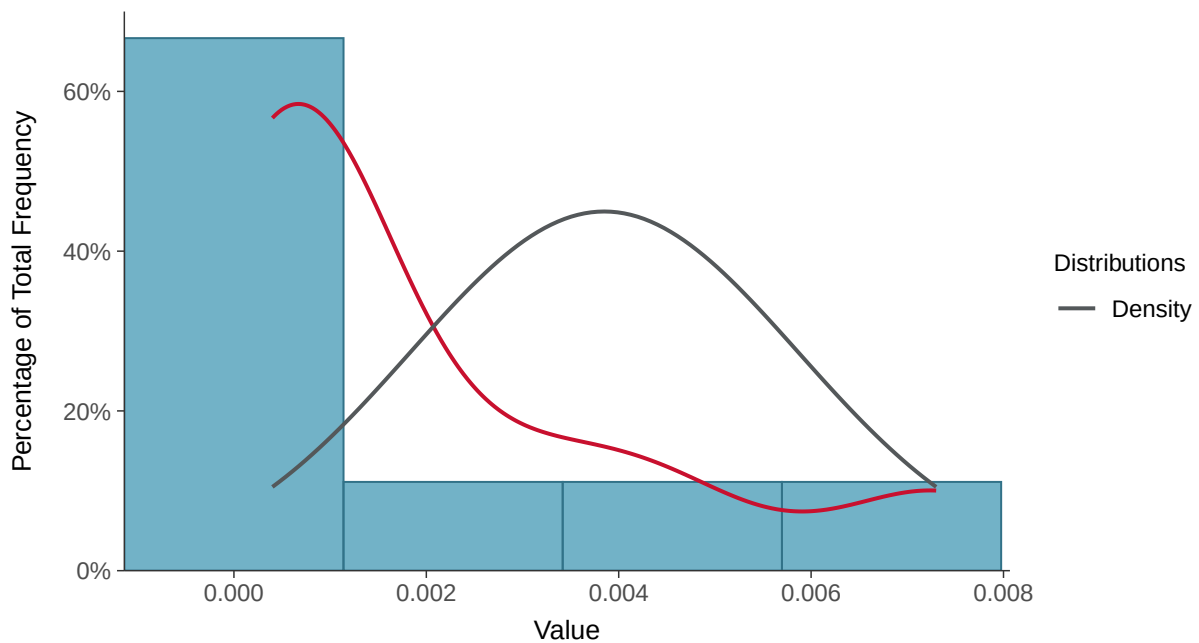
ID: 8_2_101

Scatter Plot

Antimony, W-6B1 (mg/l)

**Histogram**

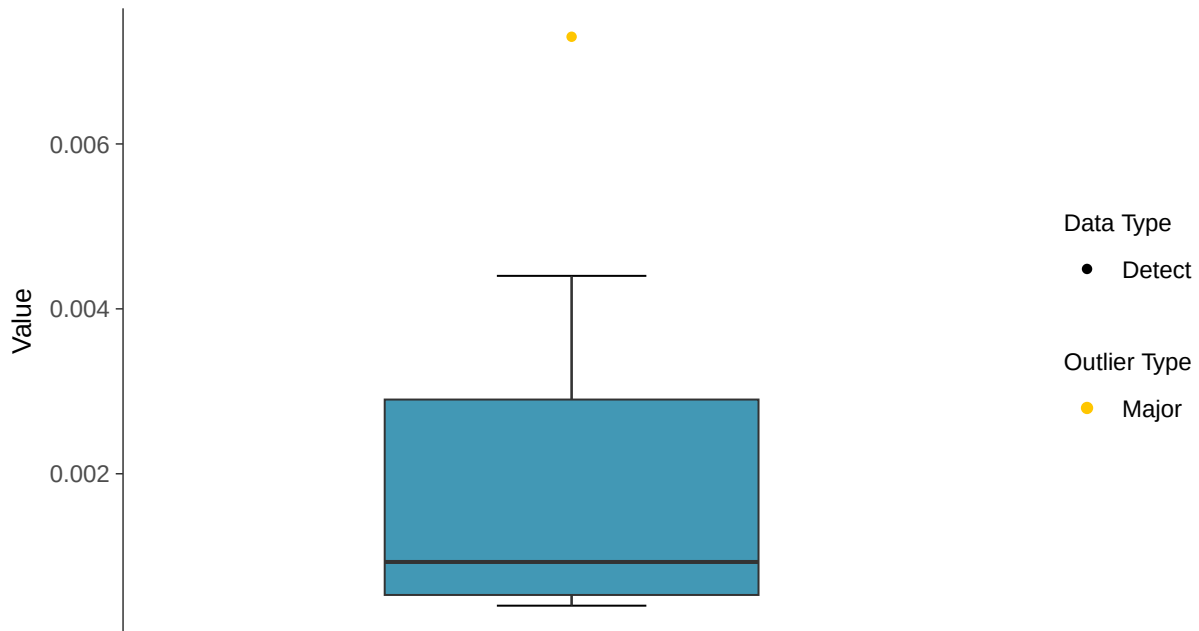
Antimony, W-6B1 (mg/l)





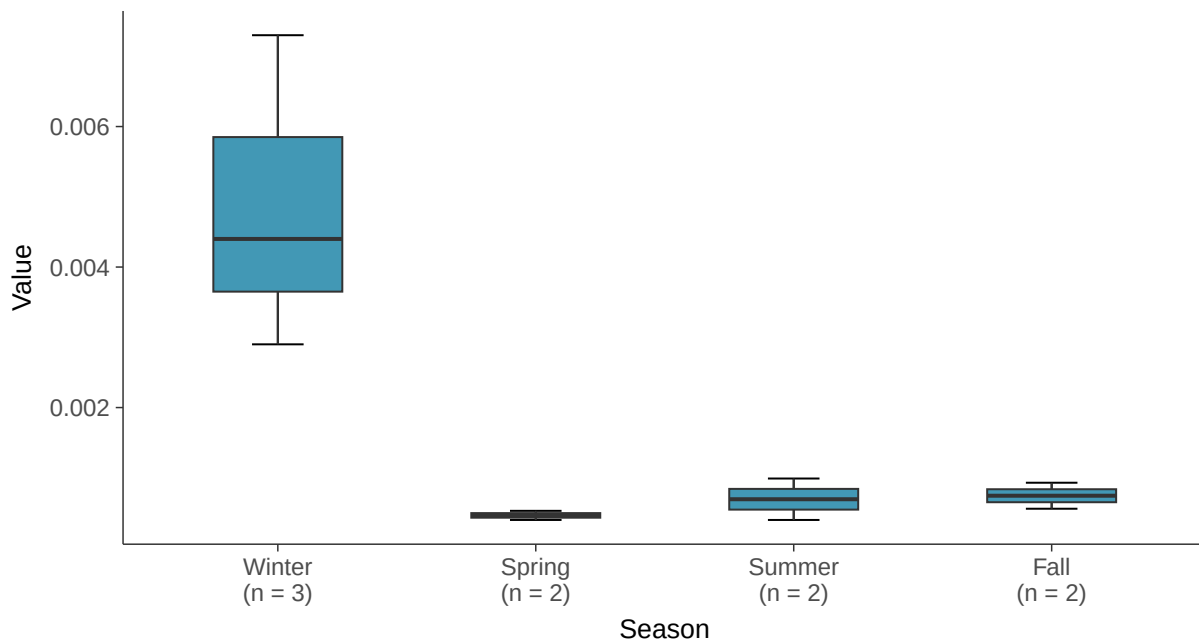
Boxplot

Antimony, W-6B1 (mg/l)



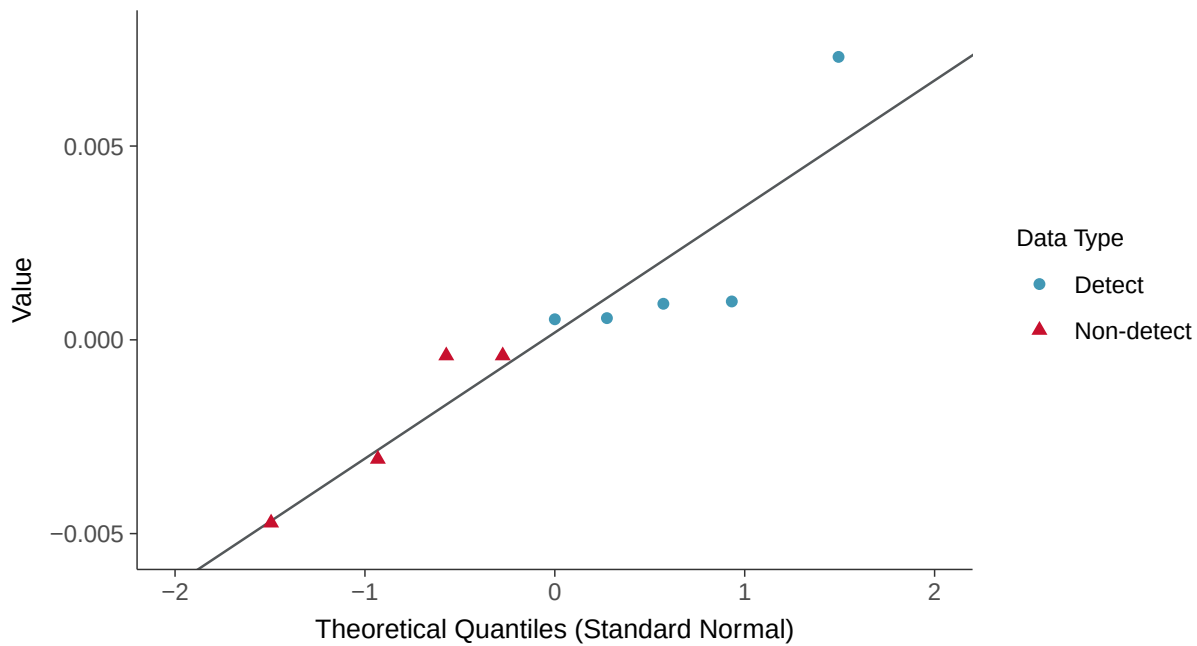
Boxplot by Season

Antimony, W-6B1 (mg/l)



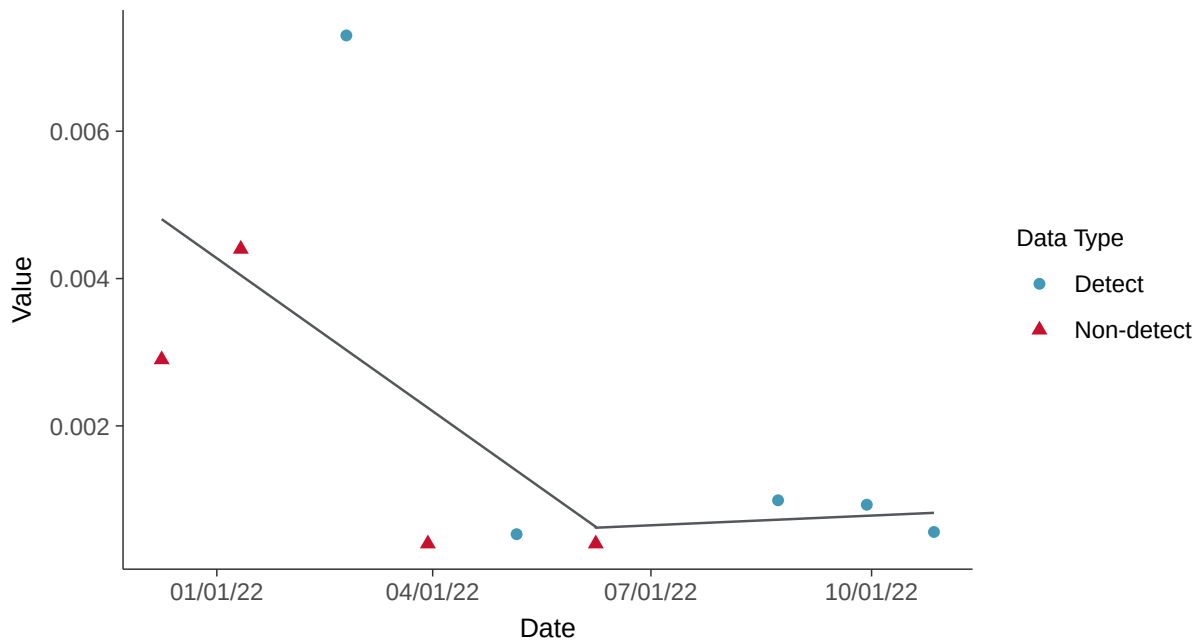
Normal Q-Q plot using ROS Imputed Estimates

Antimony, W-6B1 (mg/l)



Trend Regression: Piecewise Linear-Linear

Antimony, W-6B1 (mg/l)

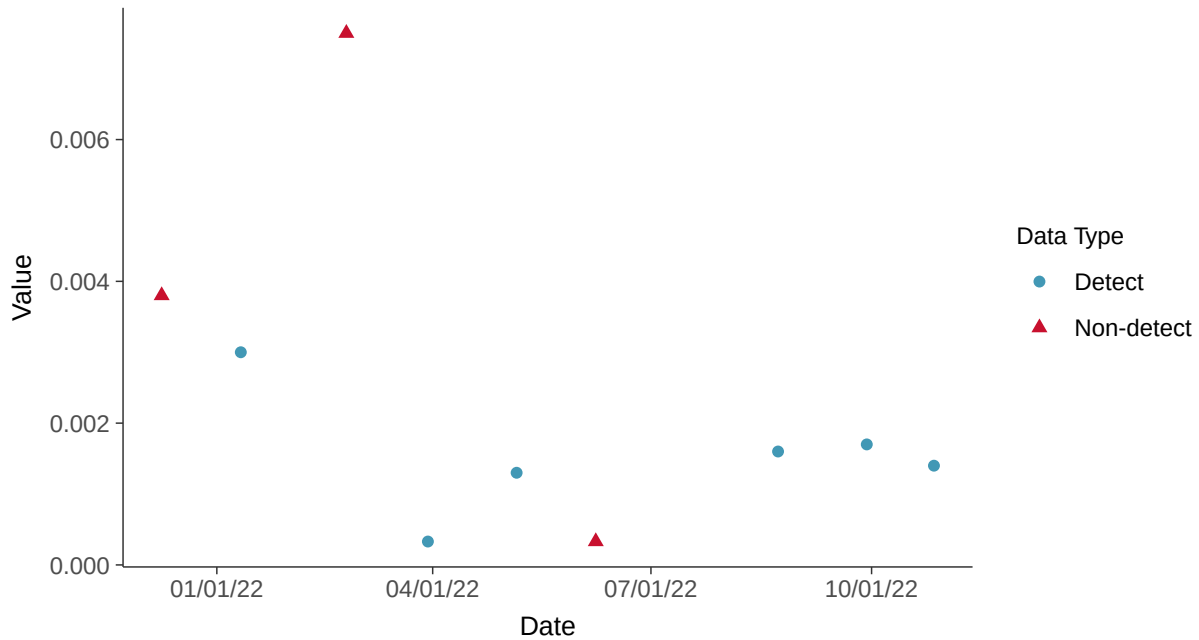


Appendix IV: Arsenic, W-6B1

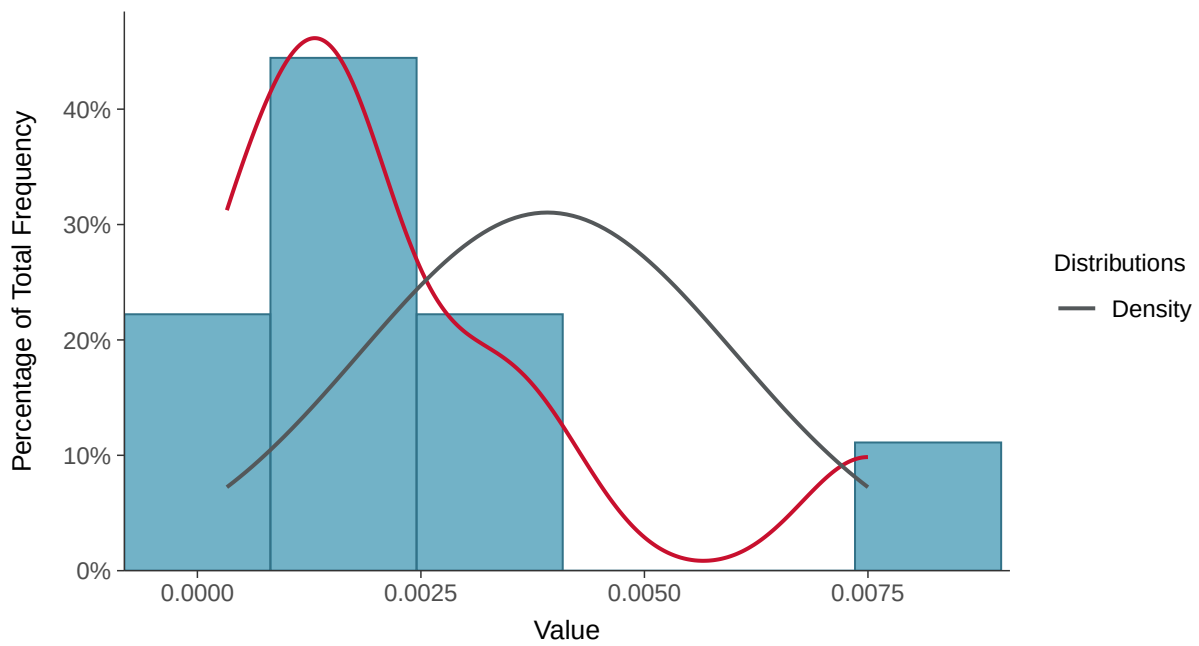
ID: 8_2_102

Scatter Plot

Arsenic, W-6B1 (mg/l)

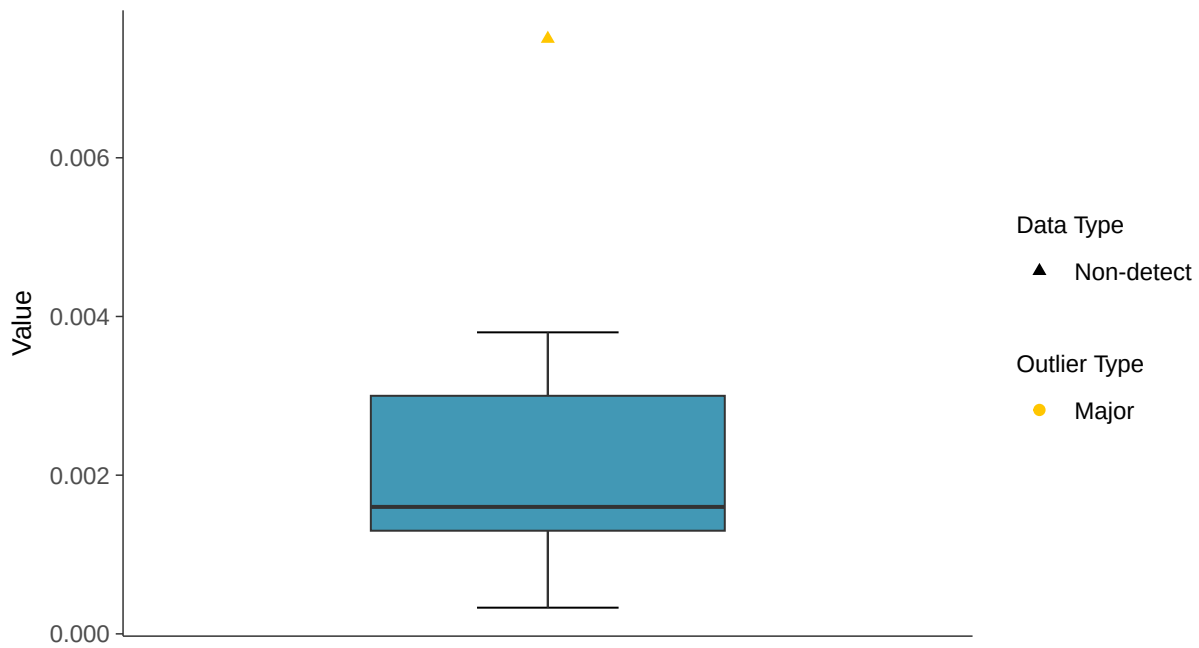
**Histogram**

Arsenic, W-6B1 (mg/l)



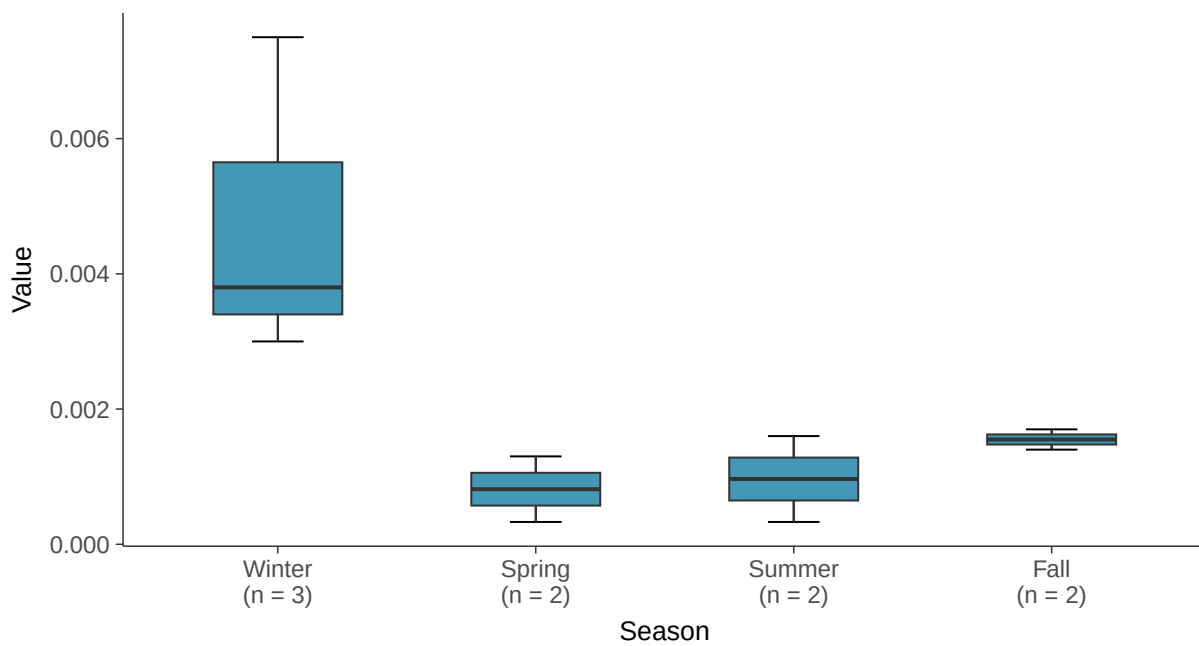
Boxplot

Arsenic, W-6B1 (mg/l)



Boxplot by Season

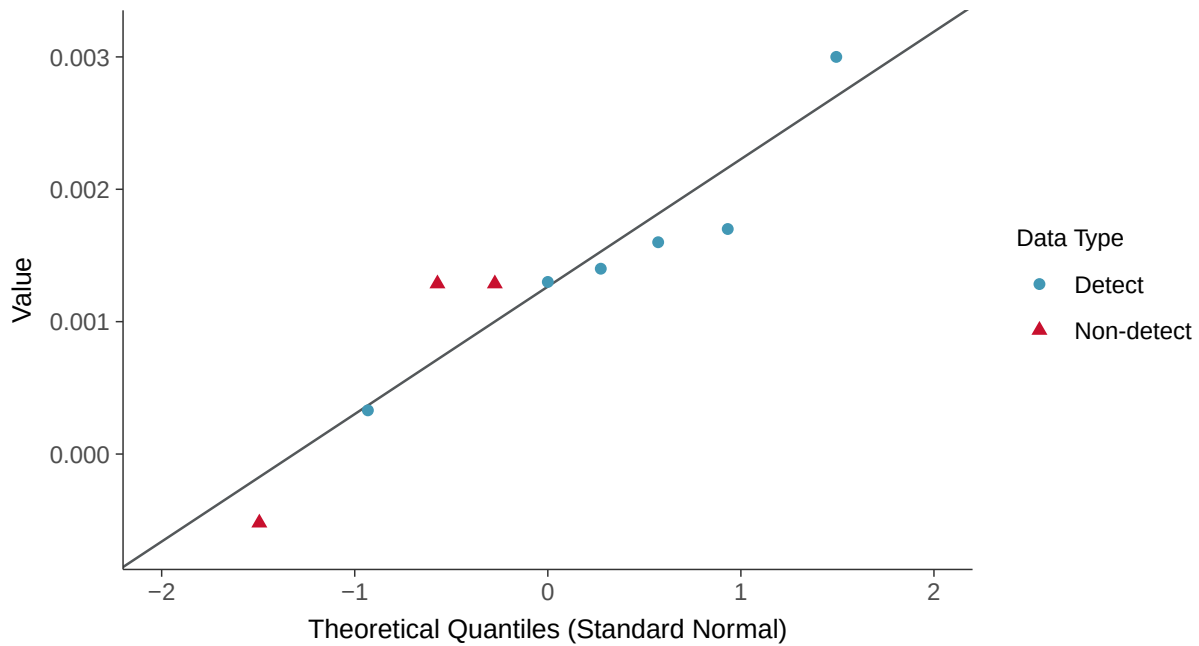
Arsenic, W-6B1 (mg/l)



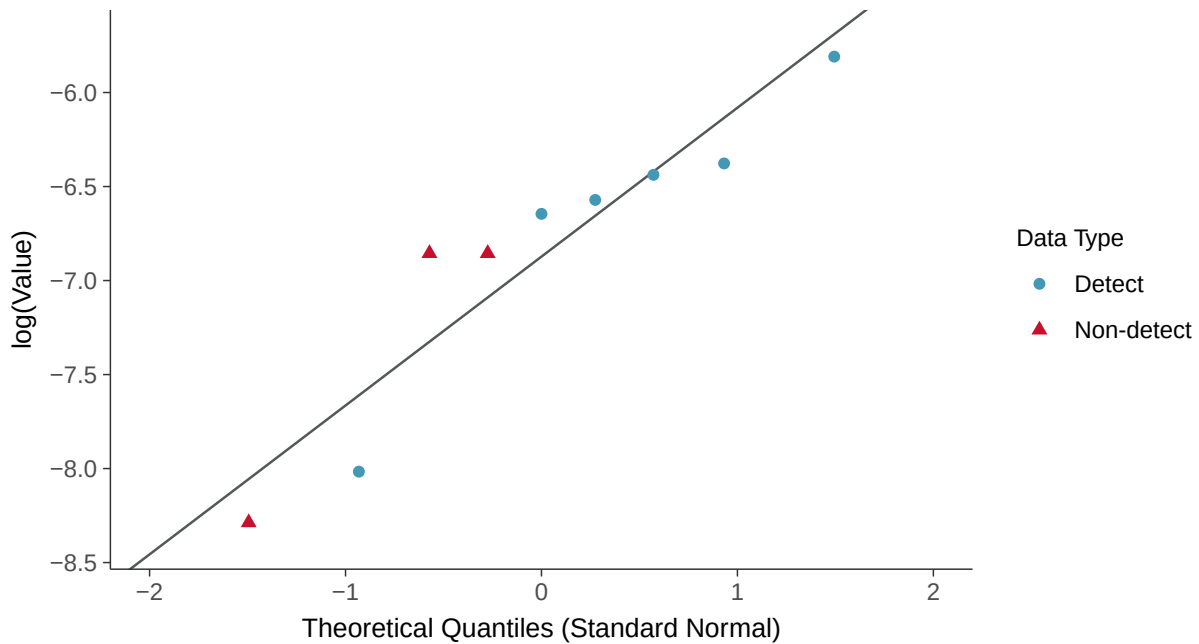
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Normal Q-Q plot using ROS Imputed Estimates

Arsenic, W-6B1 (mg/l)

**Lognormal Q-Q plot using ROS Imputed Estimates**

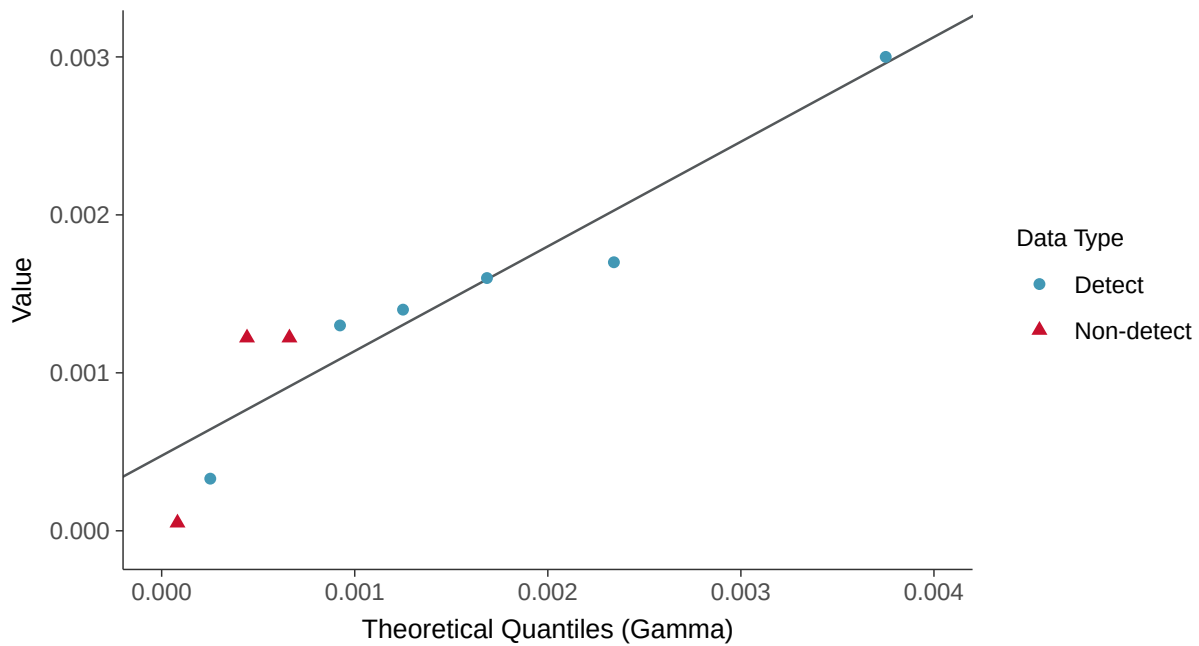
Arsenic, W-6B1 (mg/l)





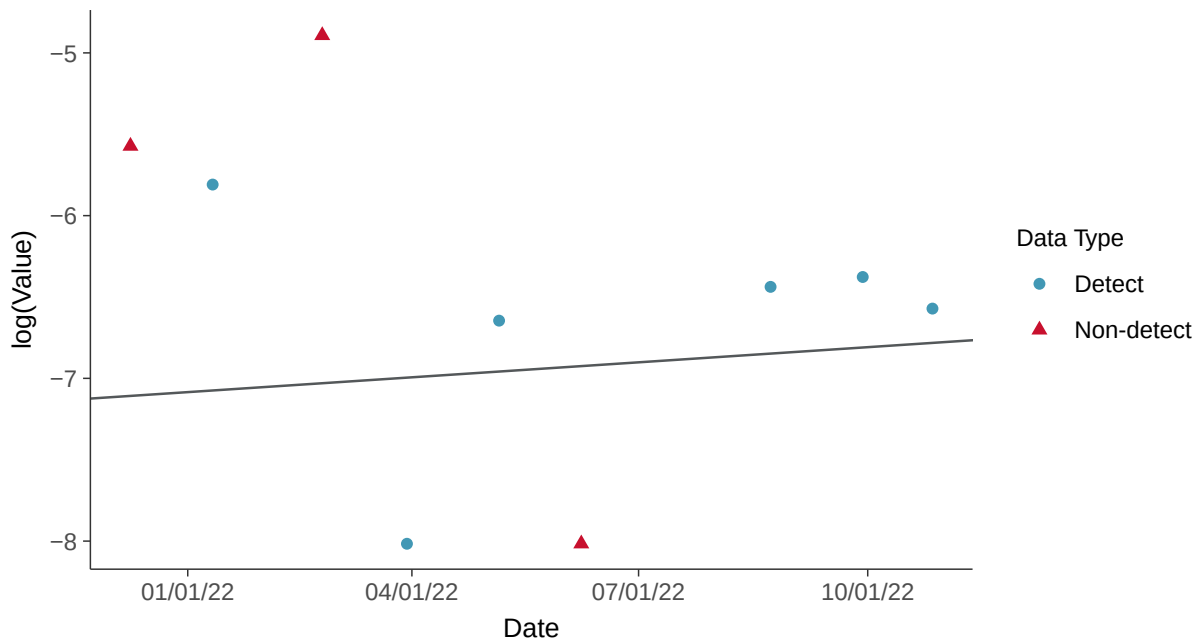
Gamma Q-Q plot using ROS Imputed Estimates

Arsenic, W-6B1 (mg/l)



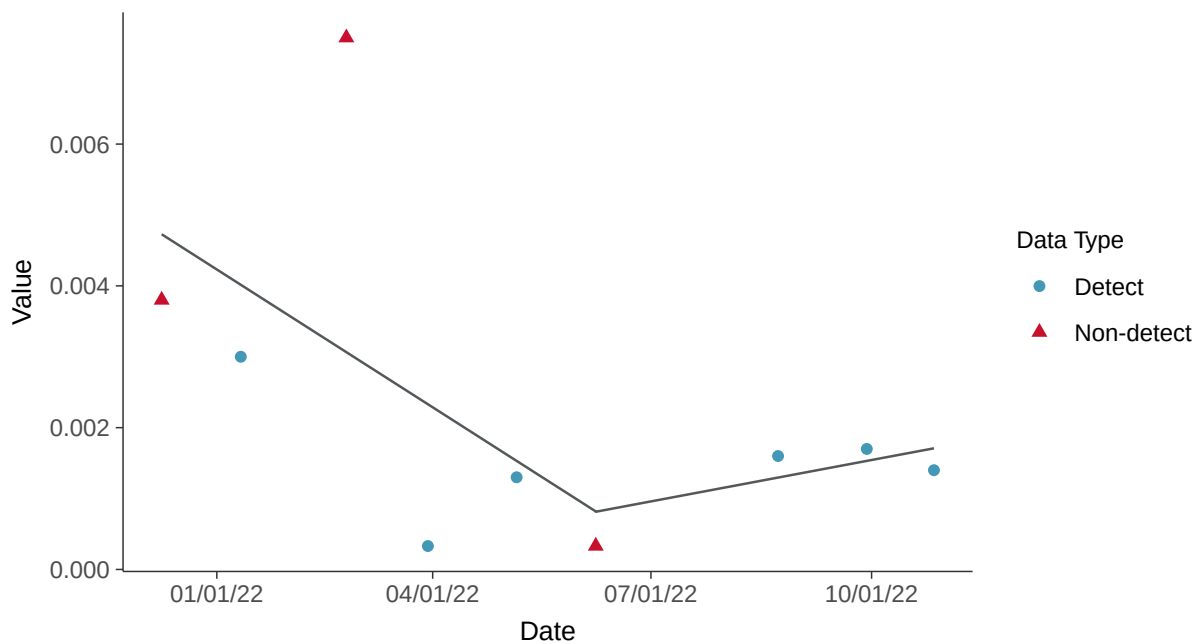
Trend Regression: Lognormal MLE

Arsenic, W-6B1 (mg/l)



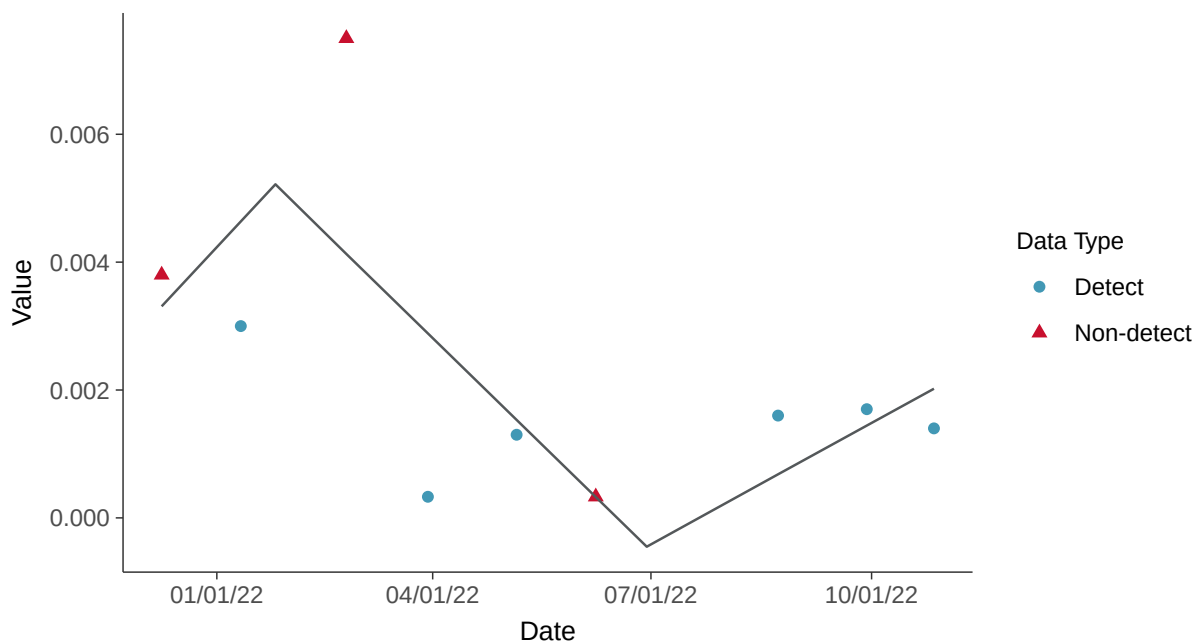
Trend Regression: Piecewise Linear-Linear

Arsenic, W-6B1 (mg/l)



Trend Regression: Piecewise Linear-Linear-Linear

Arsenic, W-6B1 (mg/l)

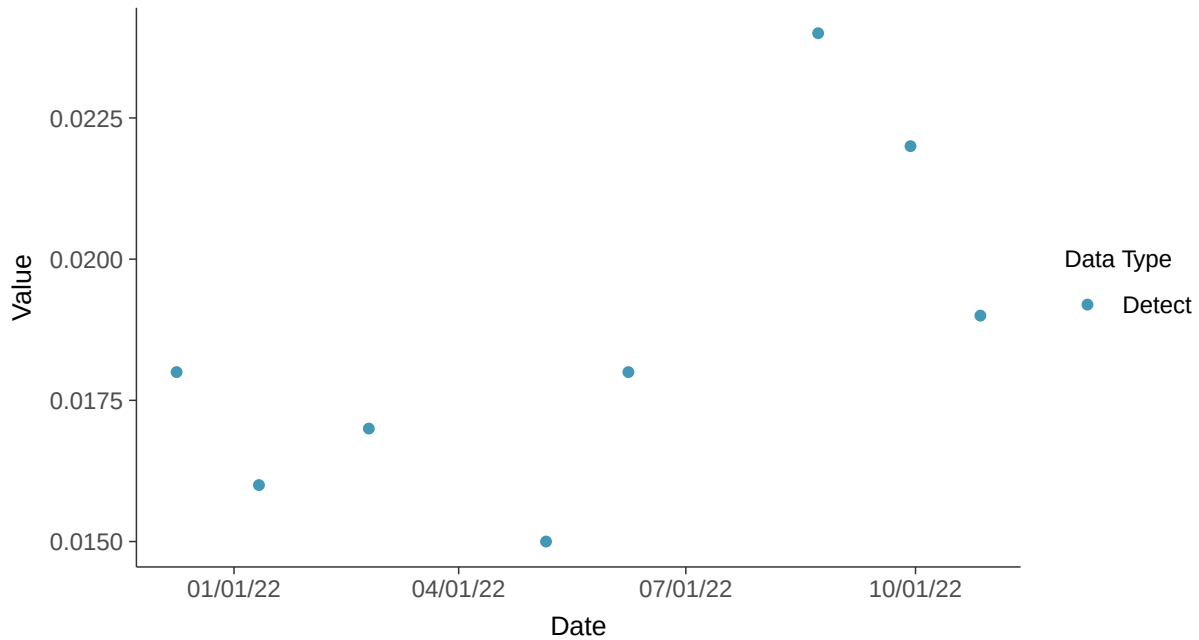


Appendix IV: Barium, W-6B1

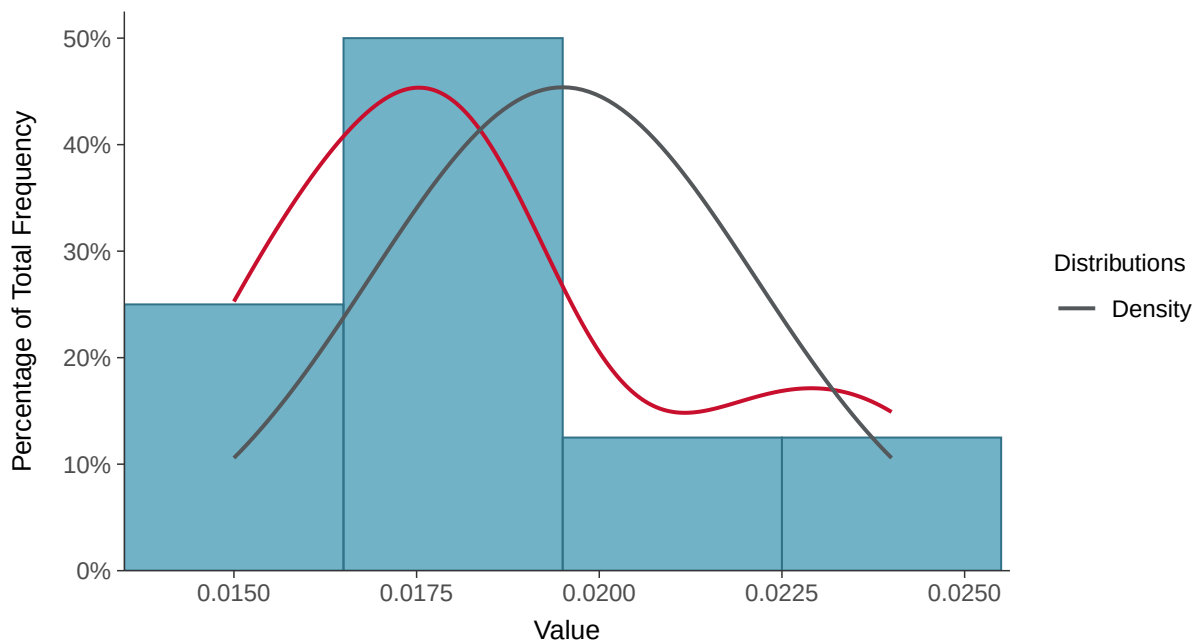
ID: 8_2_103

Scatter Plot

Barium, W-6B1 (mg/l)

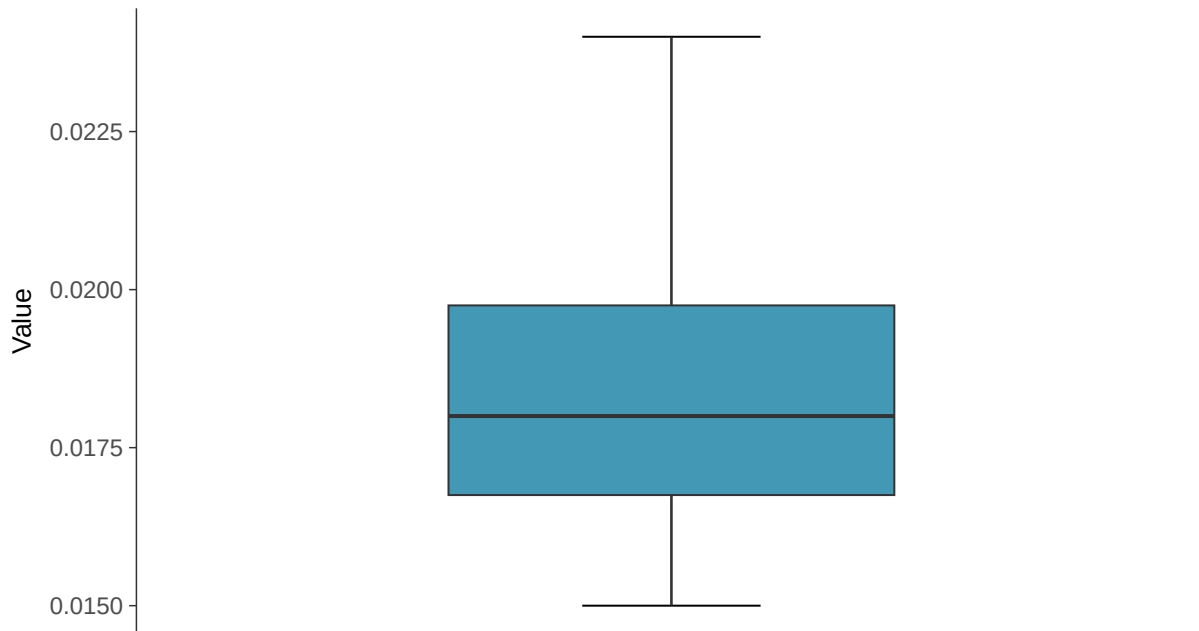
**Histogram**

Barium, W-6B1 (mg/l)



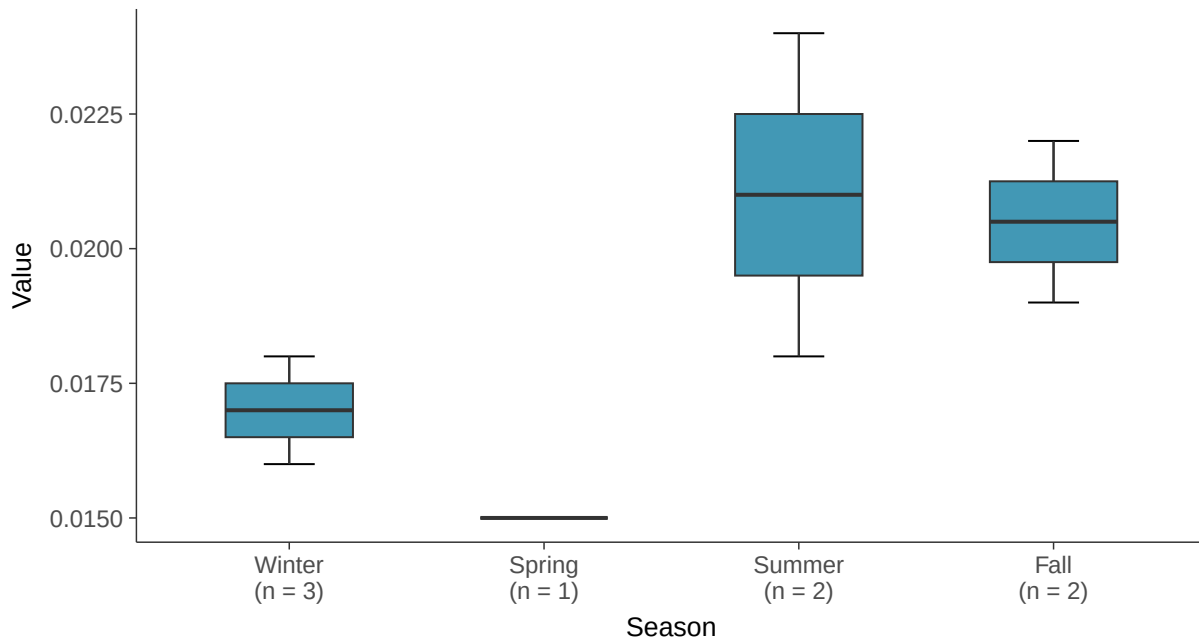
Boxplot

Barium, W-6B1 (mg/l)



Boxplot by Season

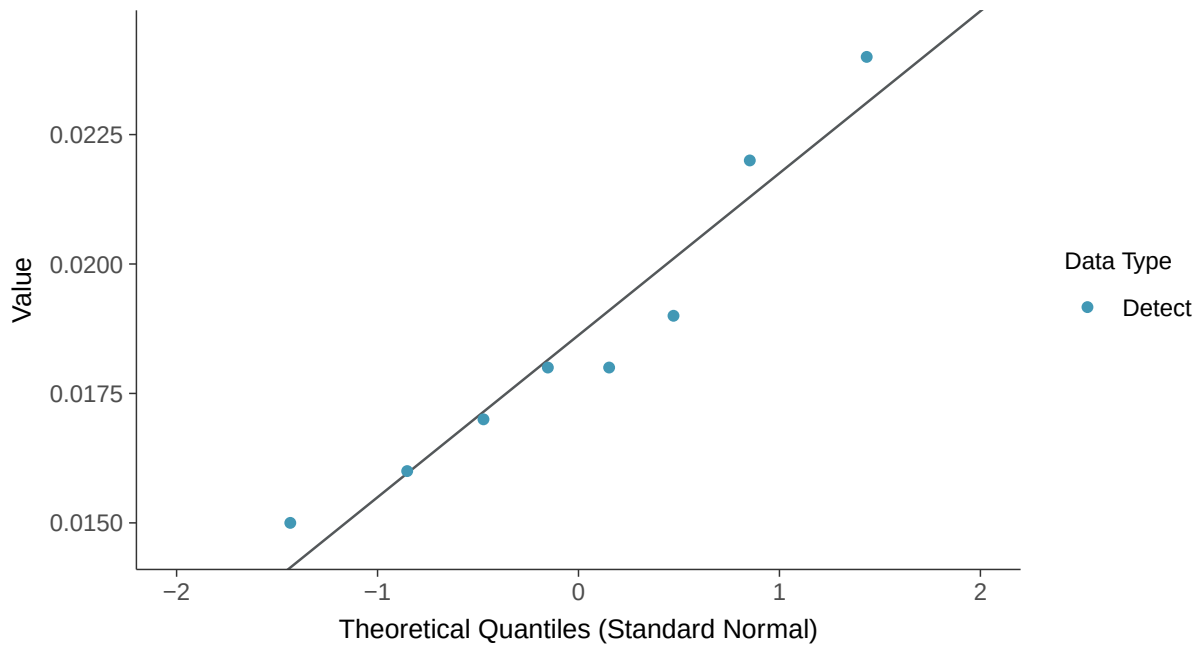
Barium, W-6B1 (mg/l)





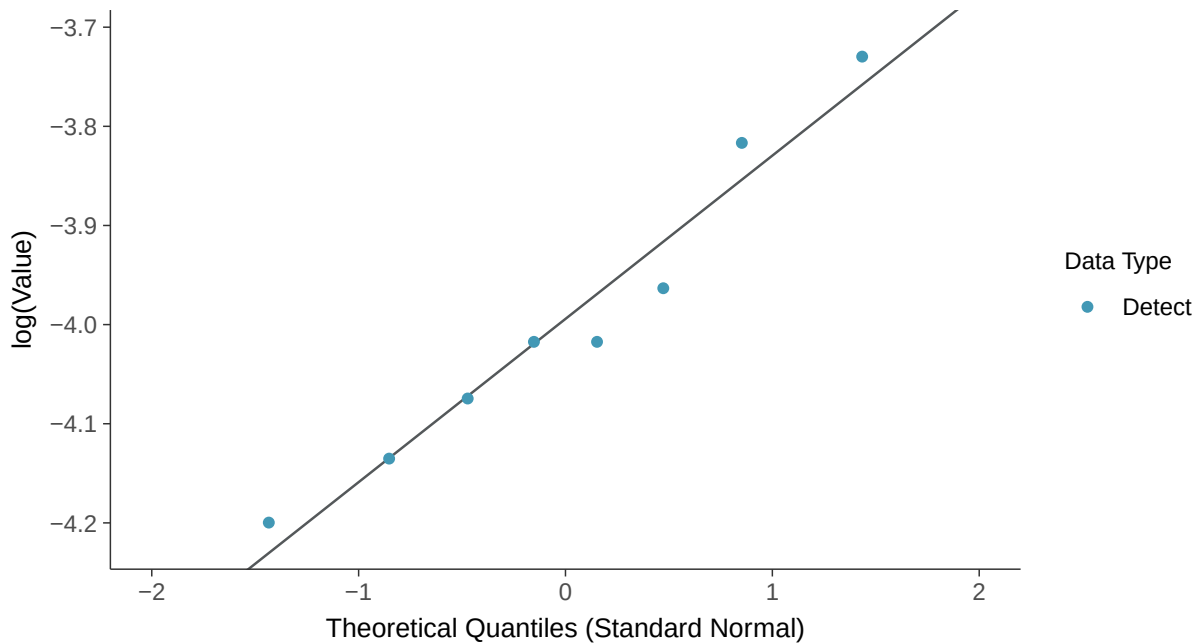
Normal Q-Q plot

Barium, W-6B1 (mg/l)



Lognormal Q-Q plot

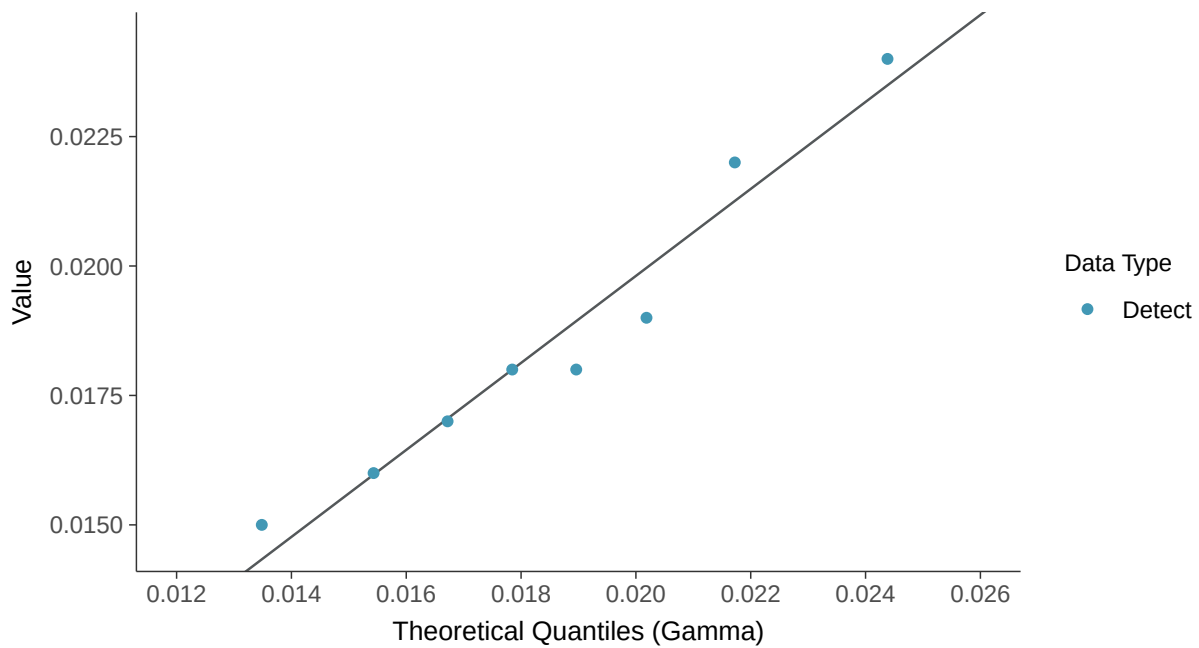
Barium, W-6B1 (mg/l)





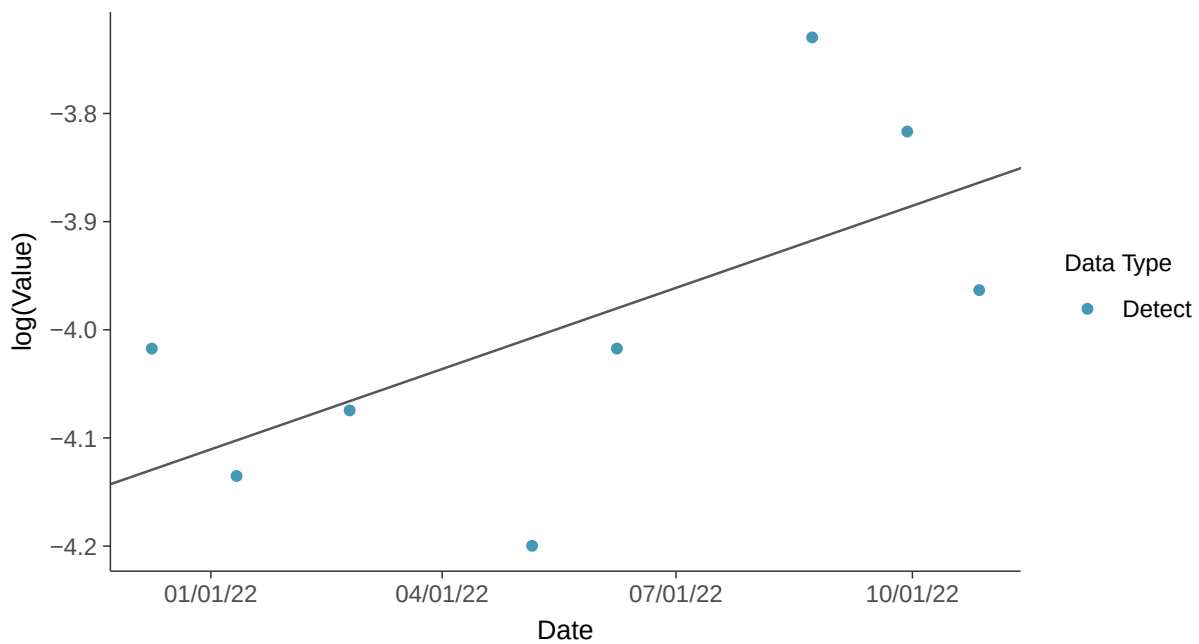
Gamma Q-Q plot

Barium, W-6B1 (mg/l)



Trend Regression: Lognormal MLE

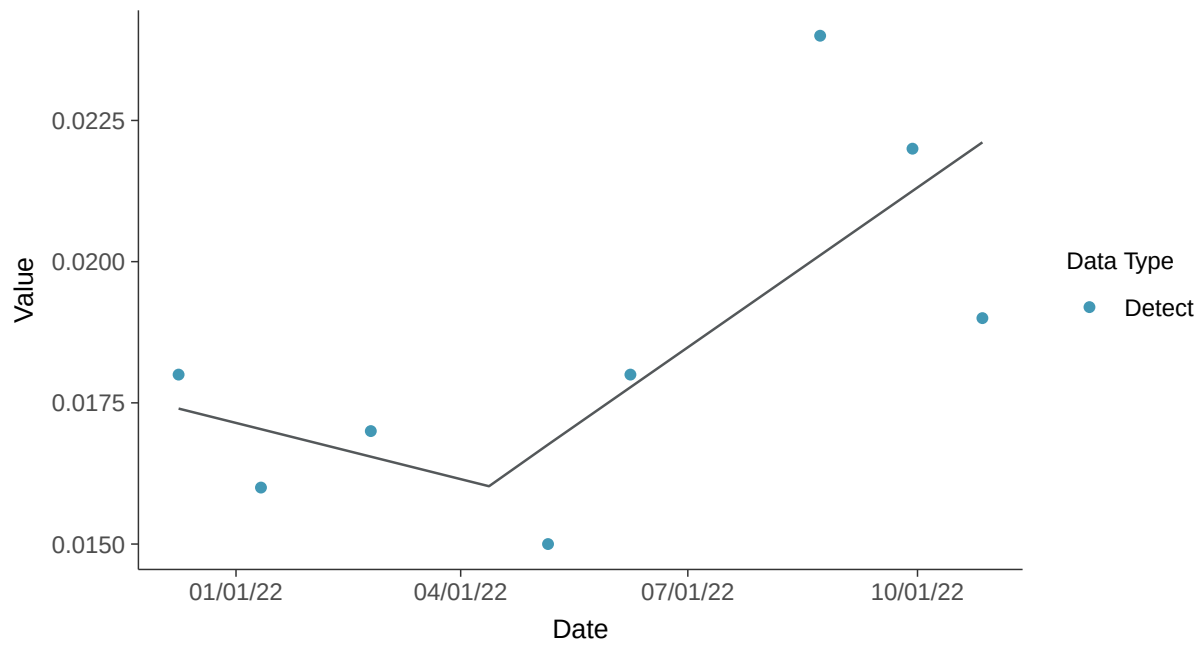
Barium, W-6B1 (mg/l)





Trend Regression: Piecewise Linear-Linear

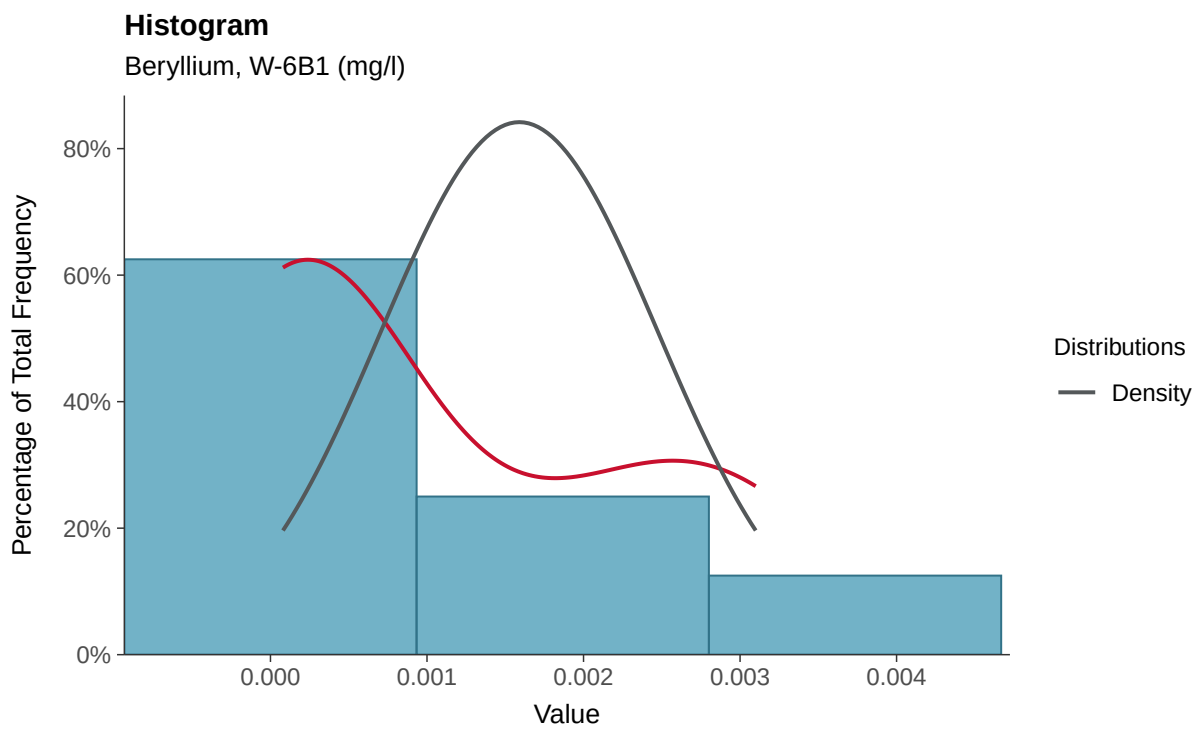
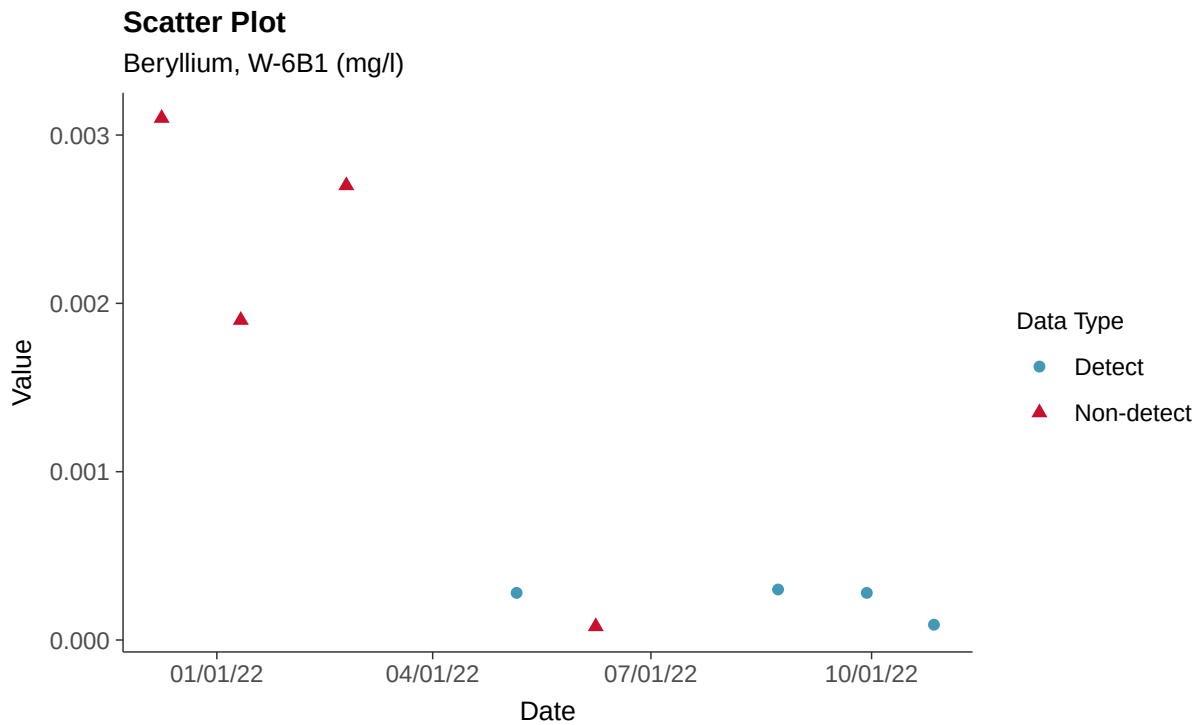
Barium, W-6B1 (mg/l)



Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Appendix IV: Beryllium, W-6B1

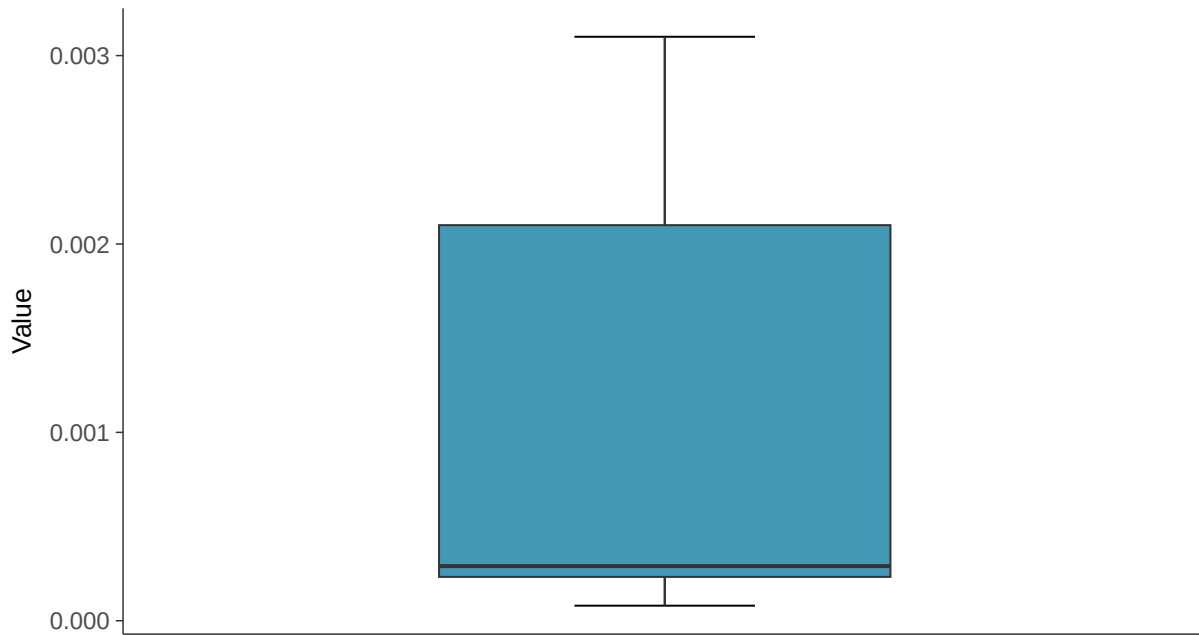
ID: 8_2_104



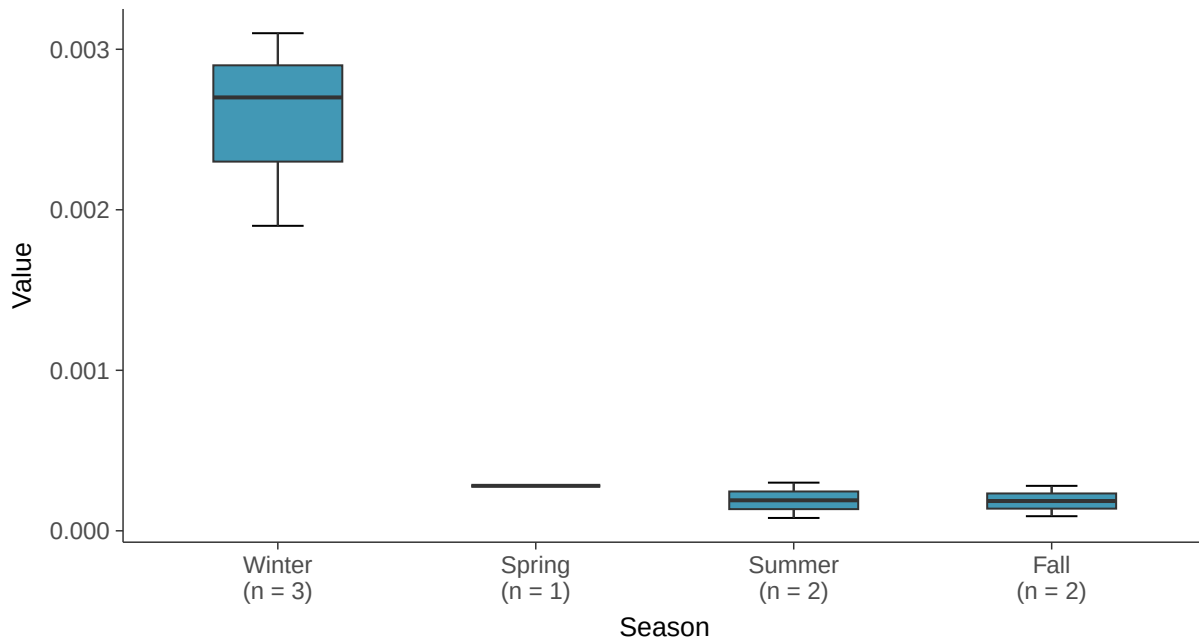
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Beryllium, W-6B1 (mg/l)

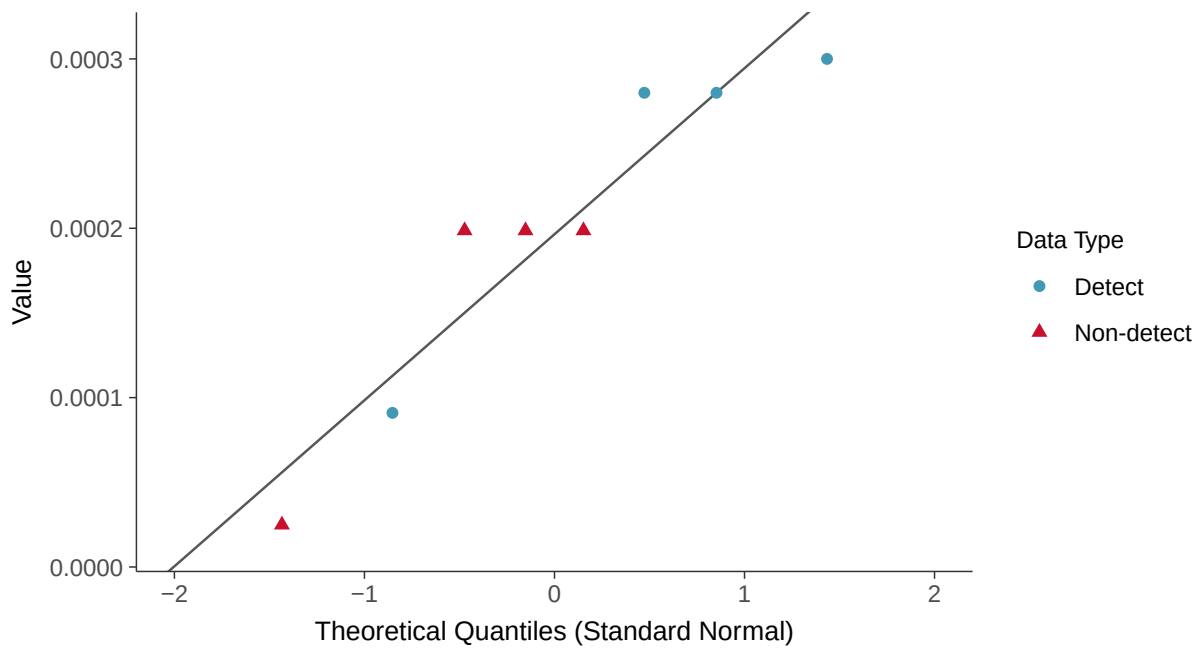
**Boxplot by Season**

Beryllium, W-6B1 (mg/l)



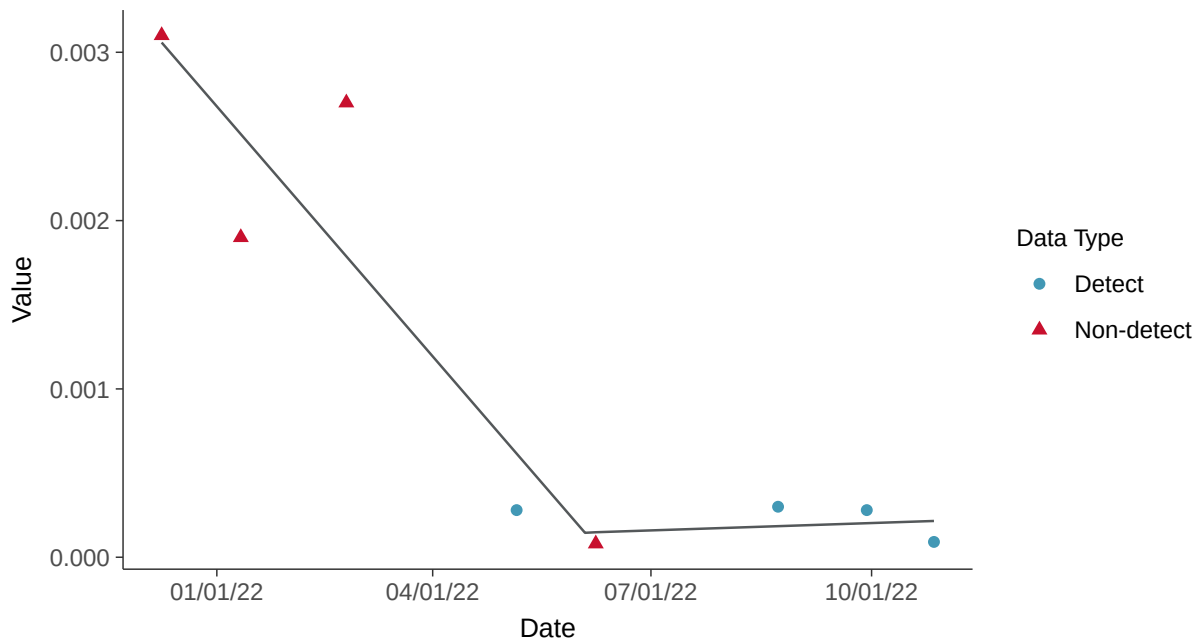
Normal Q-Q plot using ROS Imputed Estimates

Beryllium, W-6B1 (mg/l)



Trend Regression: Piecewise Linear-Linear

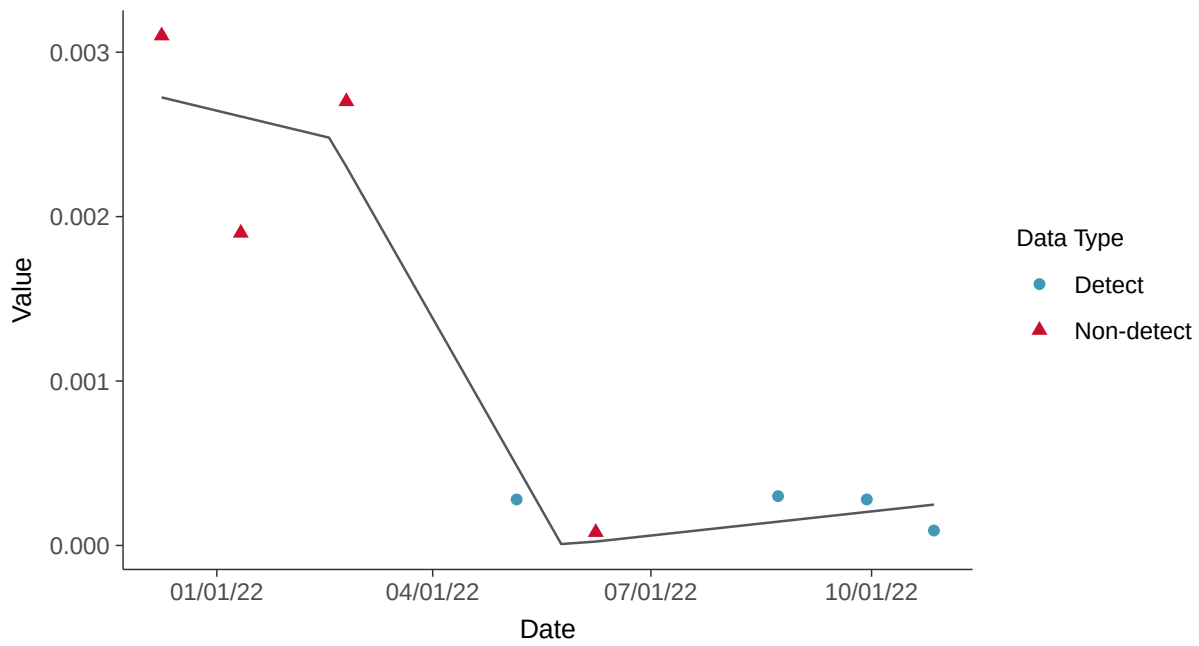
Beryllium, W-6B1 (mg/l)



Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Trend Regression: Piecewise Linear-Linear-Linear

Beryllium, W-6B1 (mg/l)

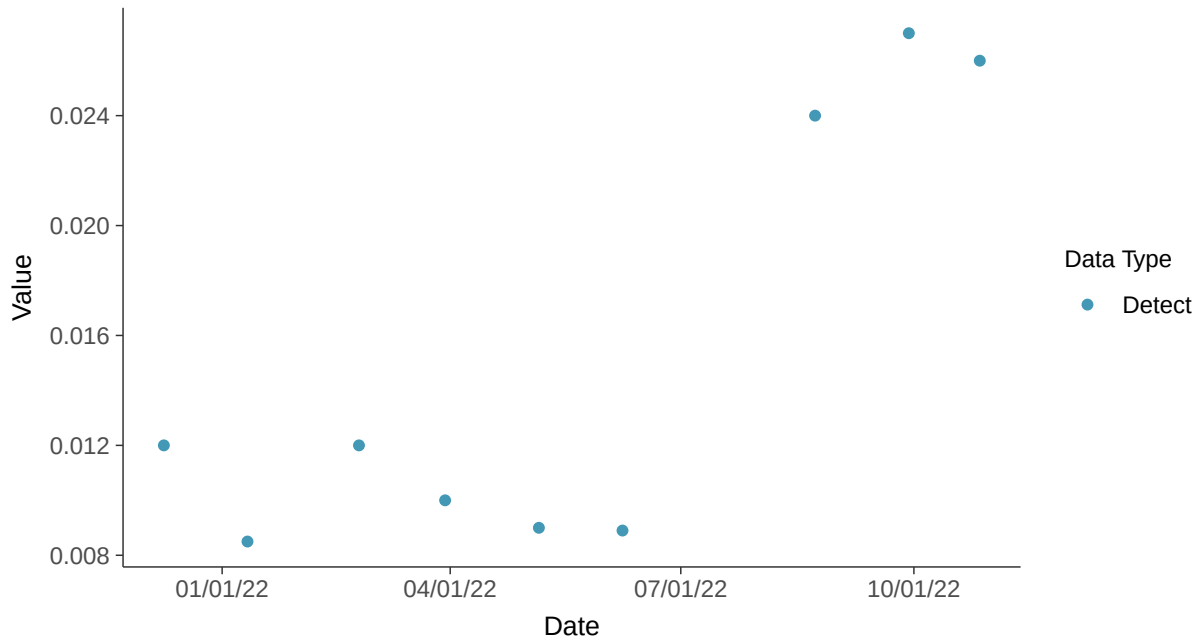


Appendix IV: Cadmium, W-6B1

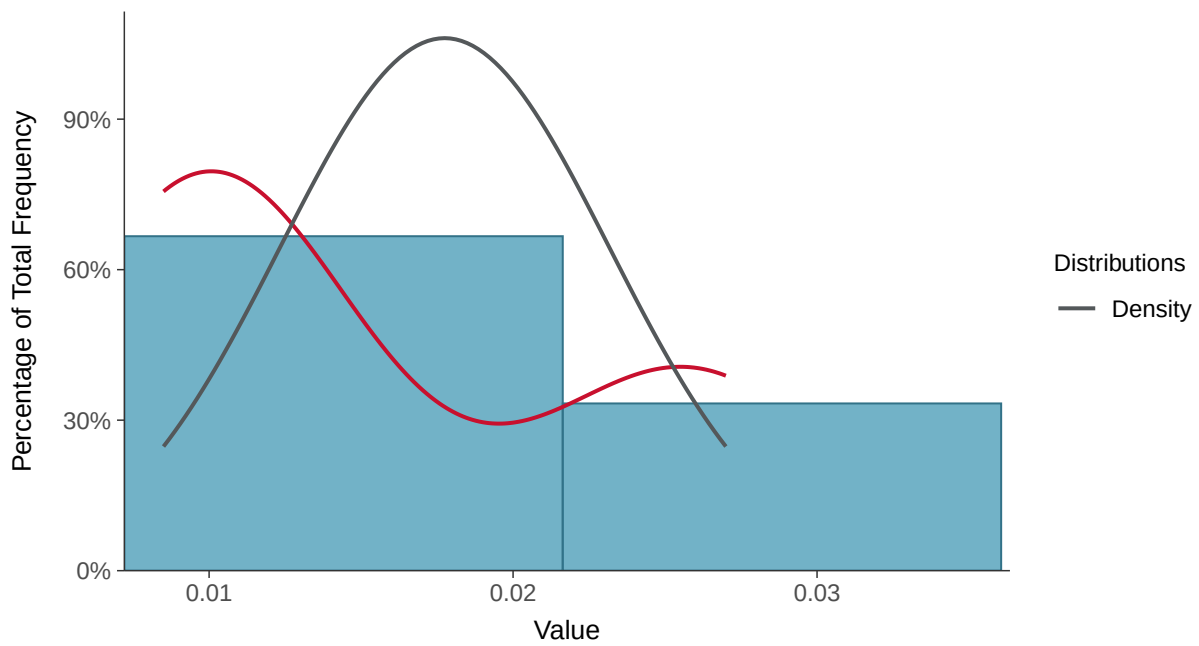
ID: 8_2_106

Scatter Plot

Cadmium, W-6B1 (mg/l)

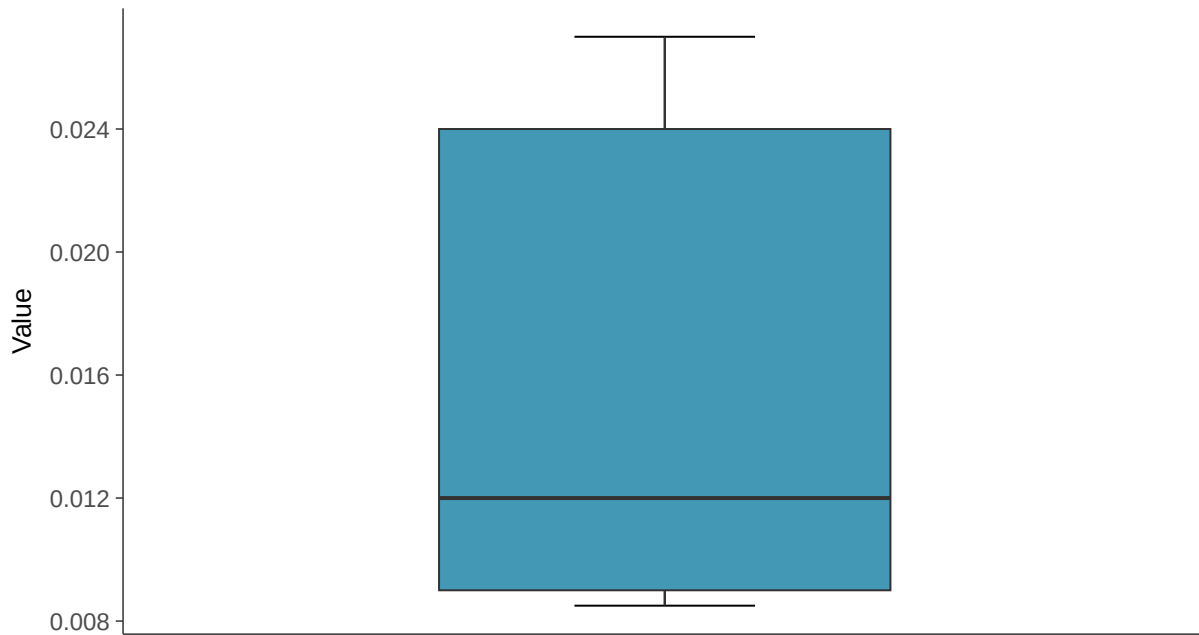
**Histogram**

Cadmium, W-6B1 (mg/l)



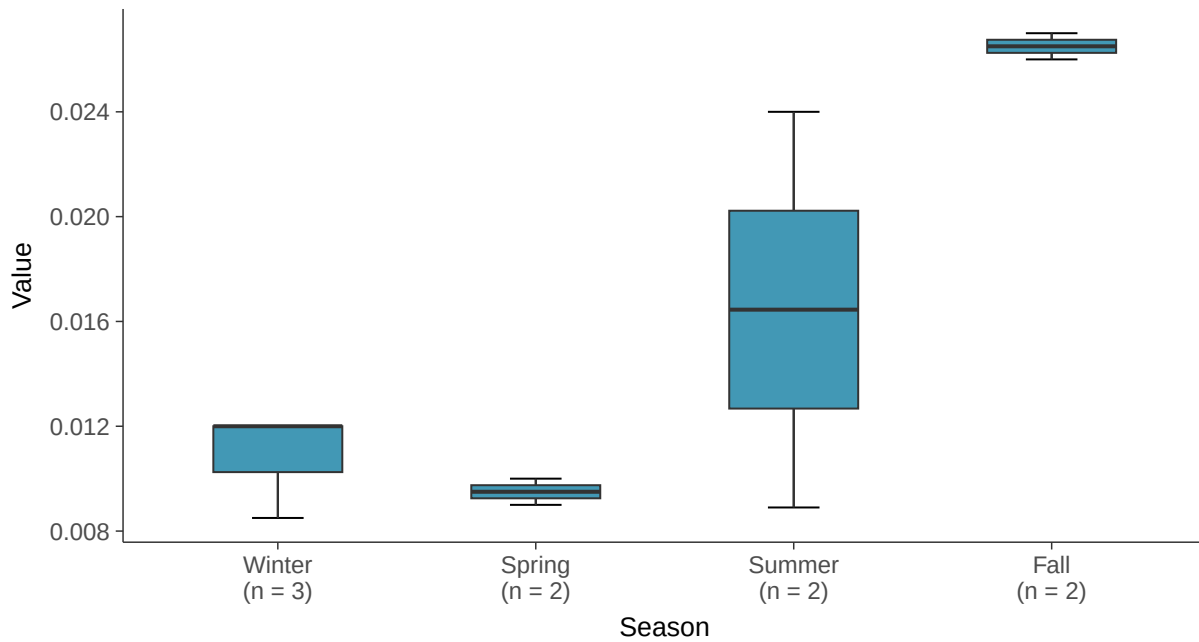
Boxplot

Cadmium, W-6B1 (mg/l)



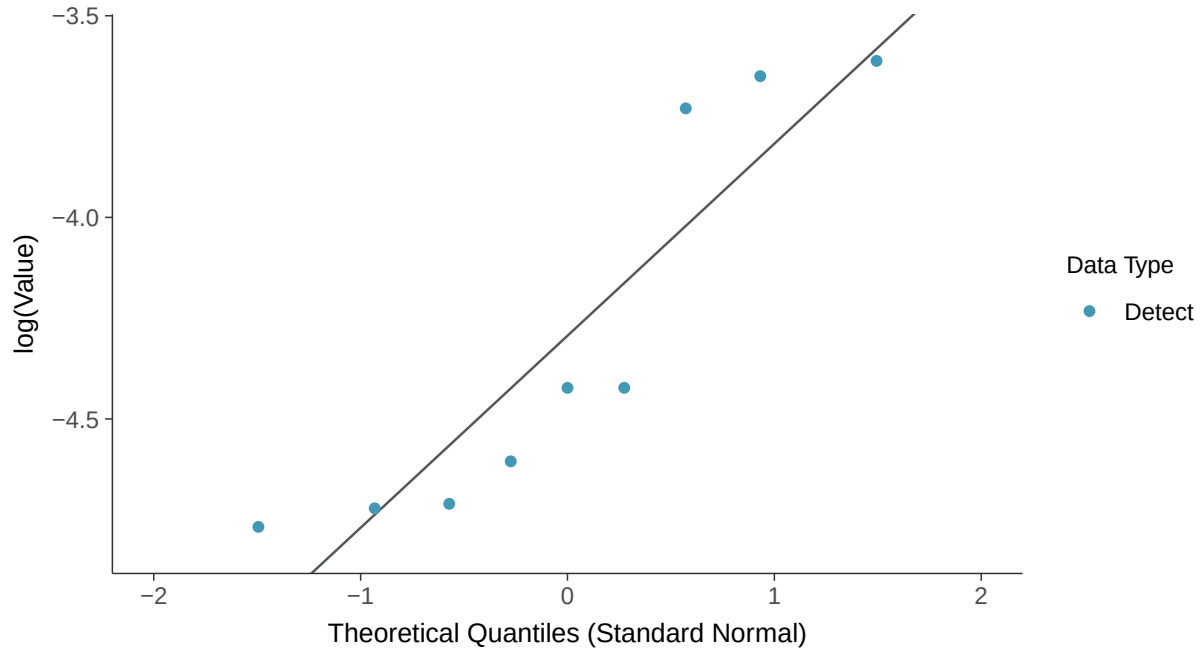
Boxplot by Season

Cadmium, W-6B1 (mg/l)



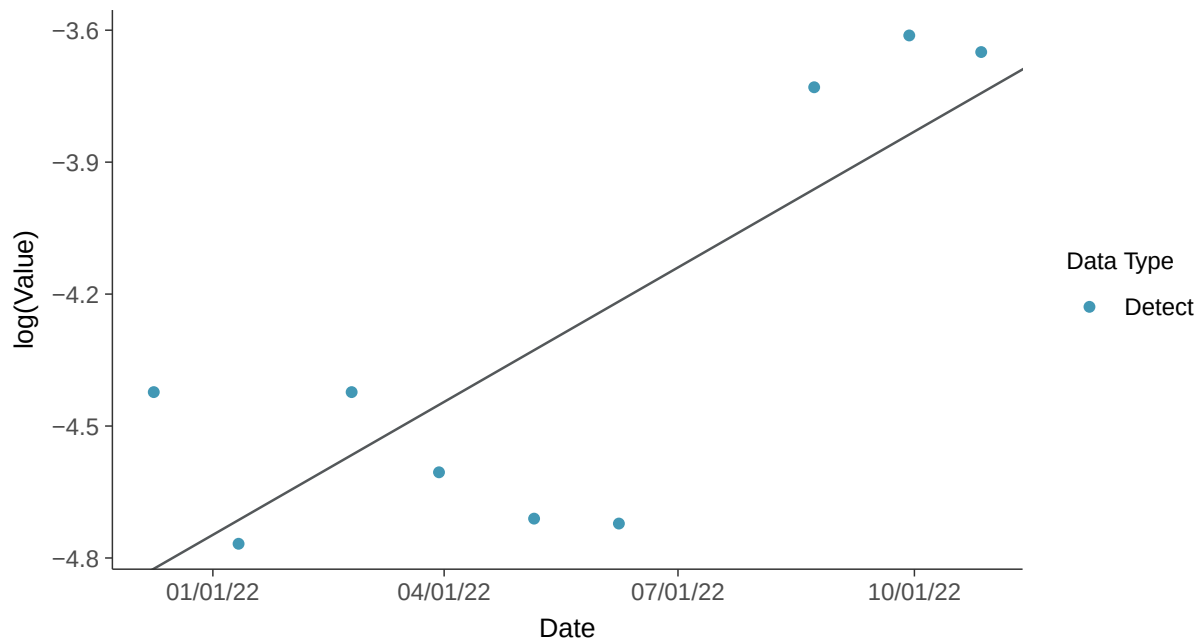
Lognormal Q-Q plot

Cadmium, W-6B1 (mg/l)



Trend Regression: Lognormal MLE

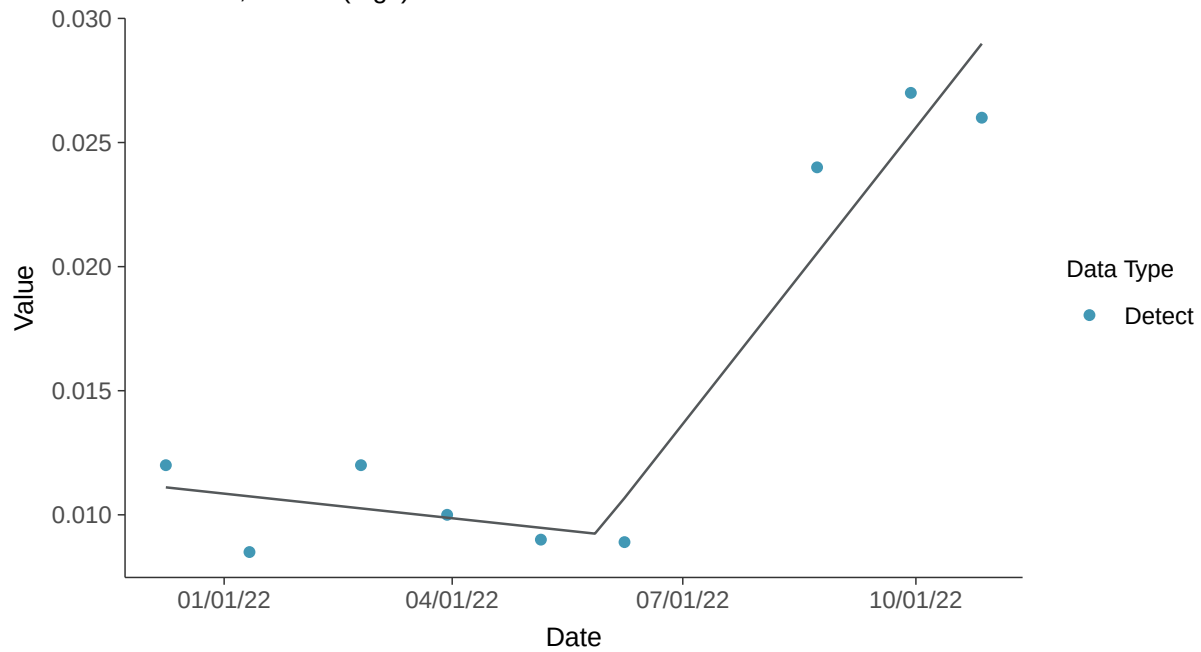
Cadmium, W-6B1 (mg/l)





Trend Regression: Piecewise Linear-Linear

Cadmium, W-6B1 (mg/l)

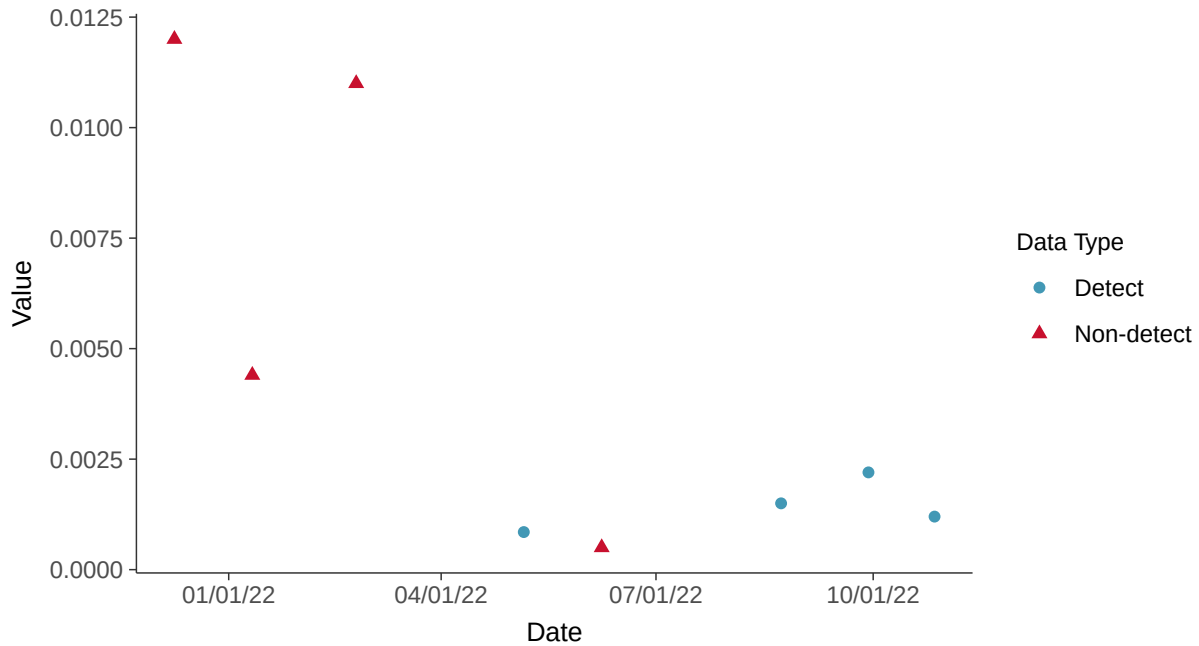


Appendix IV: Chromium, Total, W-6B1

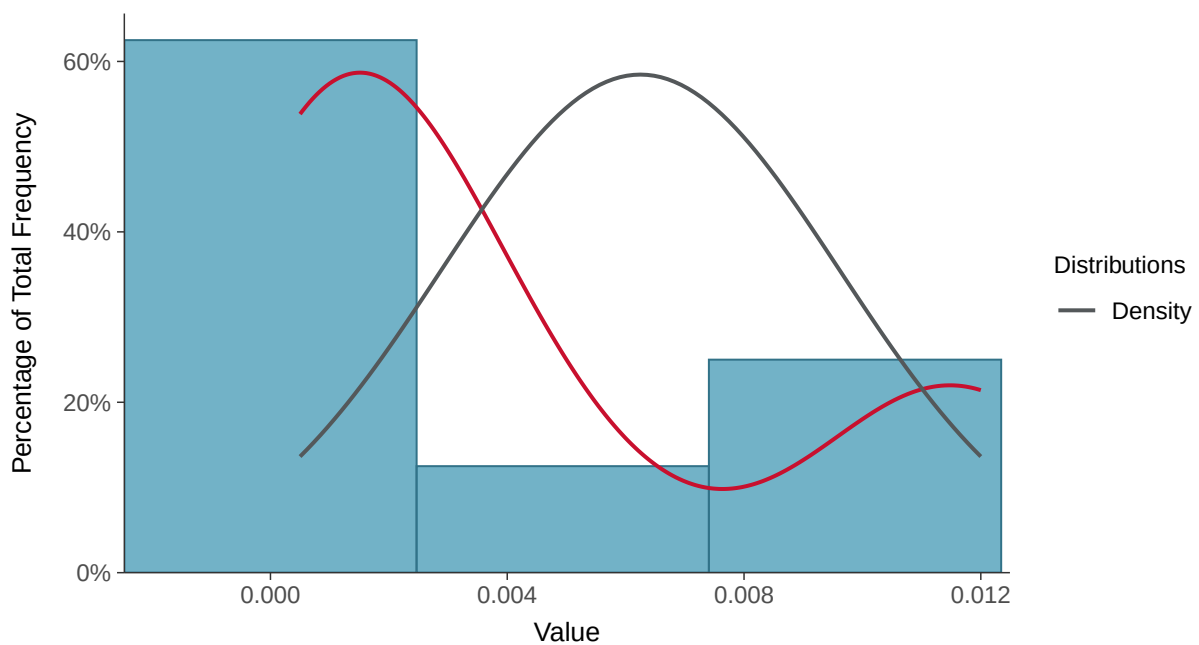
ID: 8_2_109

Scatter Plot

Chromium, Total, W-6B1 (mg/l)

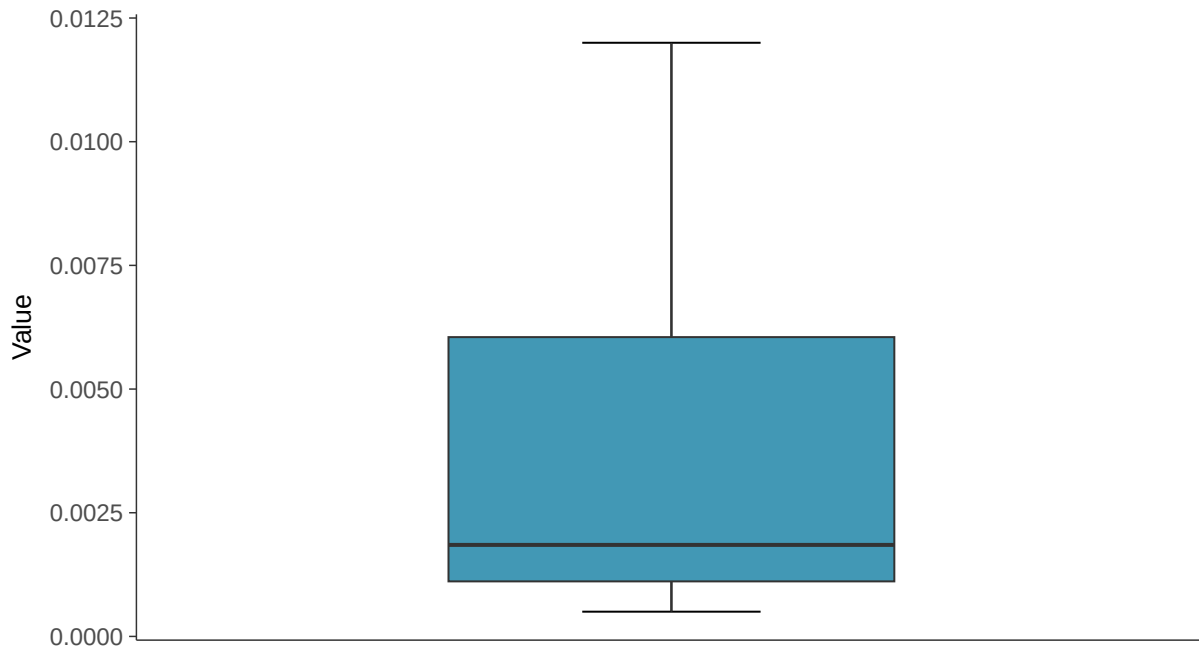
**Histogram**

Chromium, Total, W-6B1 (mg/l)



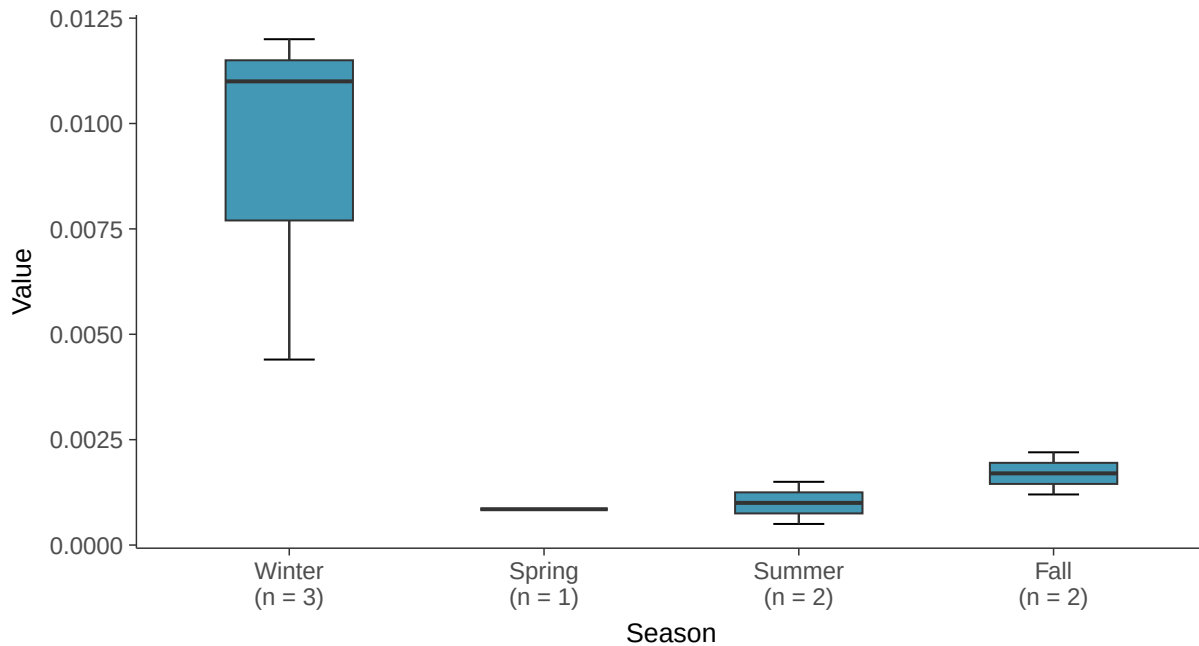
Boxplot

Chromium, Total, W-6B1 (mg/l)



Boxplot by Season

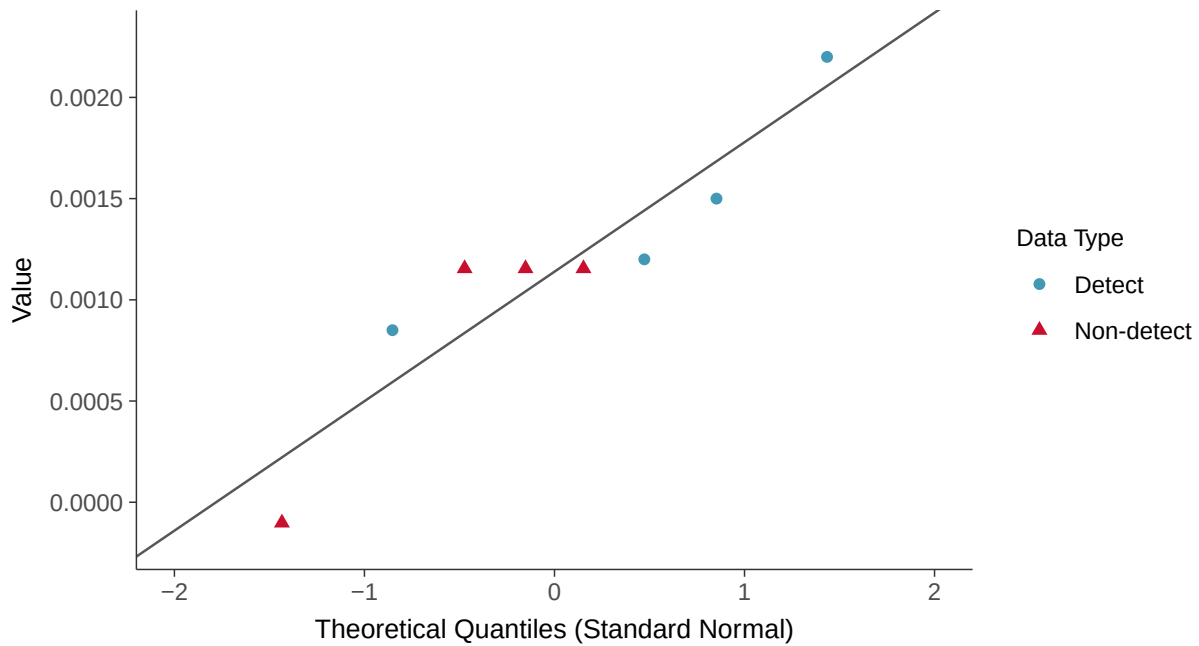
Chromium, Total, W-6B1 (mg/l)



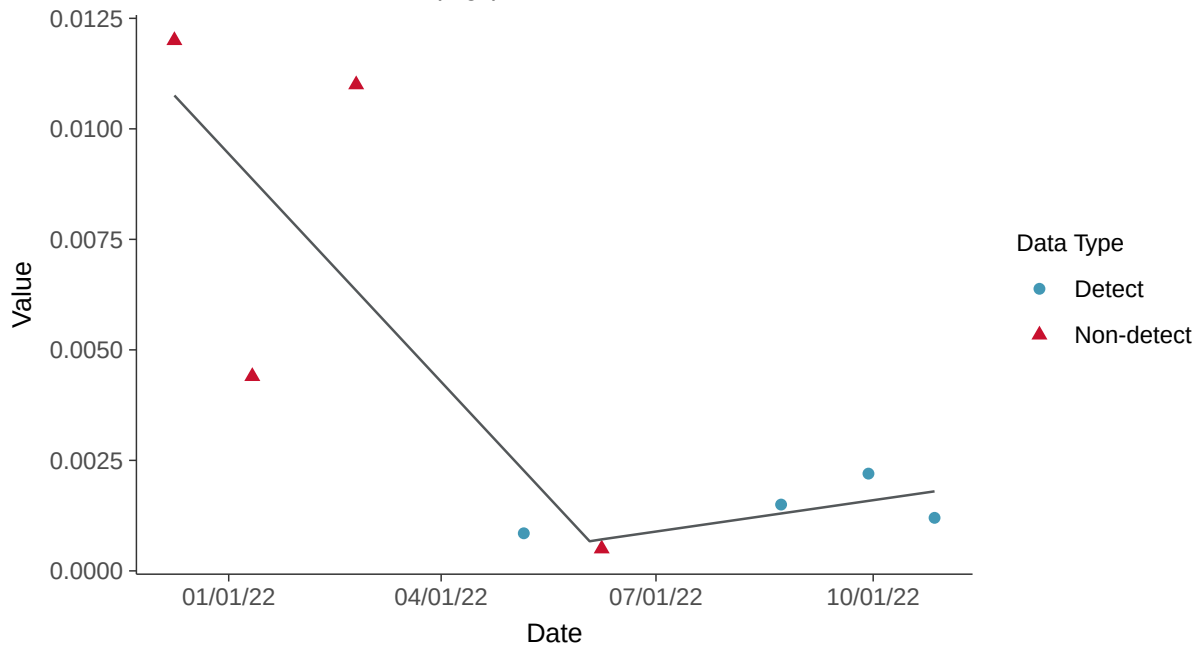
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Normal Q-Q plot using ROS Imputed Estimates

Chromium, Total, W-6B1 (mg/l)

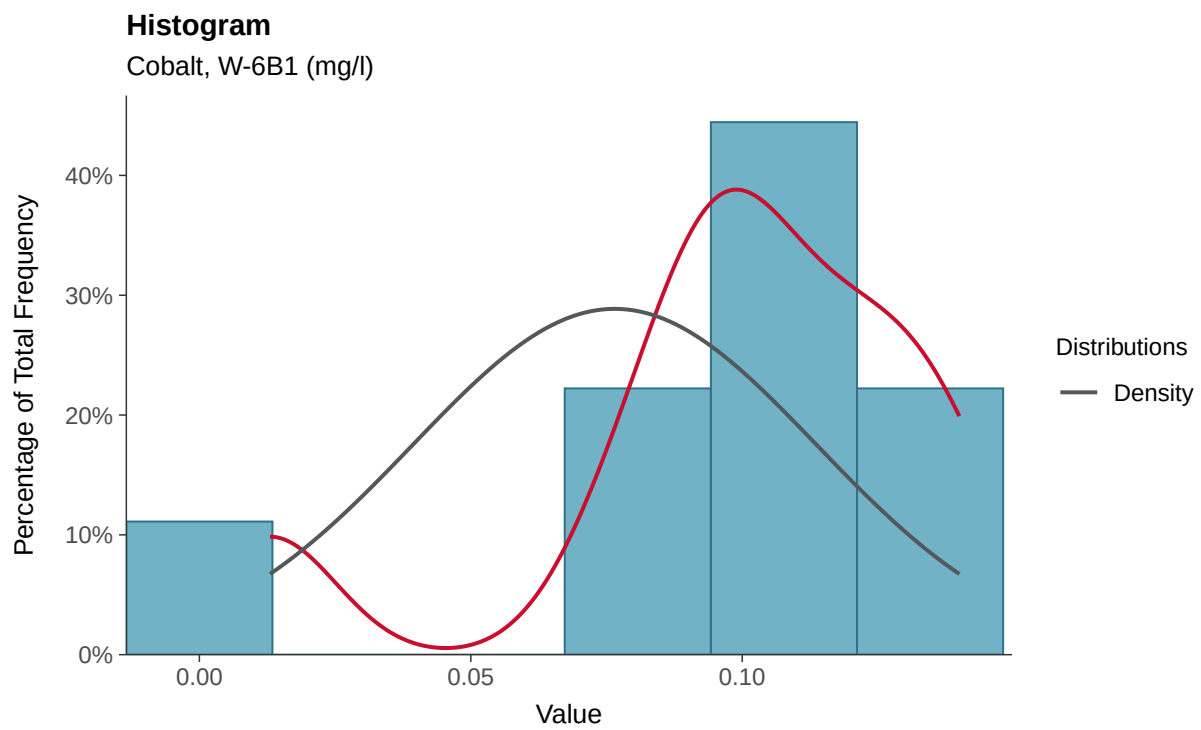
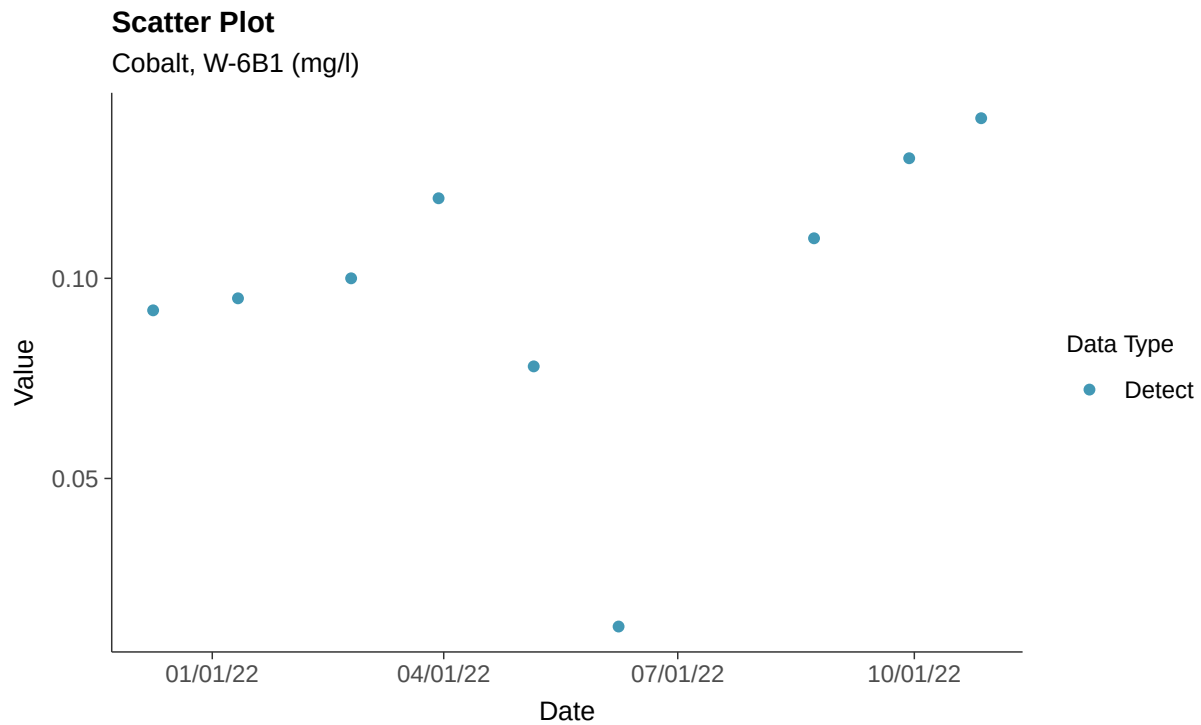
**Trend Regression: Piecewise Linear-Linear**

Chromium, Total, W-6B1 (mg/l)



Appendix IV: Cobalt, W-6B1

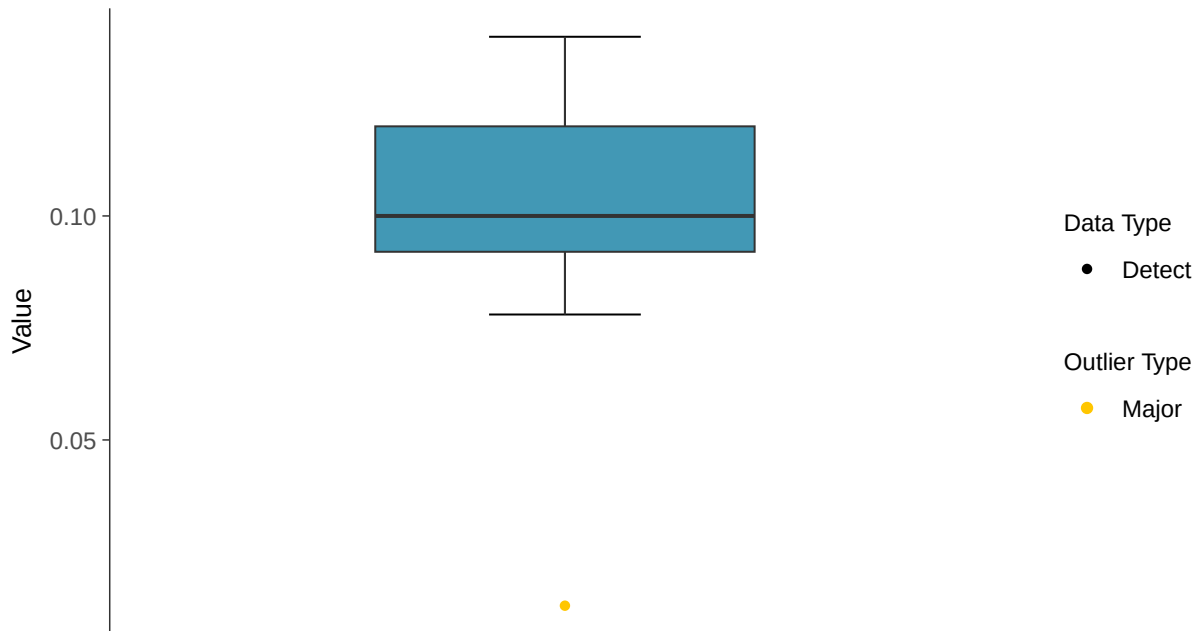
ID: 8_2_110



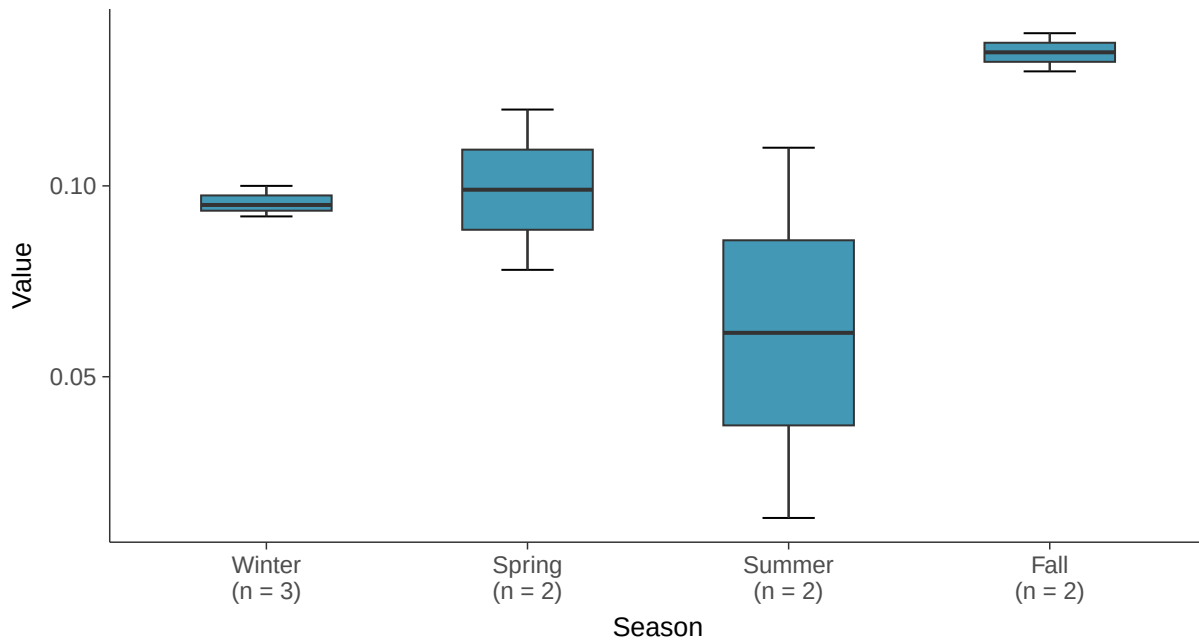
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Cobalt, W-6B1 (mg/l)

**Boxplot by Season**

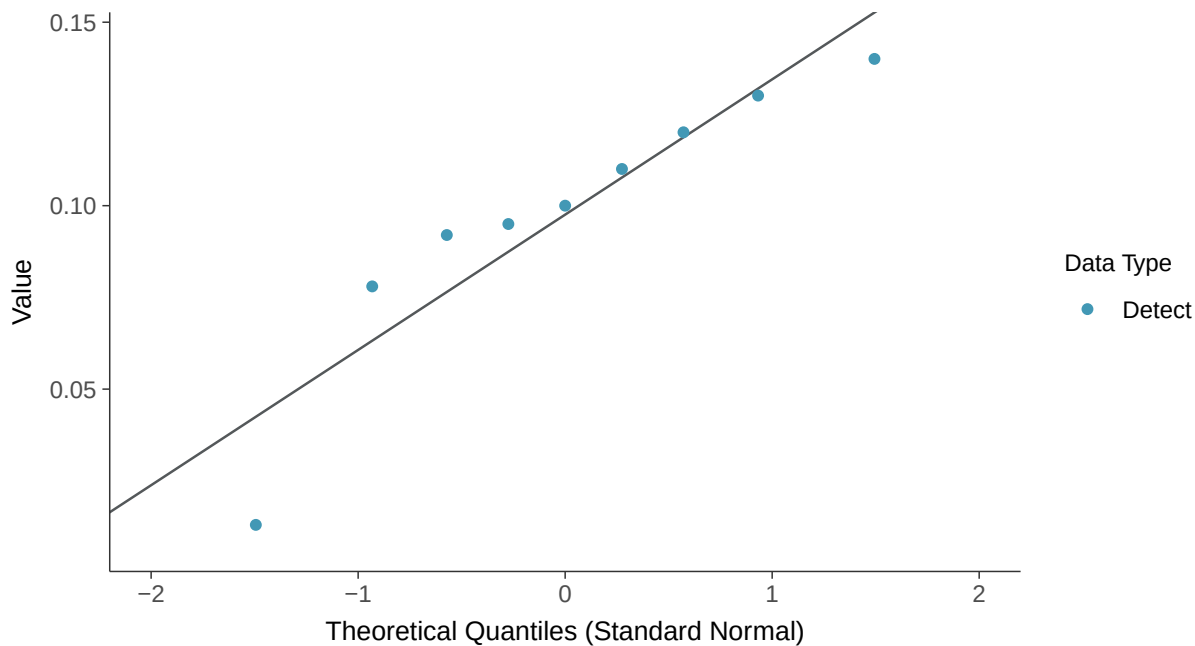
Cobalt, W-6B1 (mg/l)





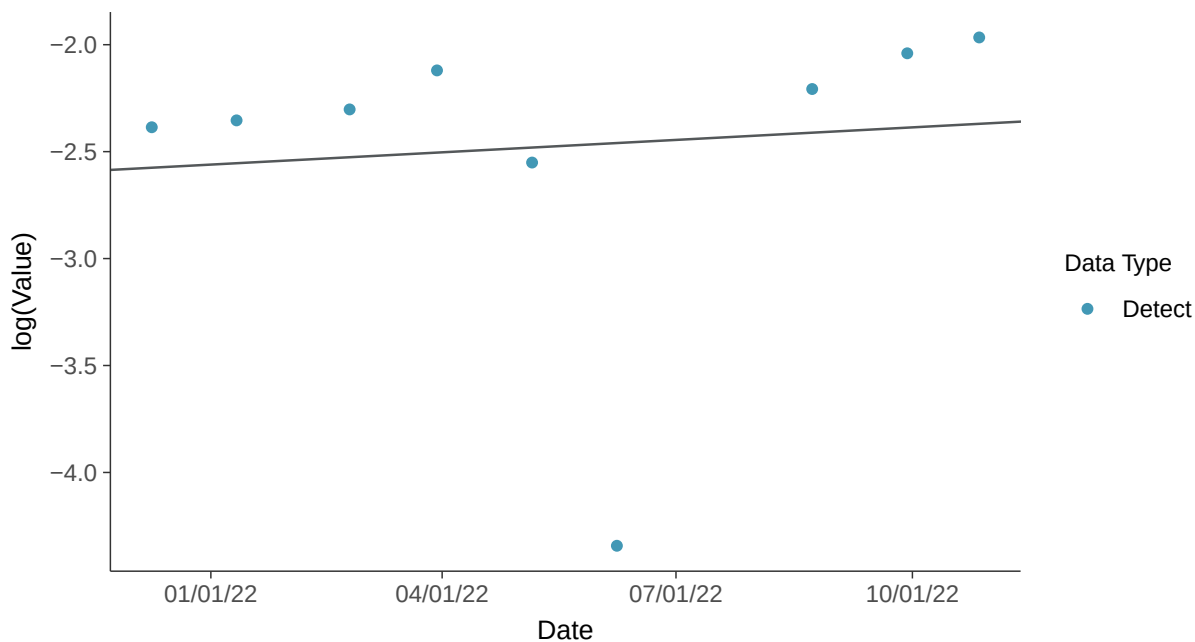
Normal Q-Q plot

Cobalt, W-6B1 (mg/l)



Trend Regression: Lognormal MLE

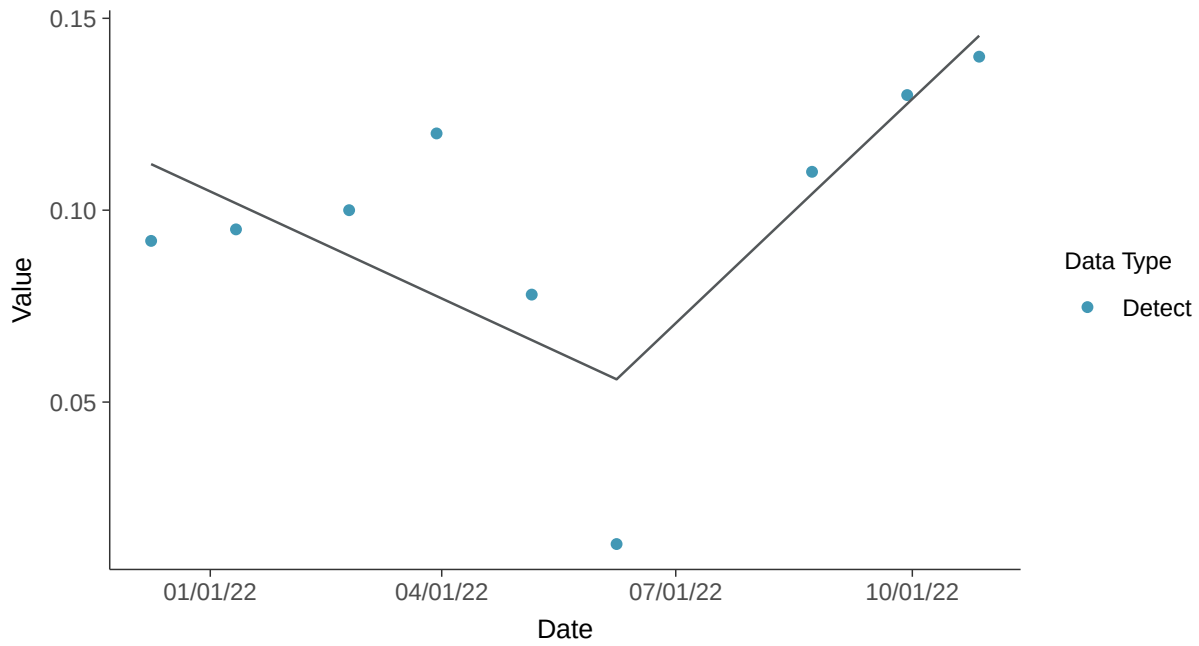
Cobalt, W-6B1 (mg/l)



Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Trend Regression: Piecewise Linear-Linear

Cobalt, W-6B1 (mg/l)

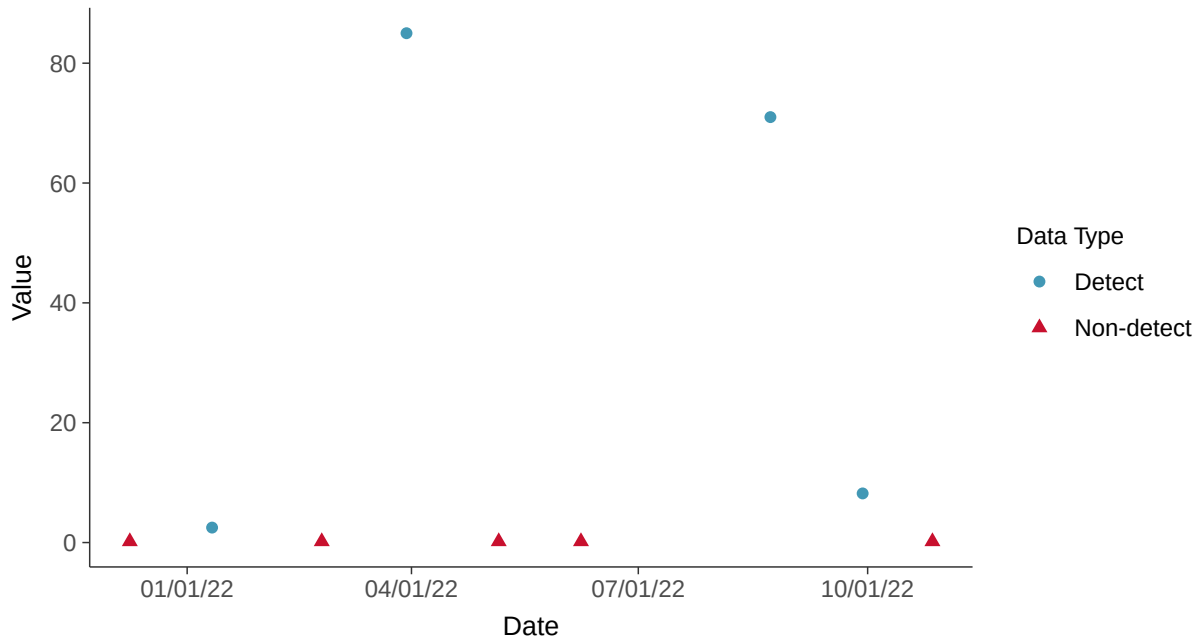


Appendix IV: Fluoride (App IV), W-6B1

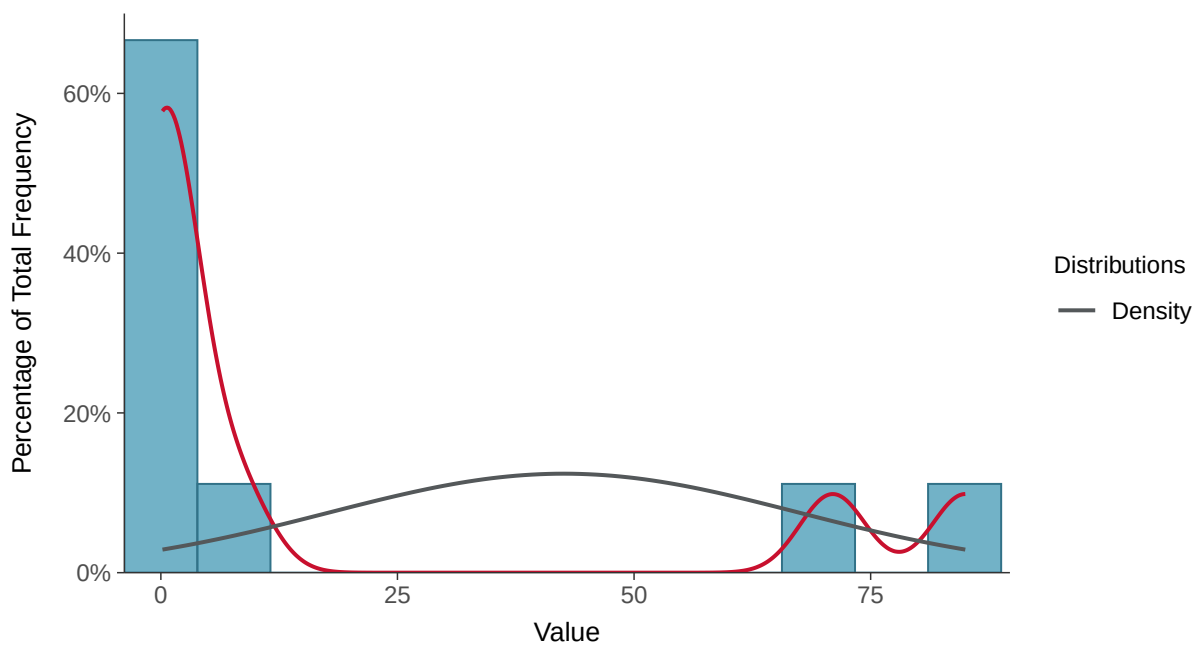
ID: 8_2_112

Scatter Plot

Fluoride (App IV), W-6B1 (mg/l)

**Histogram**

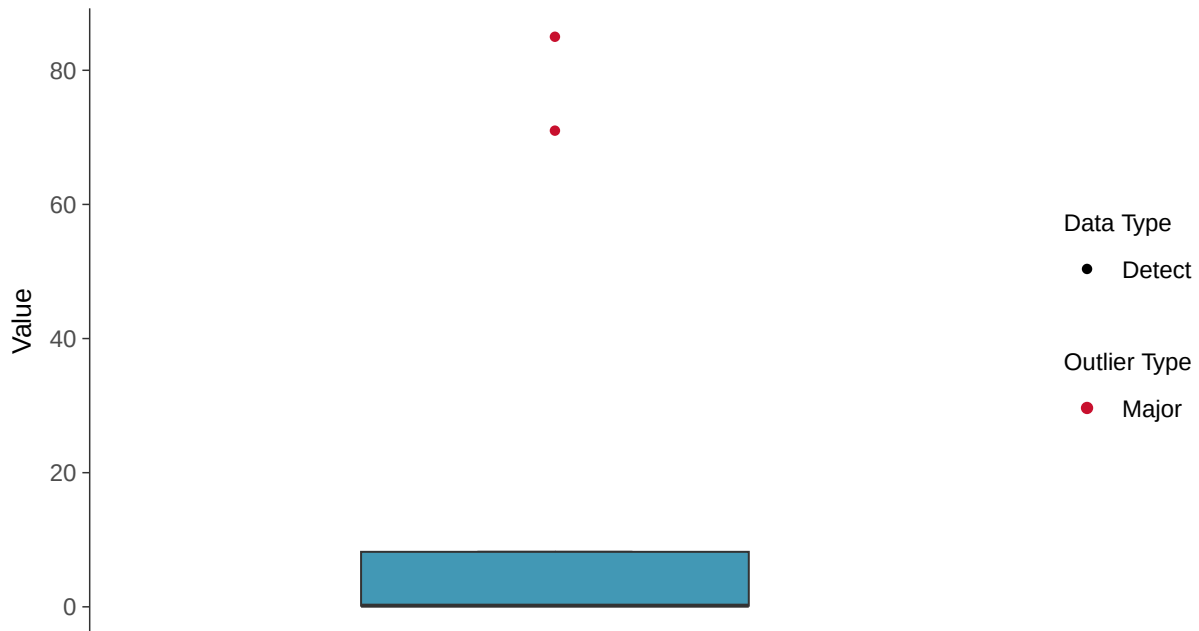
Fluoride (App IV), W-6B1 (mg/l)





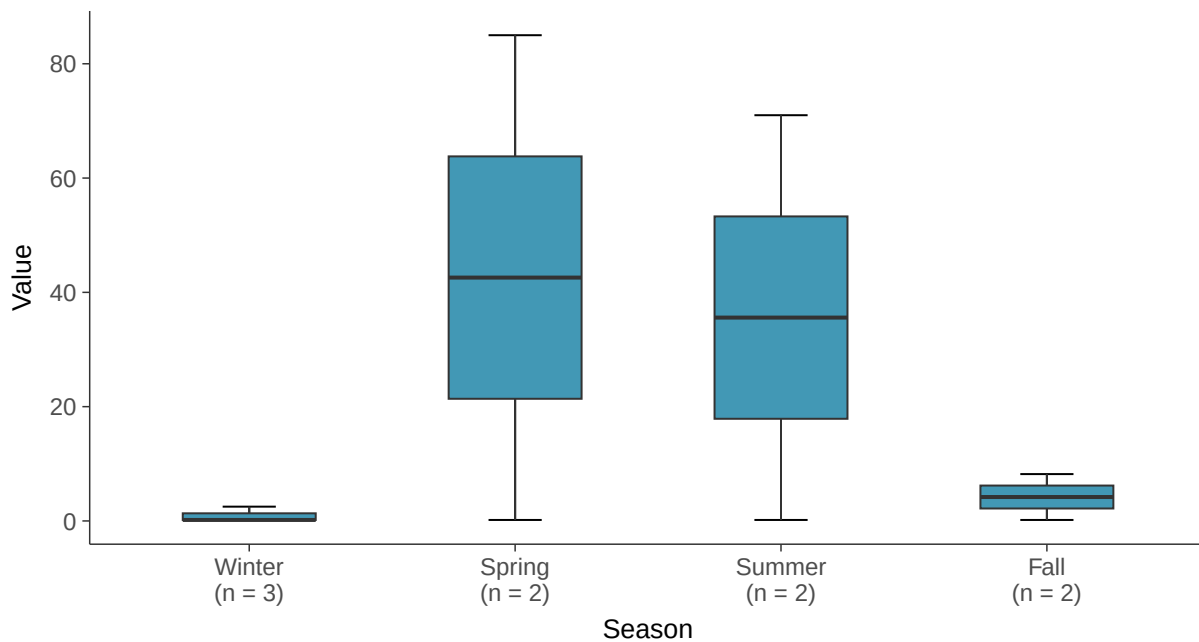
Boxplot

Fluoride (App IV), W-6B1 (mg/l)



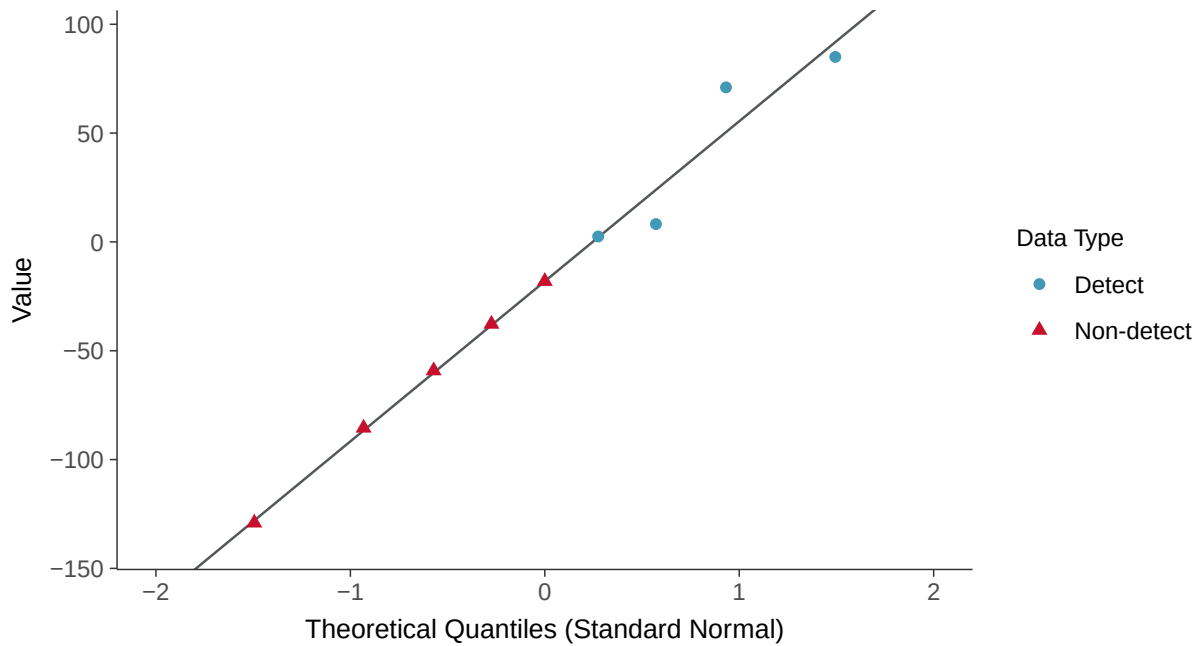
Boxplot by Season

Fluoride (App IV), W-6B1 (mg/l)

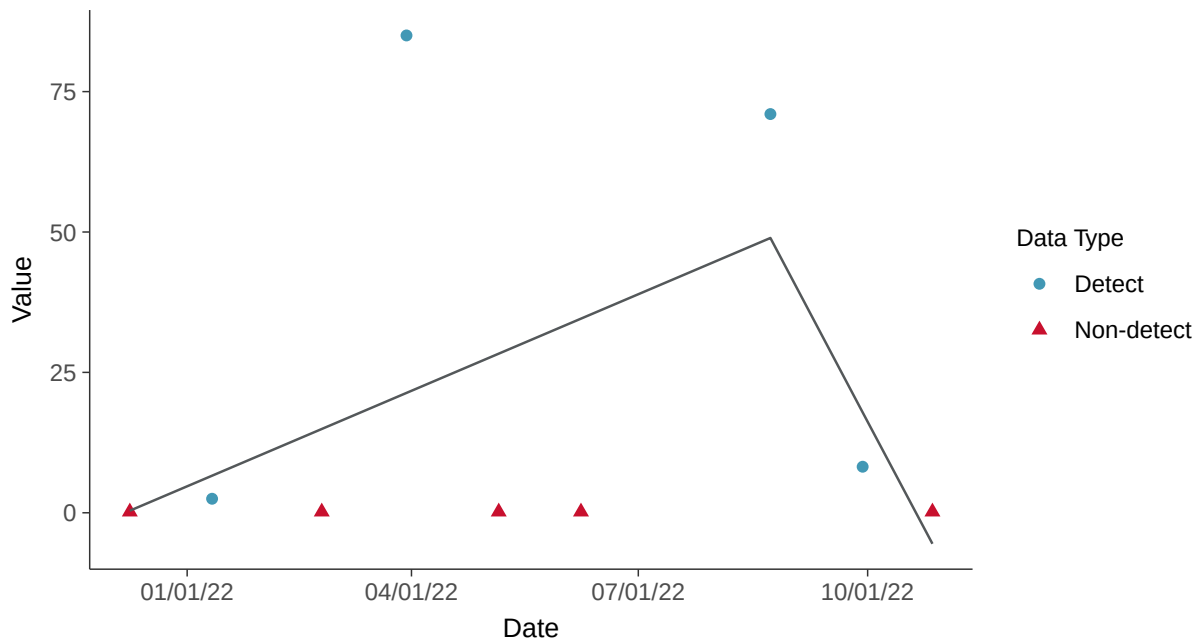


Normal Q-Q plot using ROS Imputed Estimates

Fluoride (App IV), W-6B1 (mg/l)

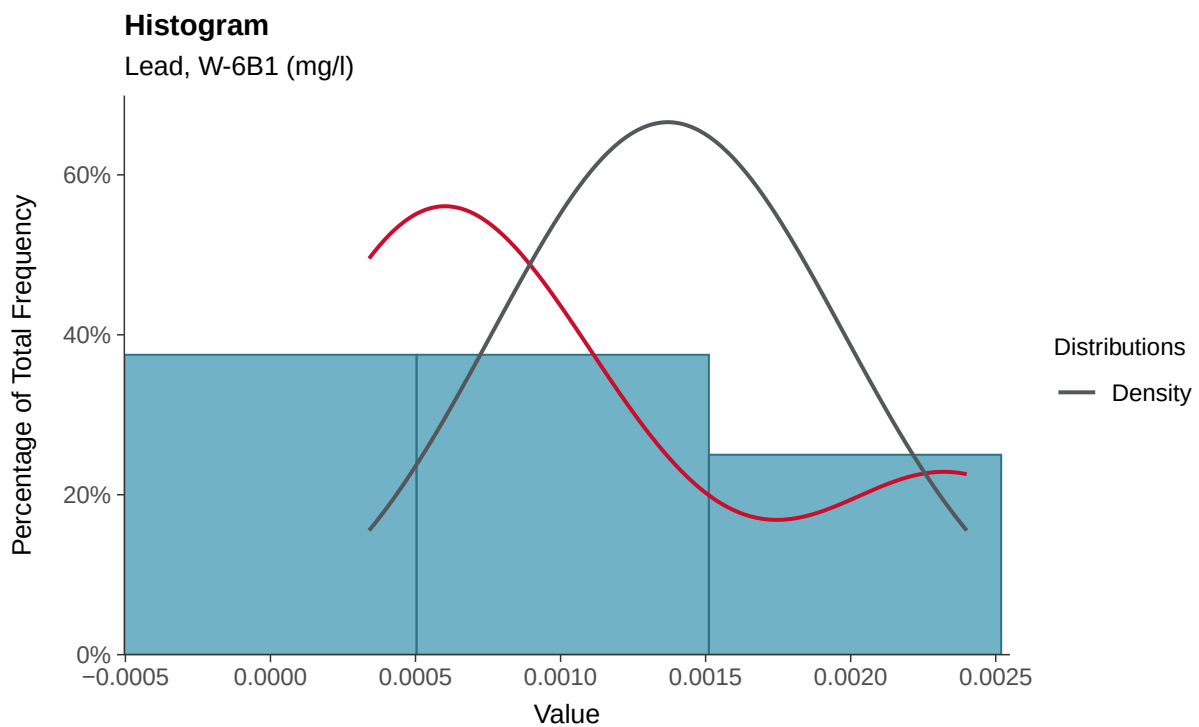
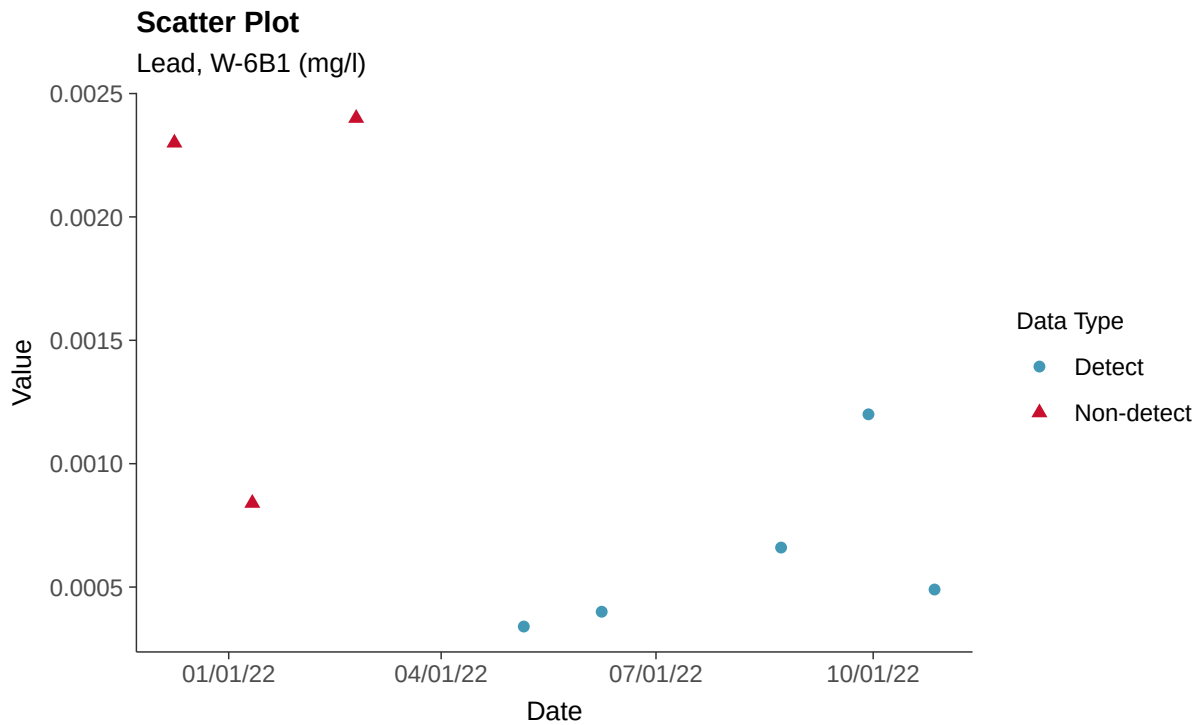
**Trend Regression: Piecewise Linear-Linear**

Fluoride (App IV), W-6B1 (mg/l)



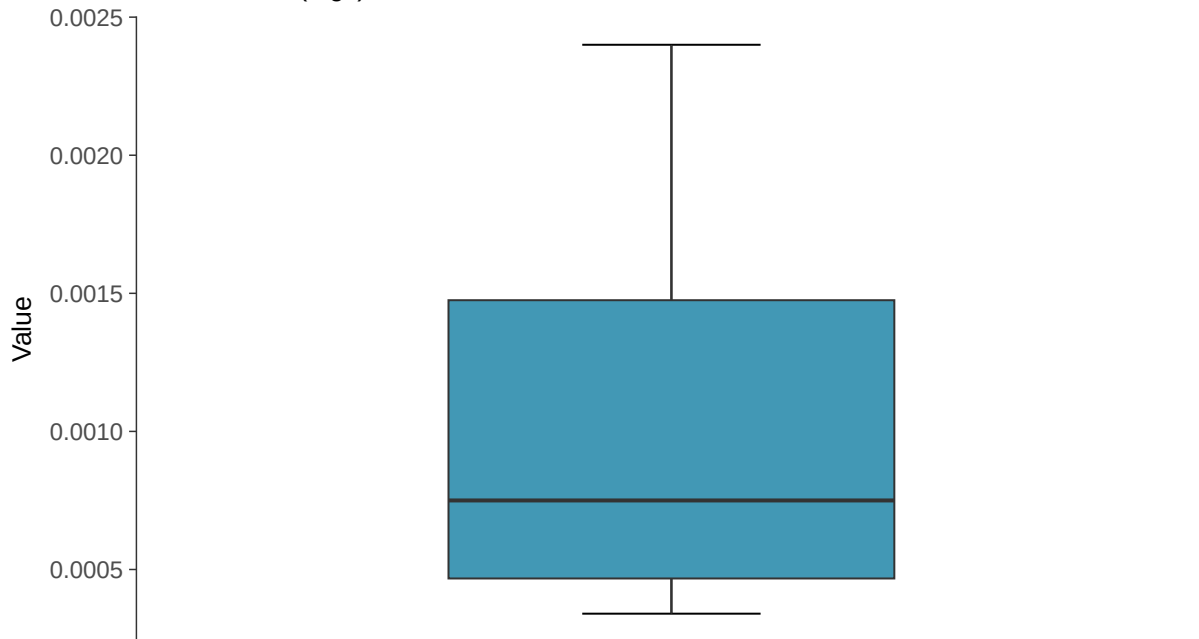
Appendix IV: Lead, W-6B1

ID: 8_2_113



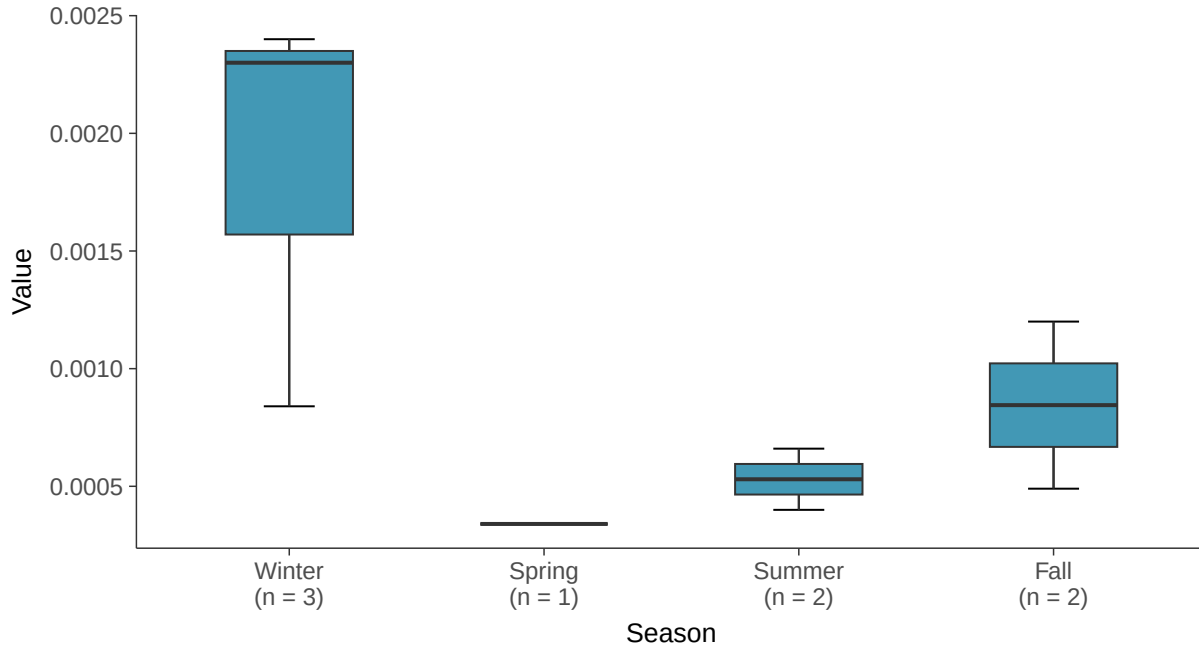
Boxplot

Lead, W-6B1 (mg/l)



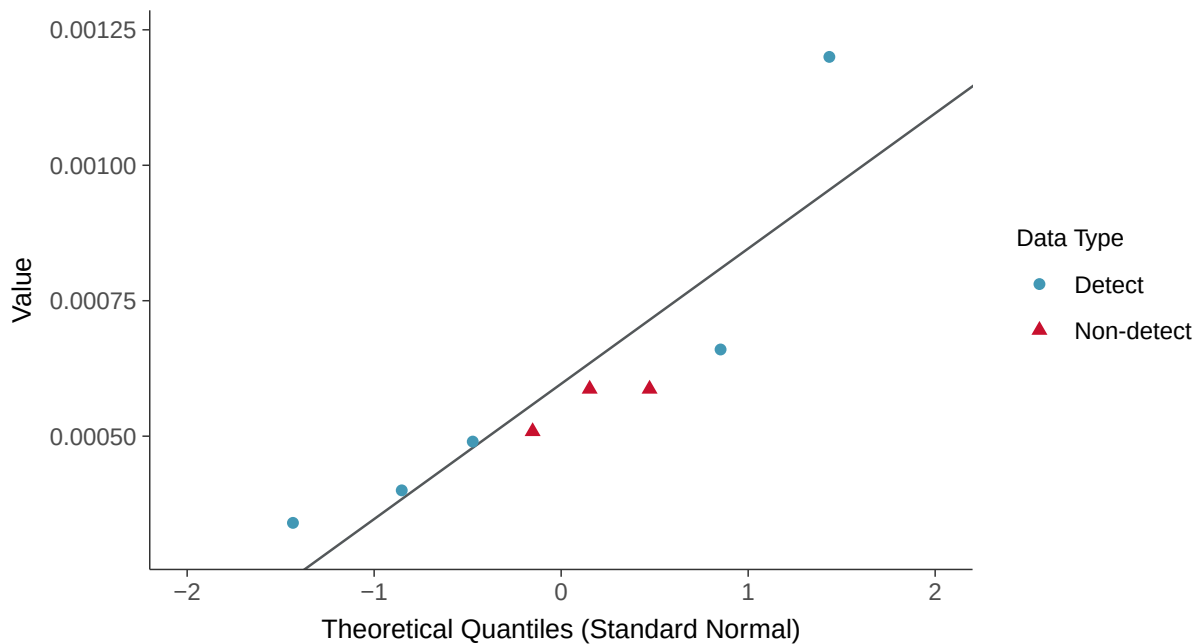
Boxplot by Season

Lead, W-6B1 (mg/l)



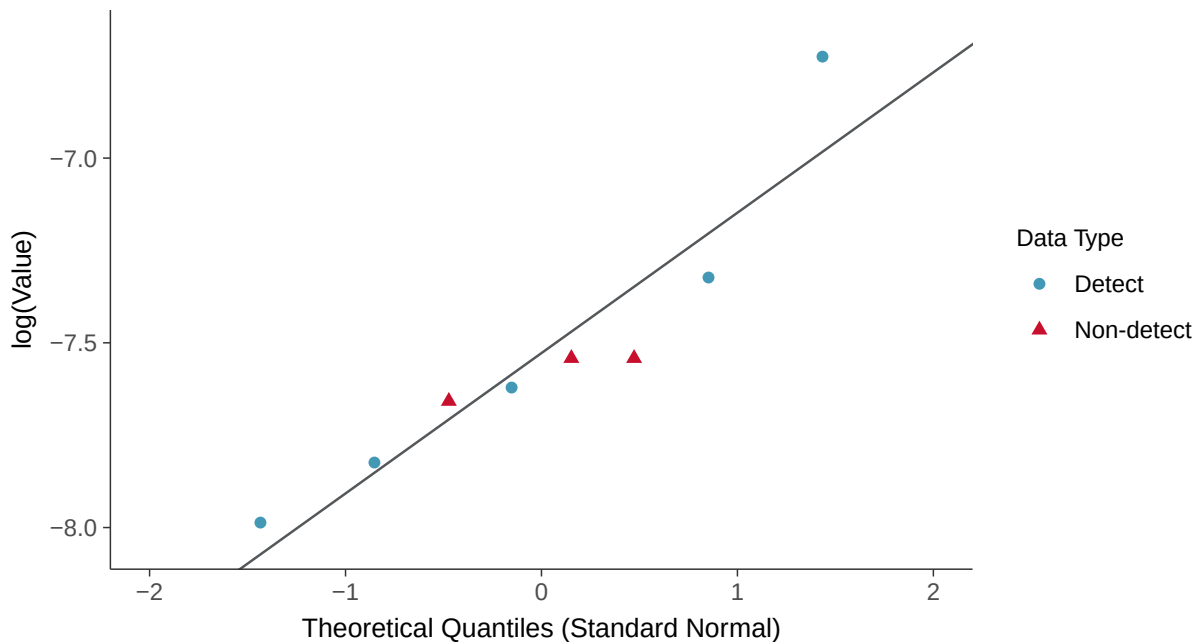
Normal Q-Q plot using ROS Imputed Estimates

Lead, W-6B1 (mg/l)



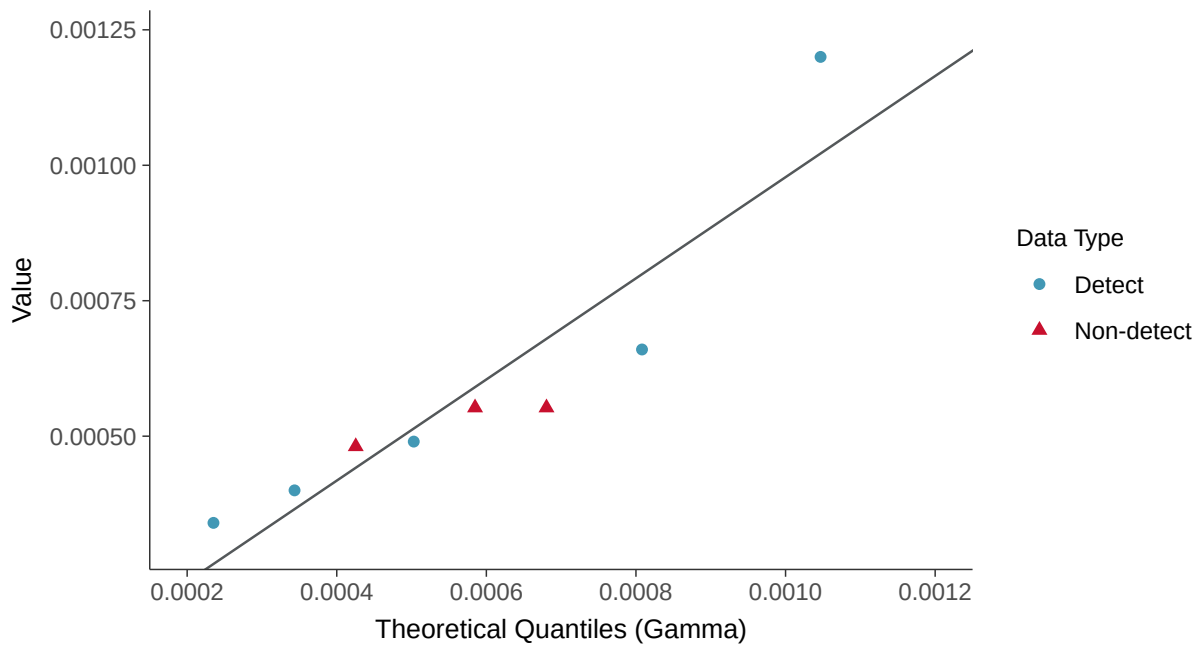
Lognormal Q-Q plot using ROS Imputed Estimates

Lead, W-6B1 (mg/l)



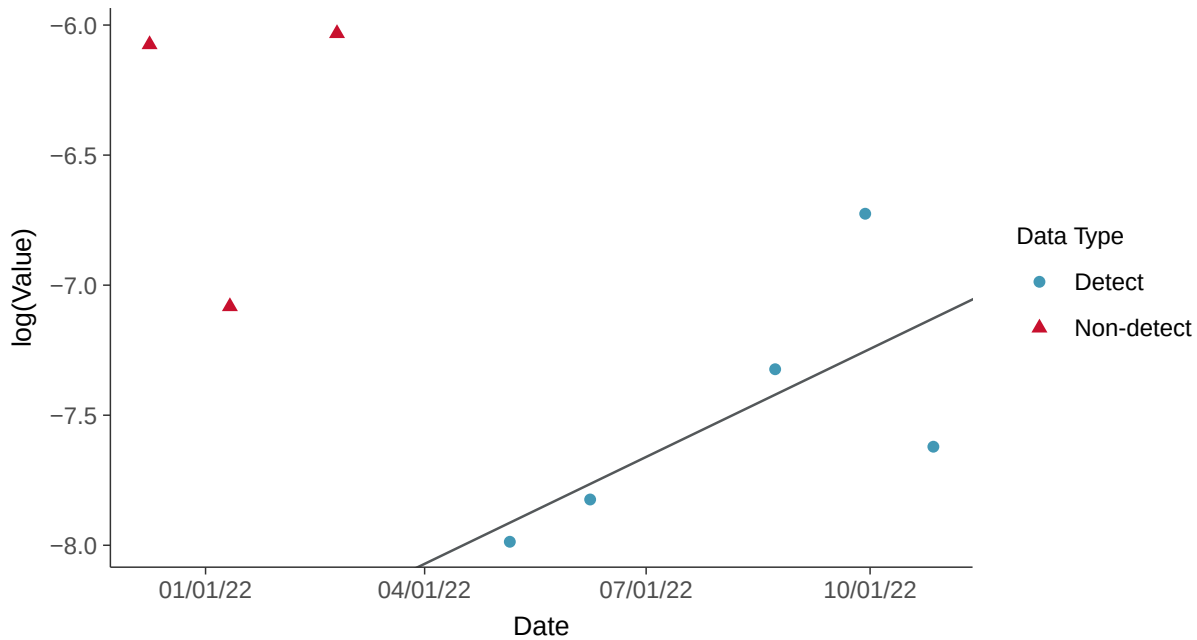
Gamma Q-Q plot using ROS Imputed Estimates

Lead, W-6B1 (mg/l)



Trend Regression: Lognormal MLE

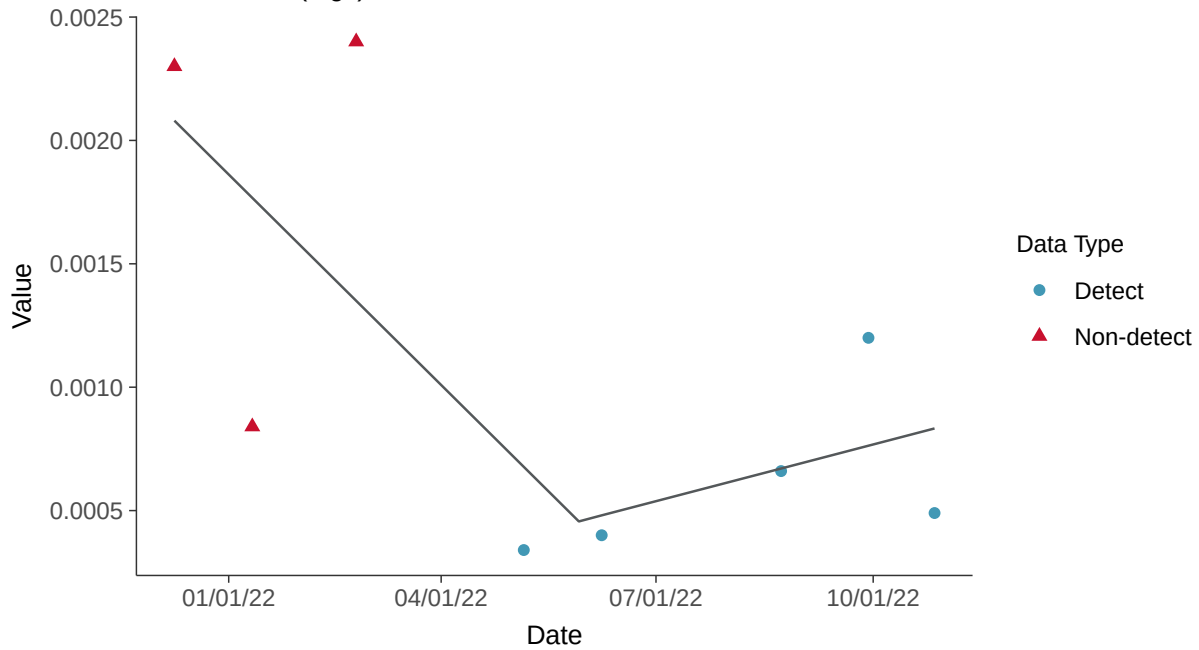
Lead, W-6B1 (mg/l)



Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Trend Regression: Piecewise Linear-Linear

Lead, W-6B1 (mg/l)

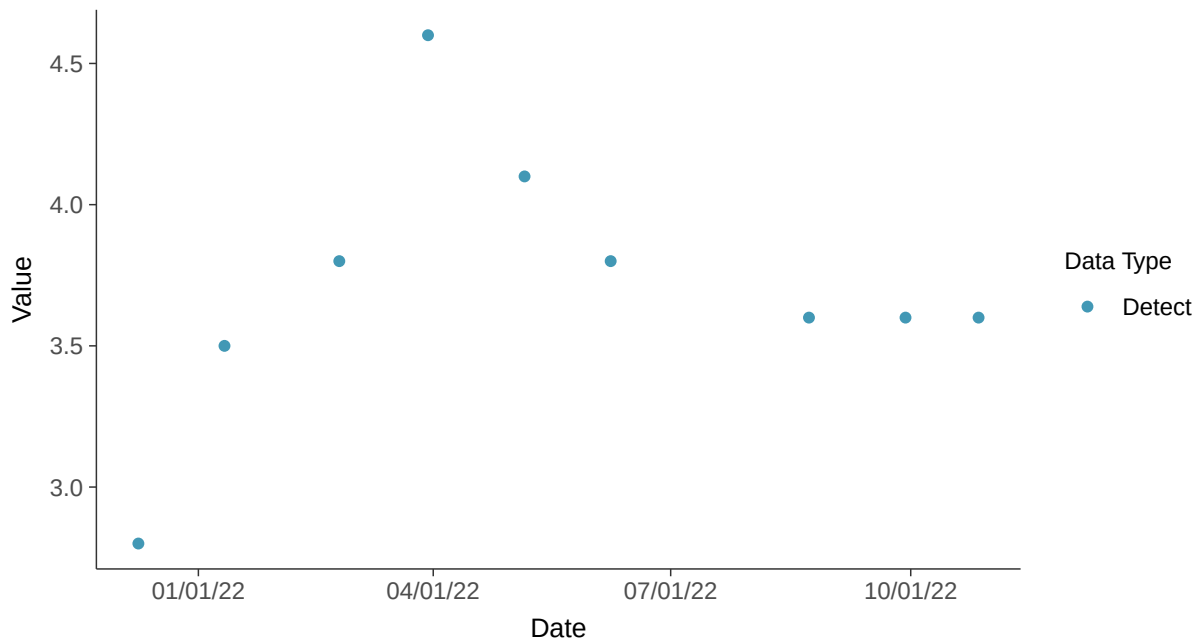


Appendix IV: Lithium, W-6B1

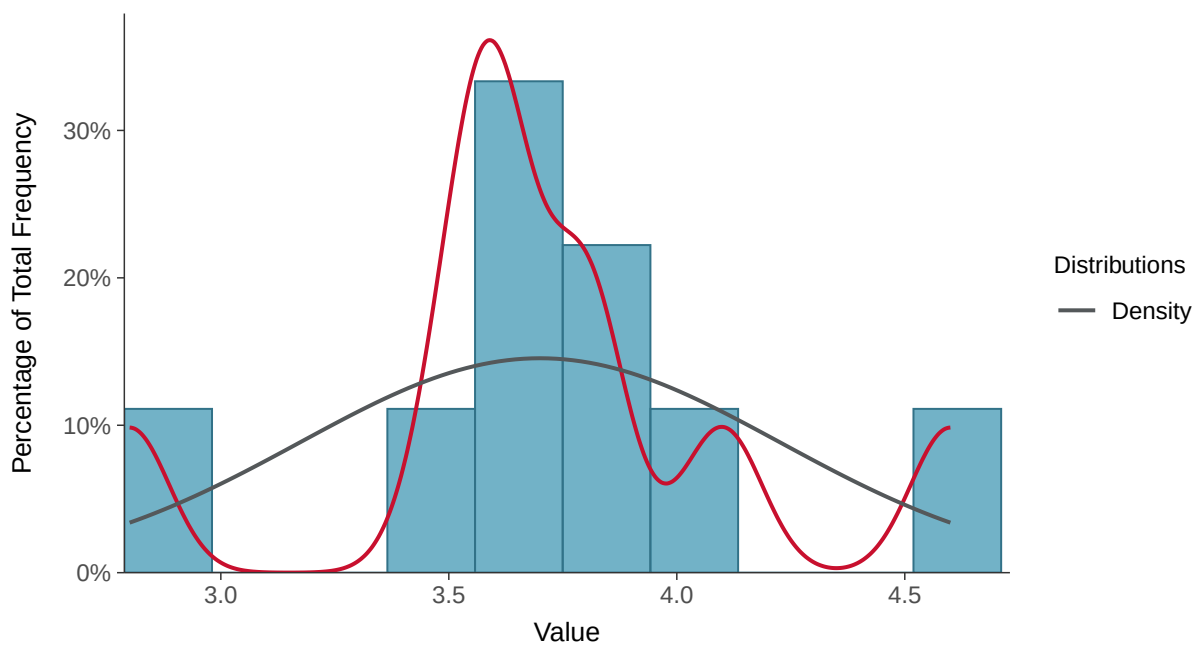
ID: 8_2_114

Scatter Plot

Lithium, W-6B1 (mg/l)

**Histogram**

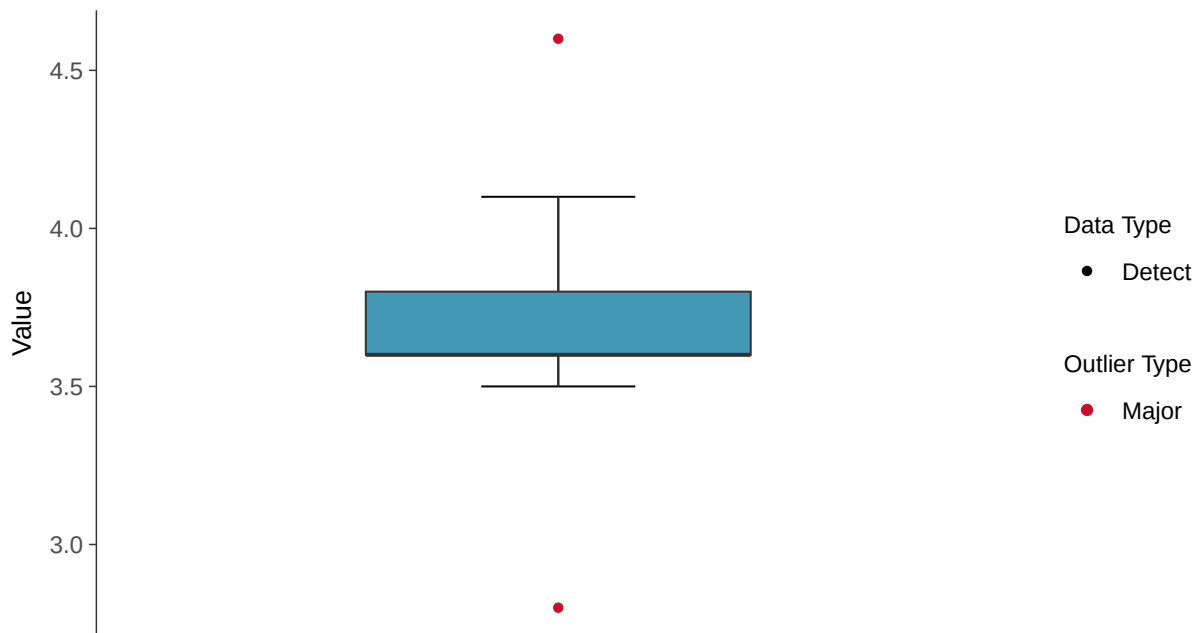
Lithium, W-6B1 (mg/l)



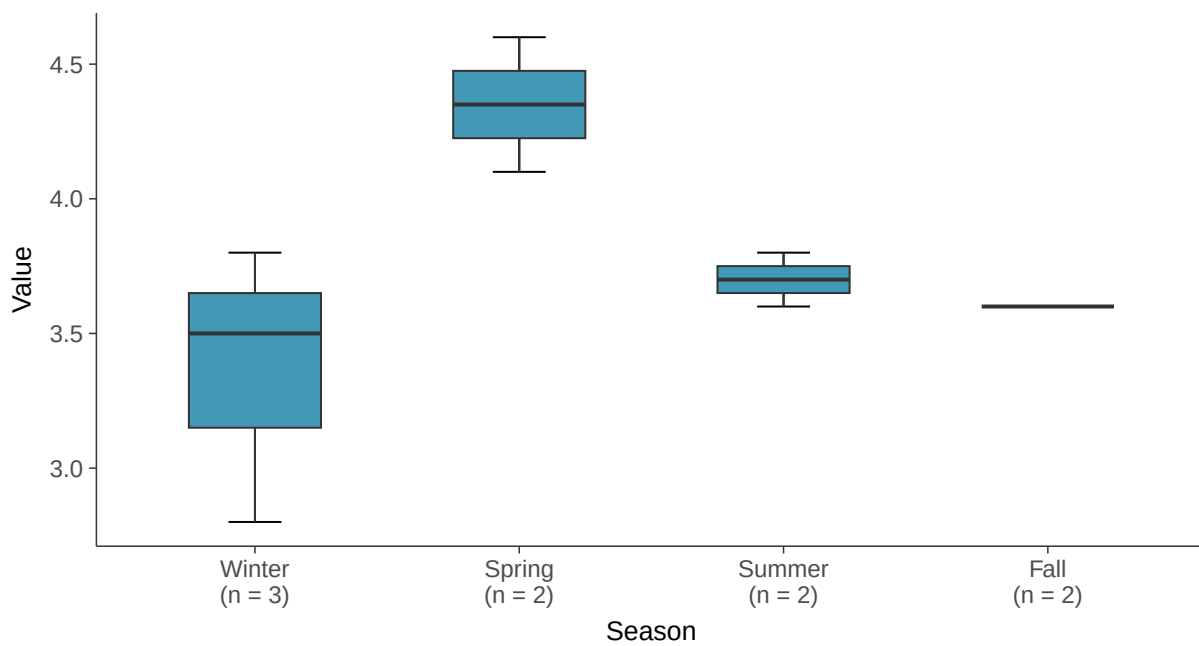
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Lithium, W-6B1 (mg/l)

**Boxplot by Season**

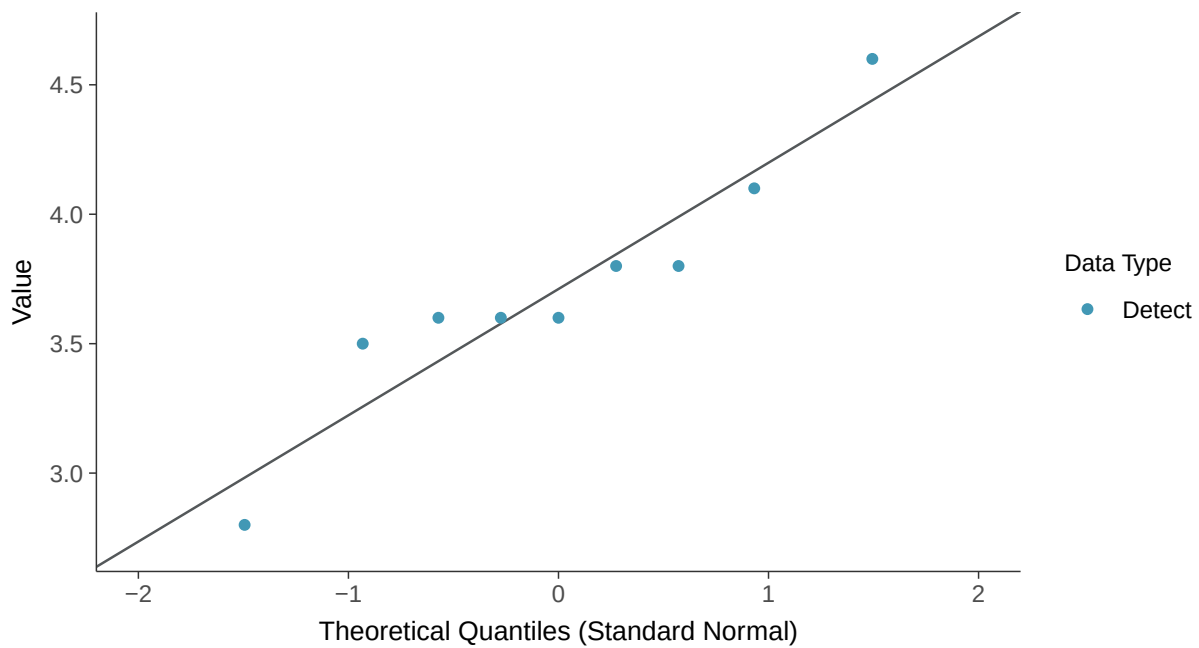
Lithium, W-6B1 (mg/l)





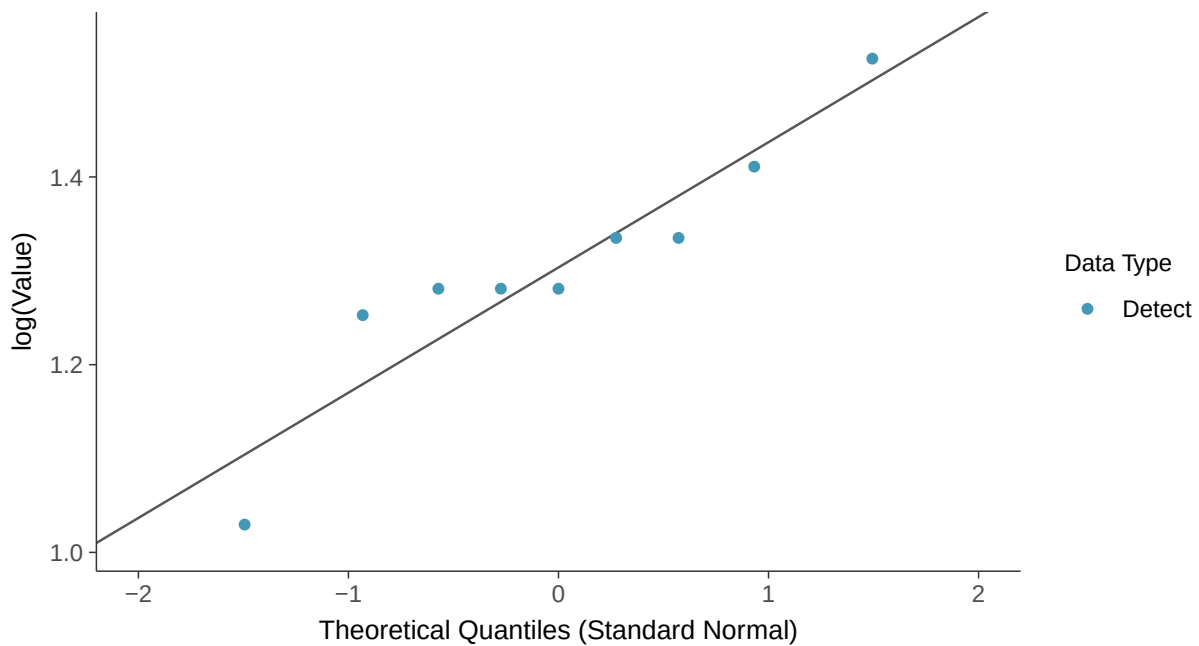
Normal Q-Q plot

Lithium, W-6B1 (mg/l)



Lognormal Q-Q plot

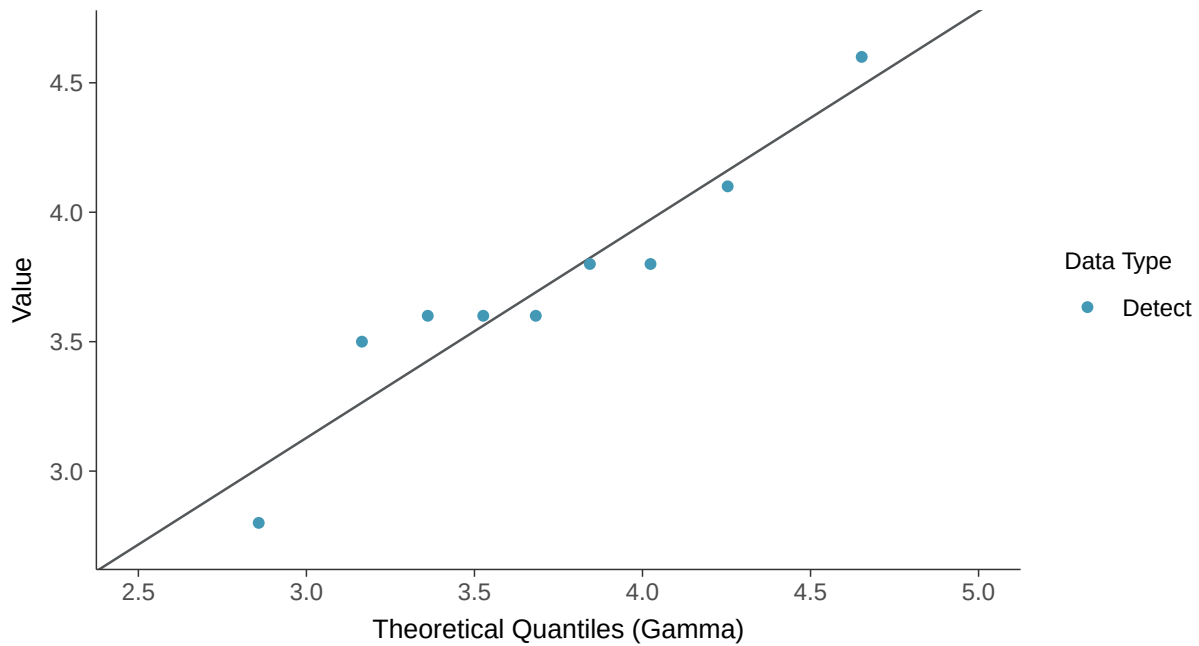
Lithium, W-6B1 (mg/l)



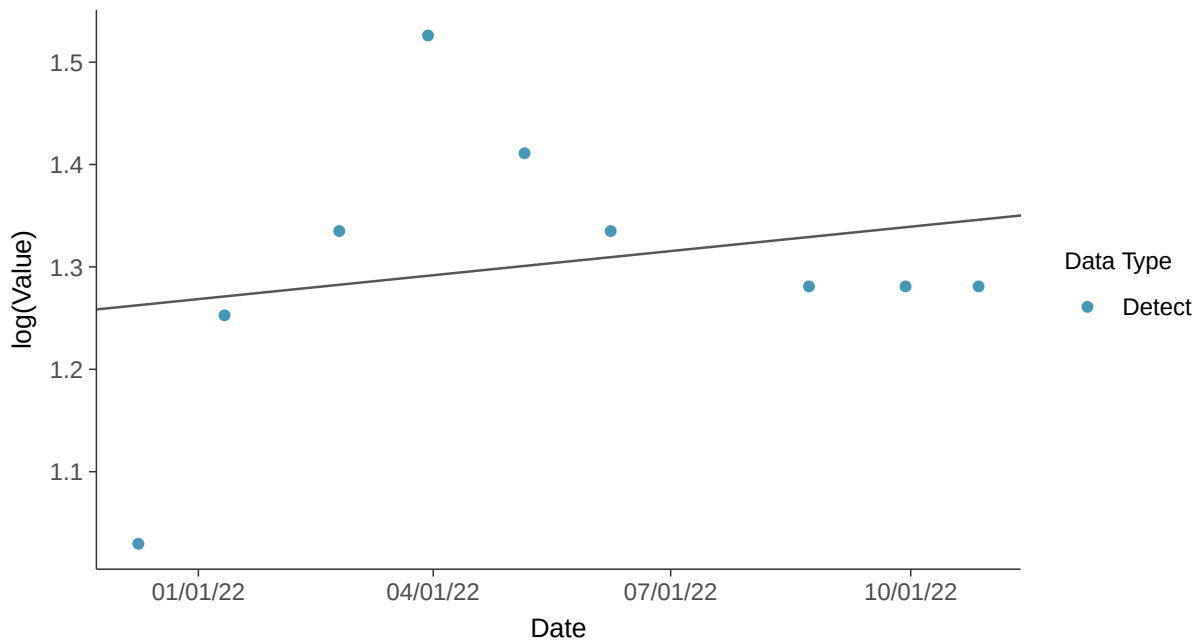
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Gamma Q-Q plot

Lithium, W-6B1 (mg/l)

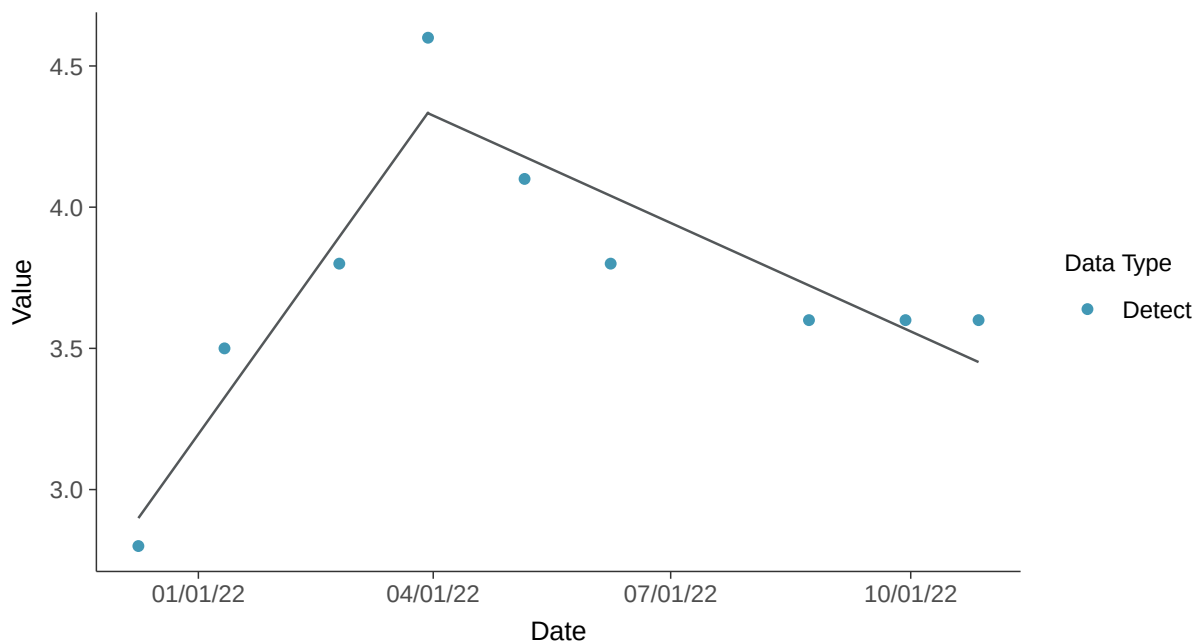
**Trend Regression: Lognormal MLE**

Lithium, W-6B1 (mg/l)



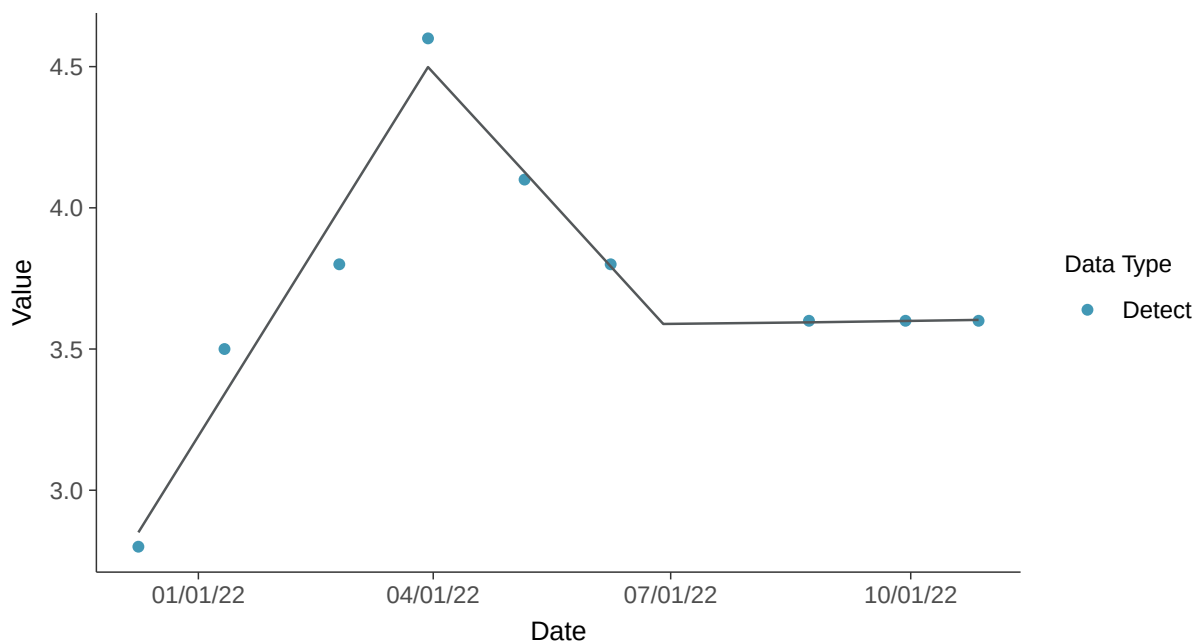
Trend Regression: Piecewise Linear-Linear

Lithium, W-6B1 (mg/l)



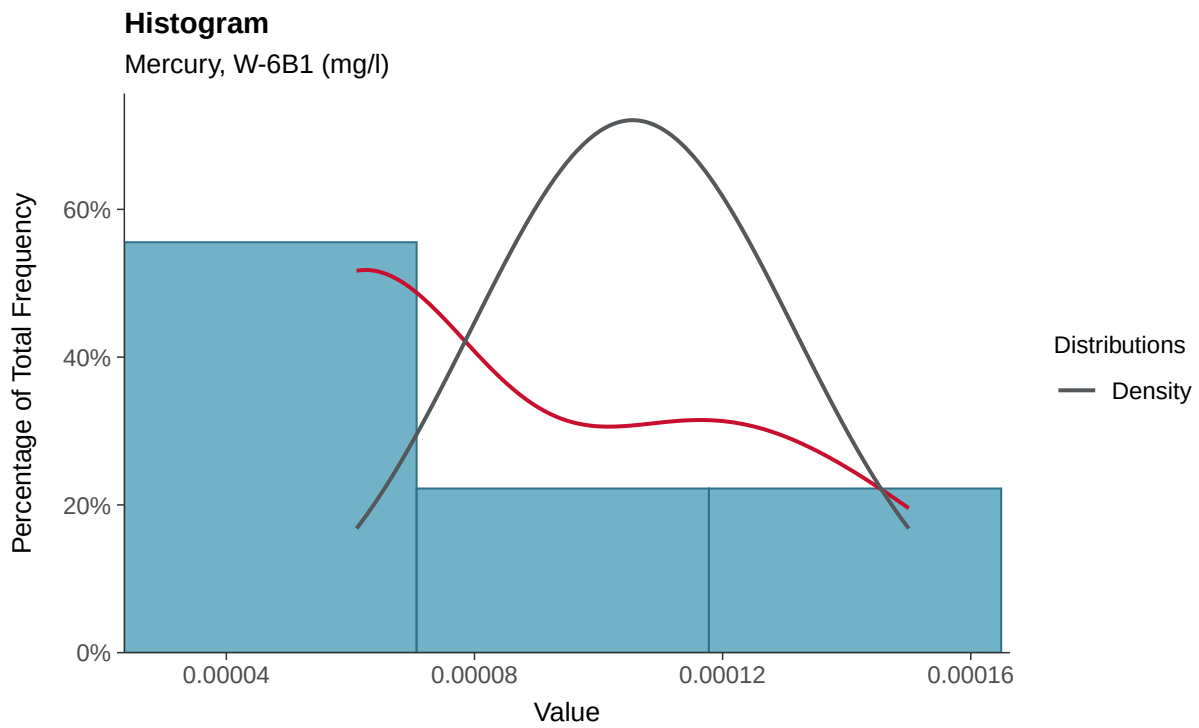
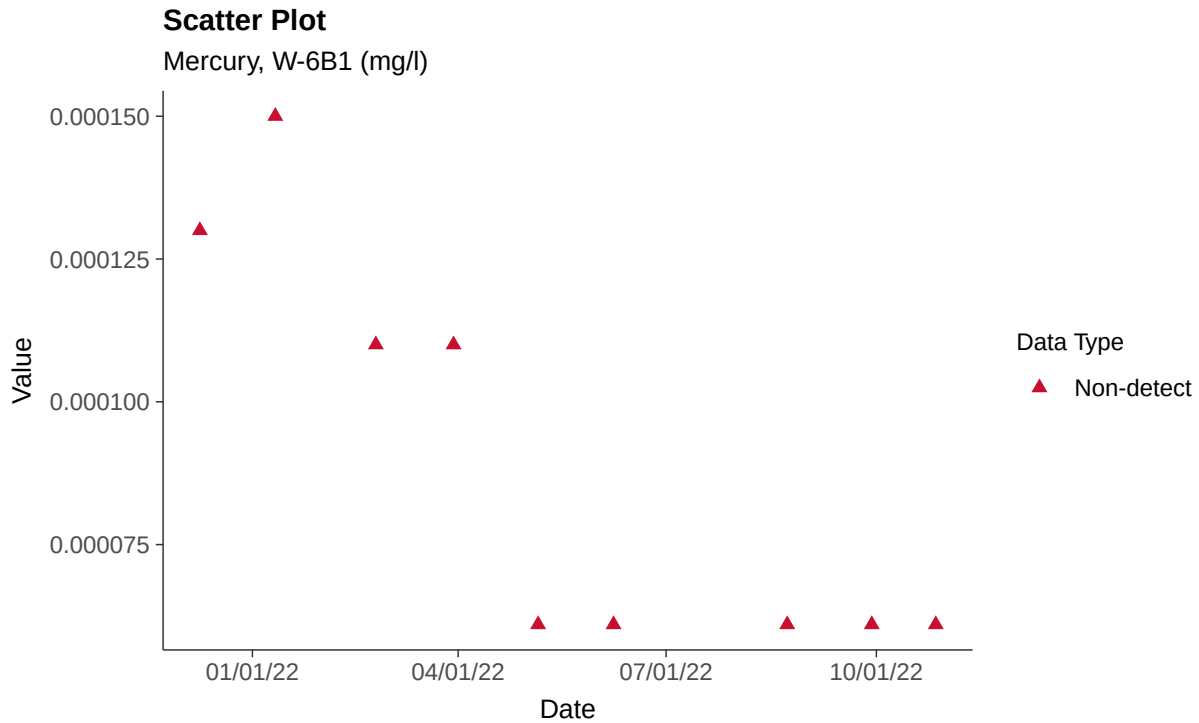
Trend Regression: Piecewise Linear-Linear-Linear

Lithium, W-6B1 (mg/l)



Appendix IV: Mercury, W-6B1

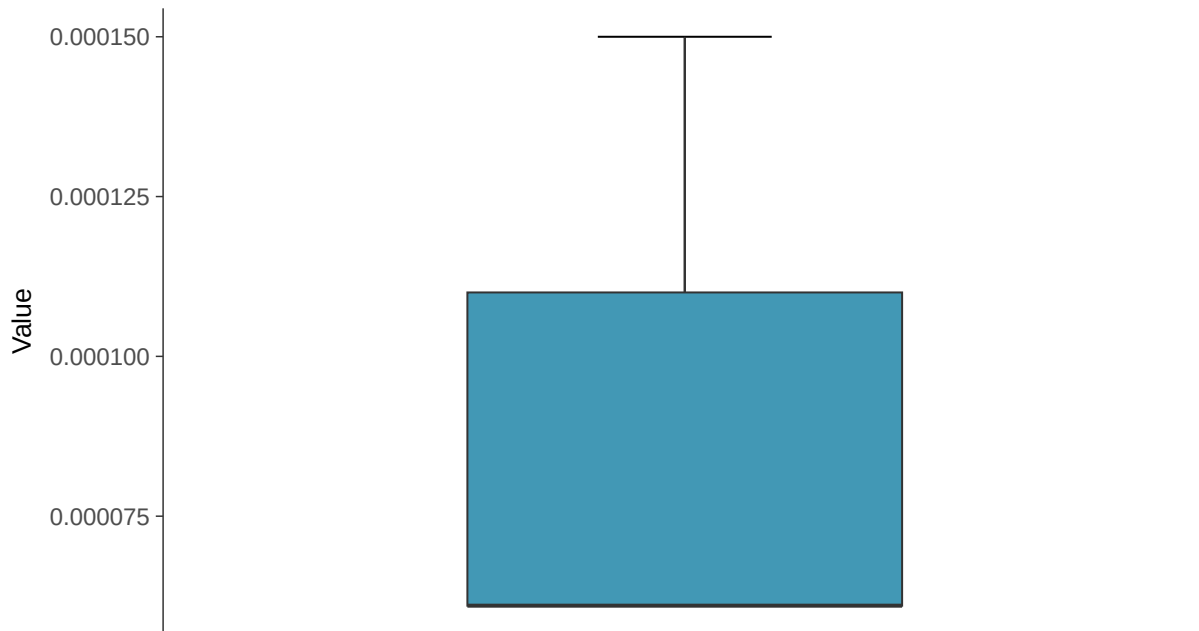
ID: 8_2_115





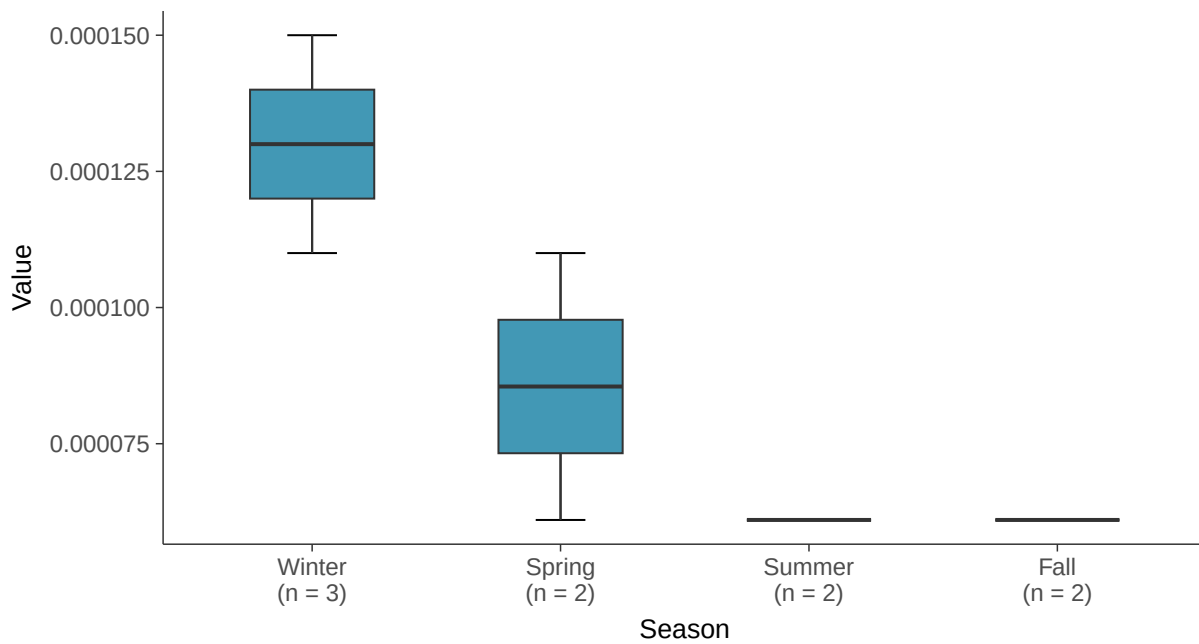
Boxplot

Mercury, W-6B1 (mg/l)



Boxplot by Season

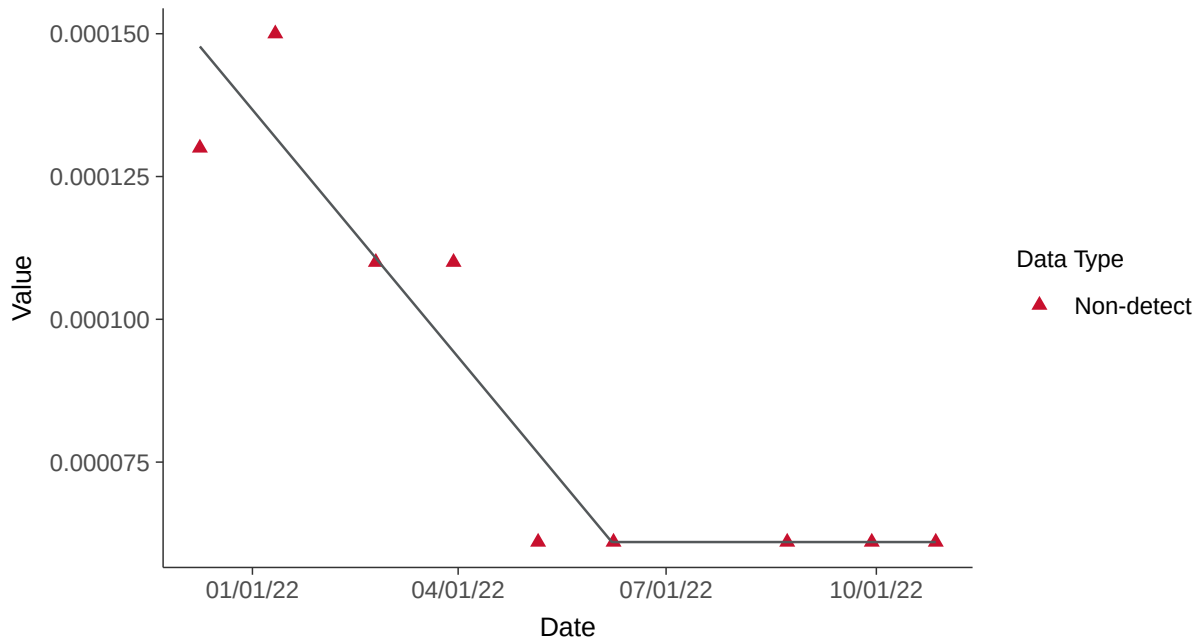
Mercury, W-6B1 (mg/l)





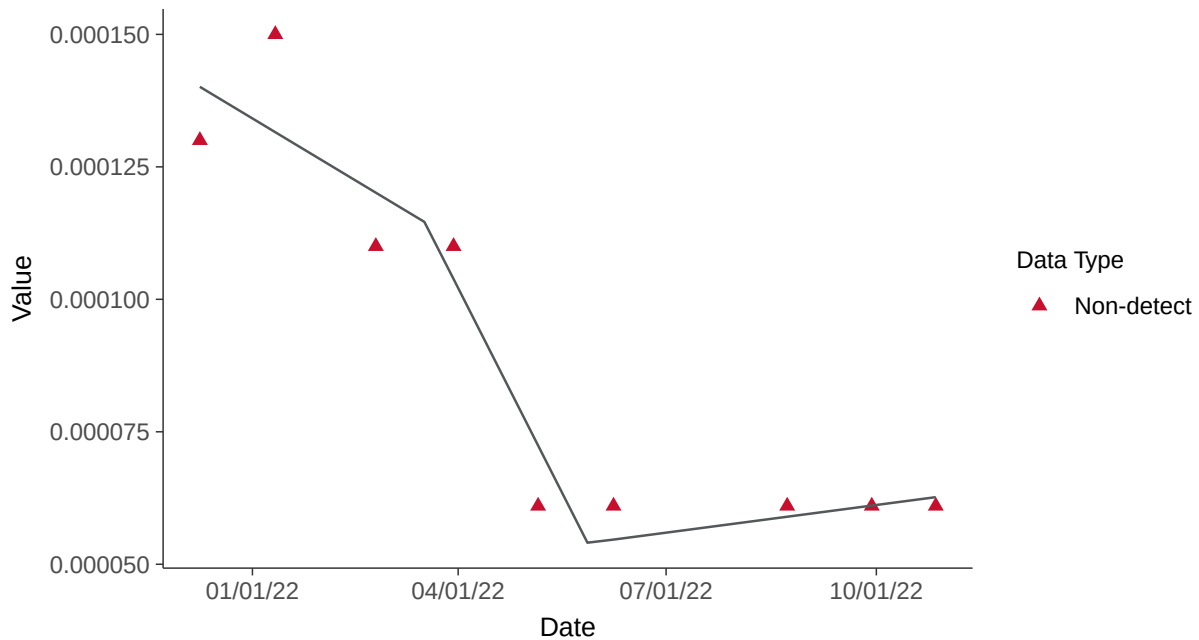
Trend Regression: Piecewise Linear-Linear

Mercury, W-6B1 (mg/l)



Trend Regression: Piecewise Linear-Linear-Linear

Mercury, W-6B1 (mg/l)

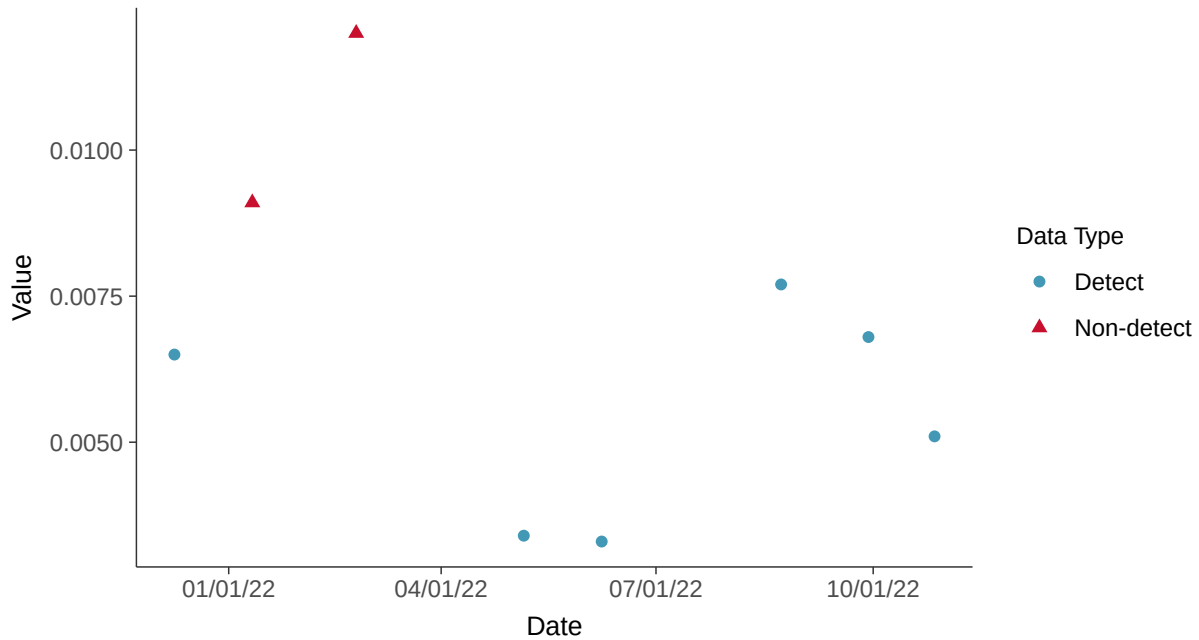


Appendix IV: Molybdenum, W-6B1

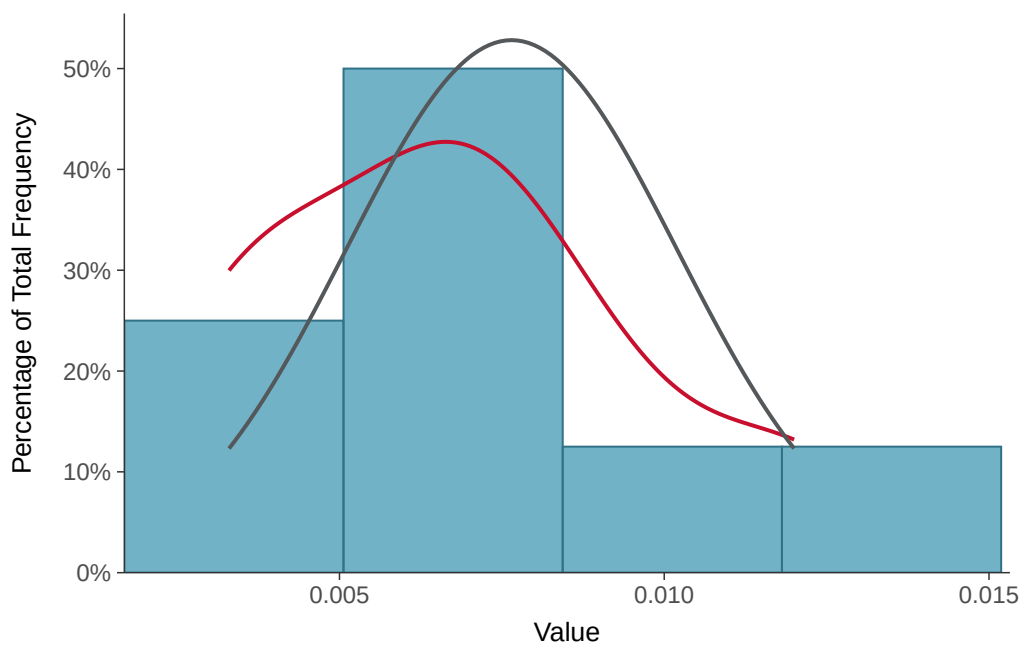
ID: 8_2_116

Scatter Plot

Molybdenum, W-6B1 (mg/l)

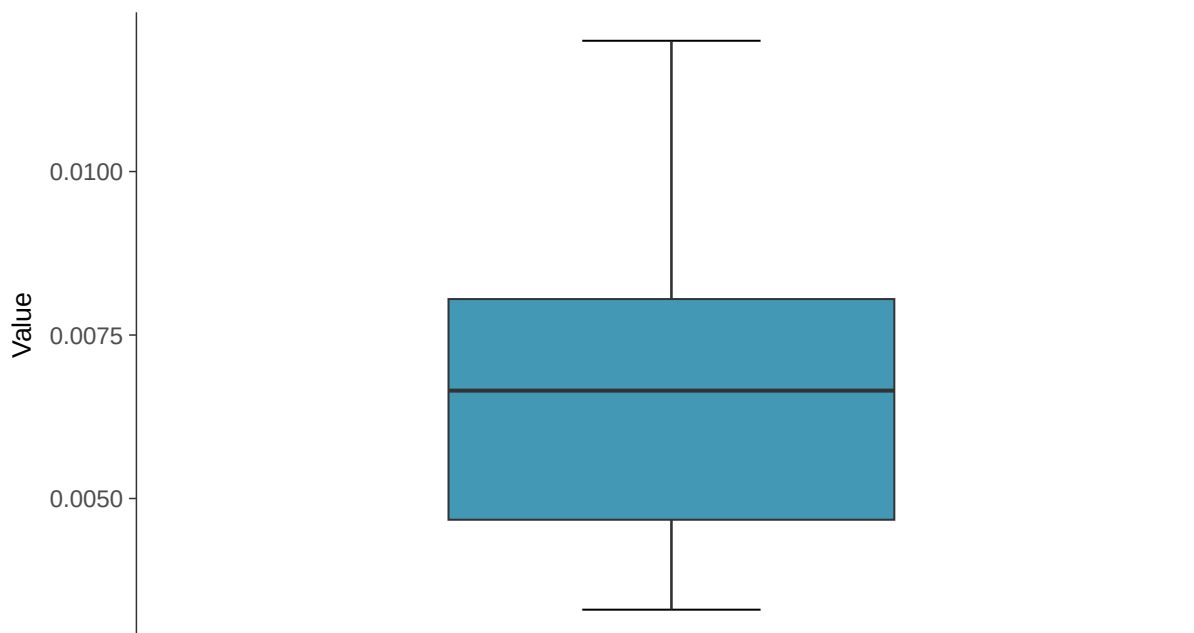
**Histogram**

Molybdenum, W-6B1 (mg/l)



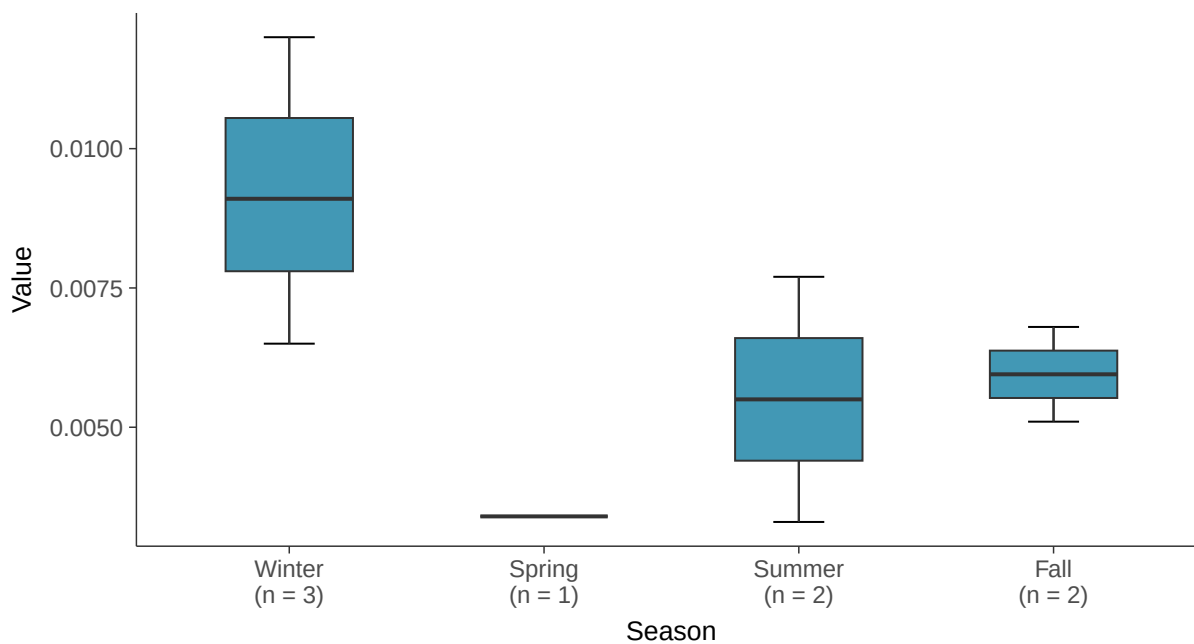
Boxplot

Molybdenum, W-6B1 (mg/l)



Boxplot by Season

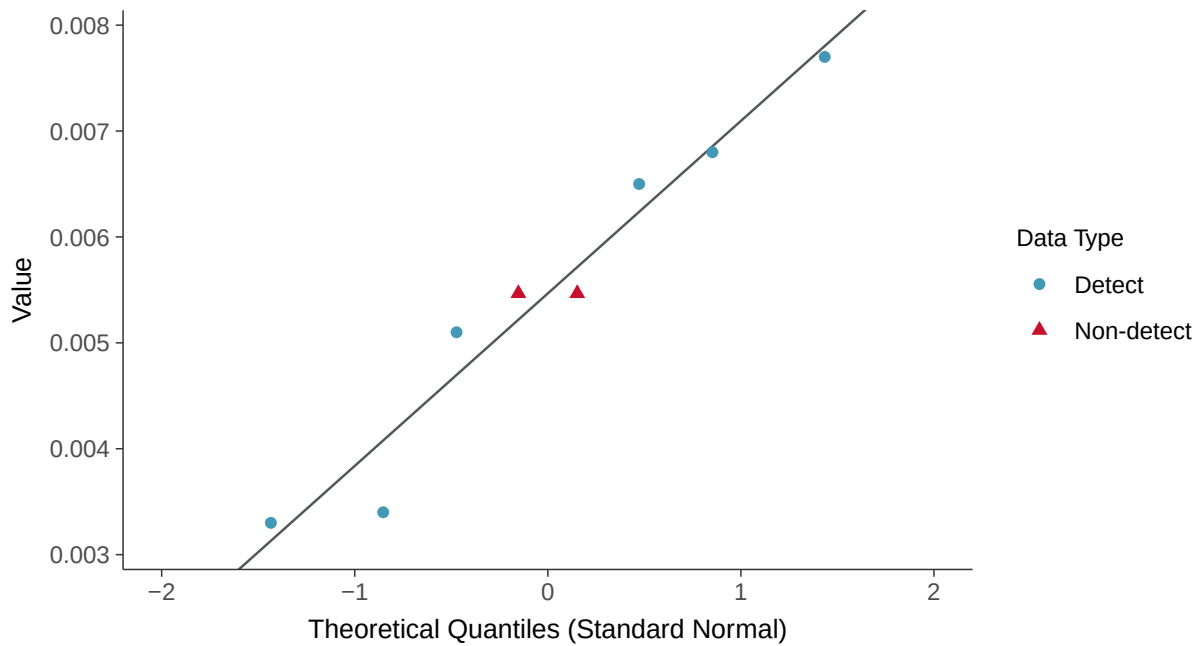
Molybdenum, W-6B1 (mg/l)



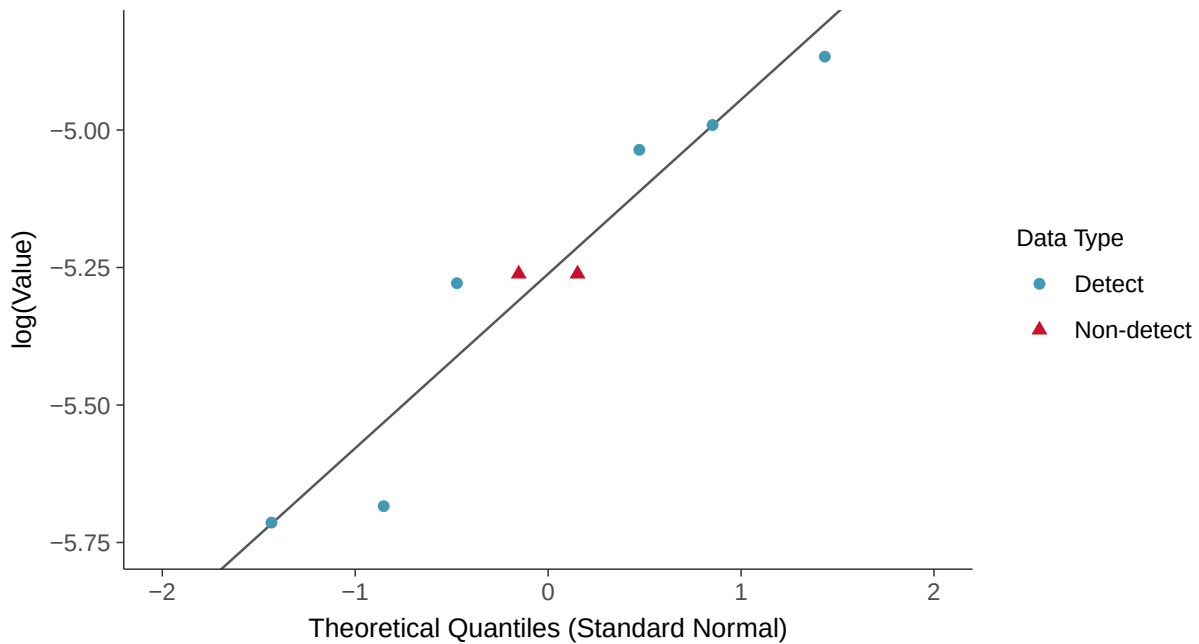
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Normal Q-Q plot using ROS Imputed Estimates

Molybdenum, W-6B1 (mg/l)

**Lognormal Q-Q plot using ROS Imputed Estimates**

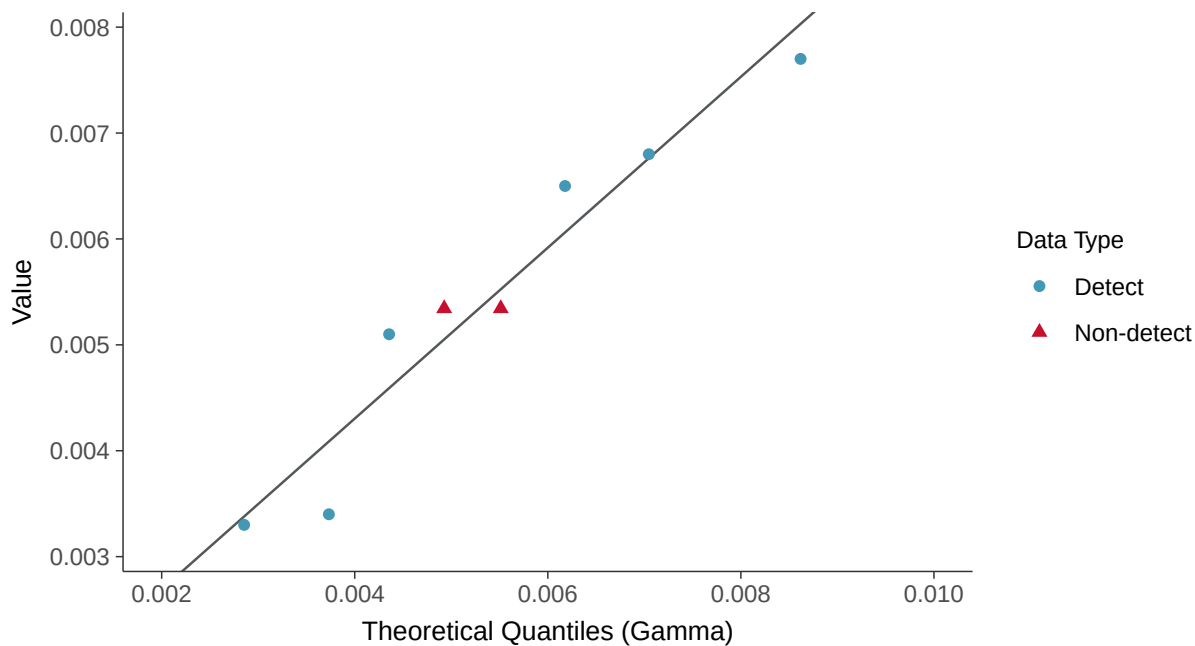
Molybdenum, W-6B1 (mg/l)





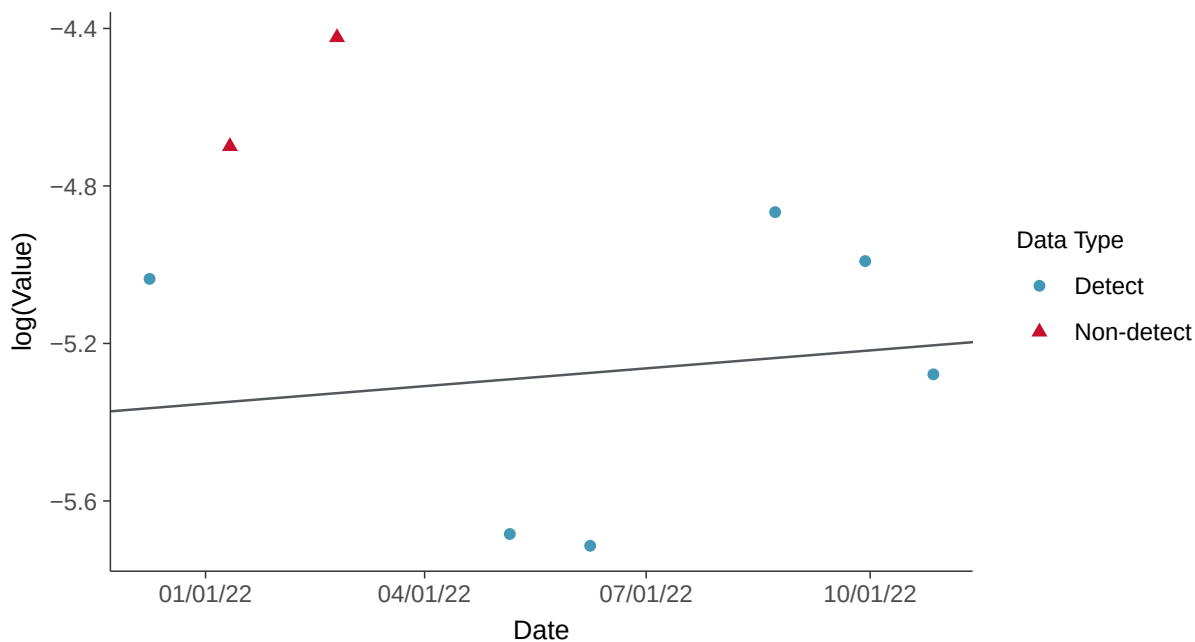
Gamma Q-Q plot using ROS Imputed Estimates

Molybdenum, W-6B1 (mg/l)



Trend Regression: Lognormal MLE

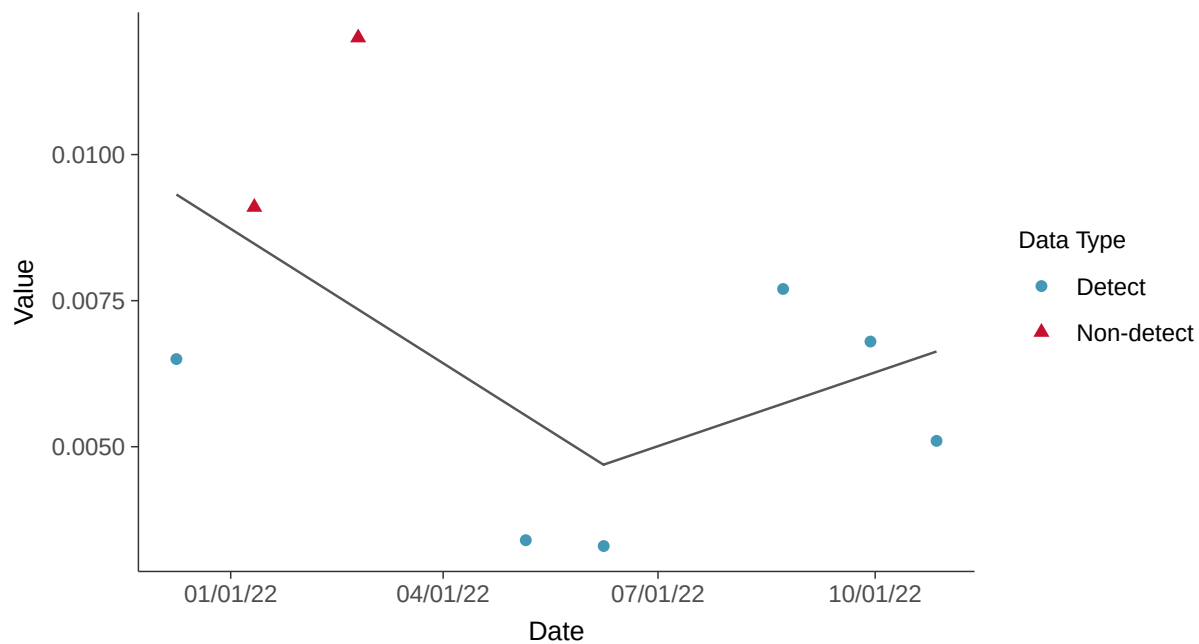
Molybdenum, W-6B1 (mg/l)





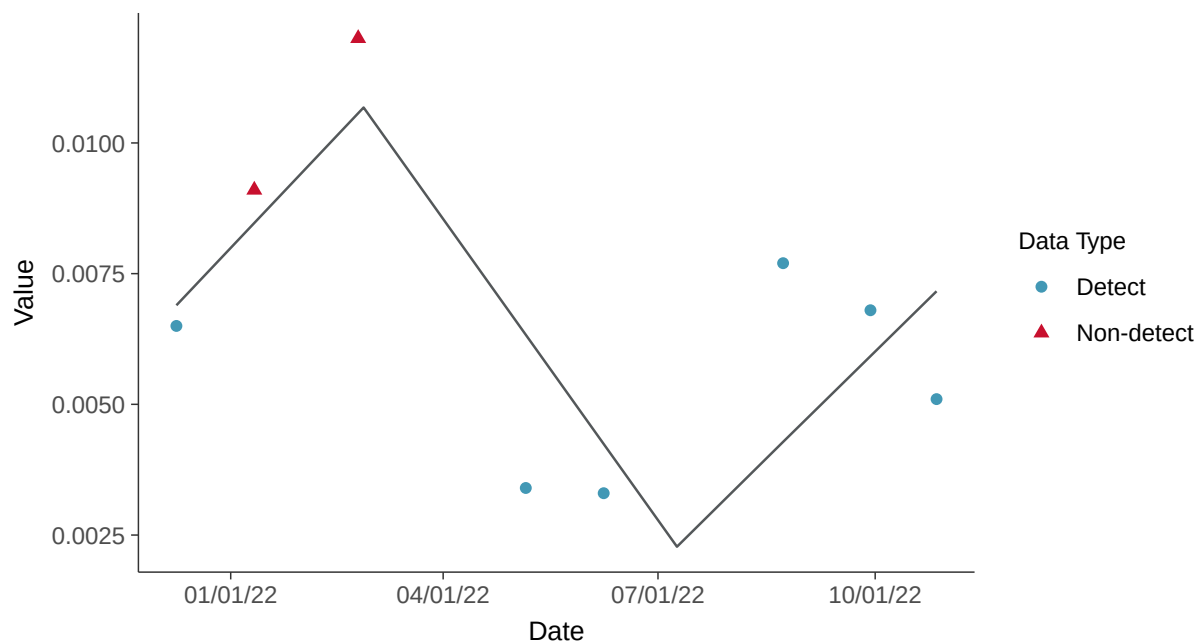
Trend Regression: Piecewise Linear-Linear

Molybdenum, W-6B1 (mg/l)



Trend Regression: Piecewise Linear-Linear-Linear

Molybdenum, W-6B1 (mg/l)

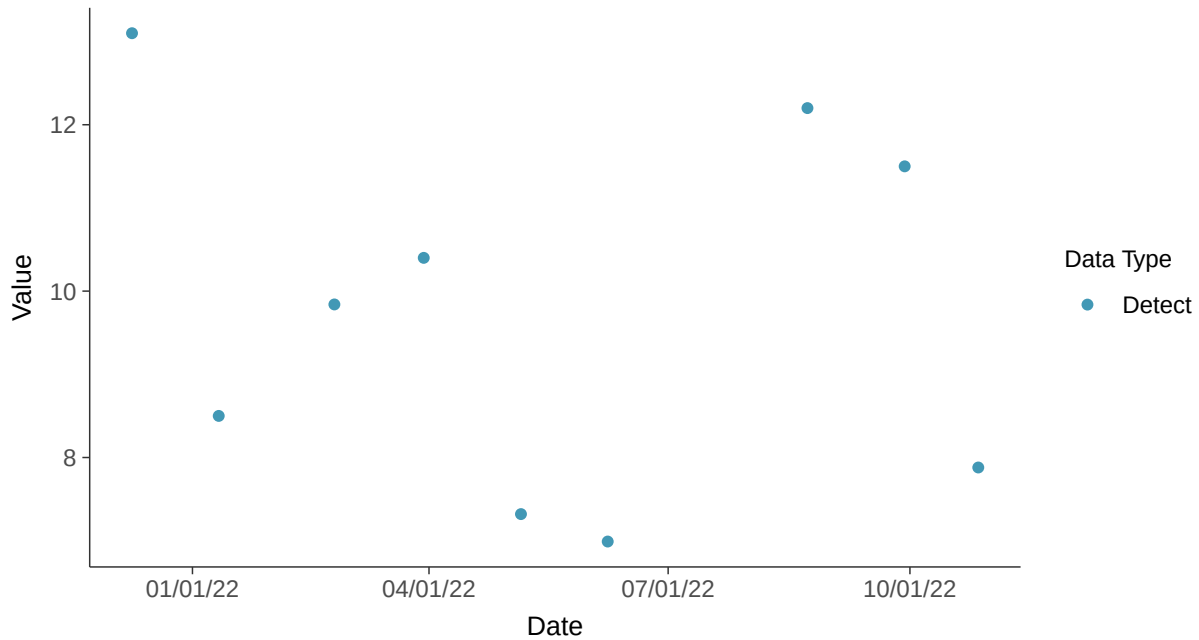


Appendix IV: Radium-226+228, W-6B1

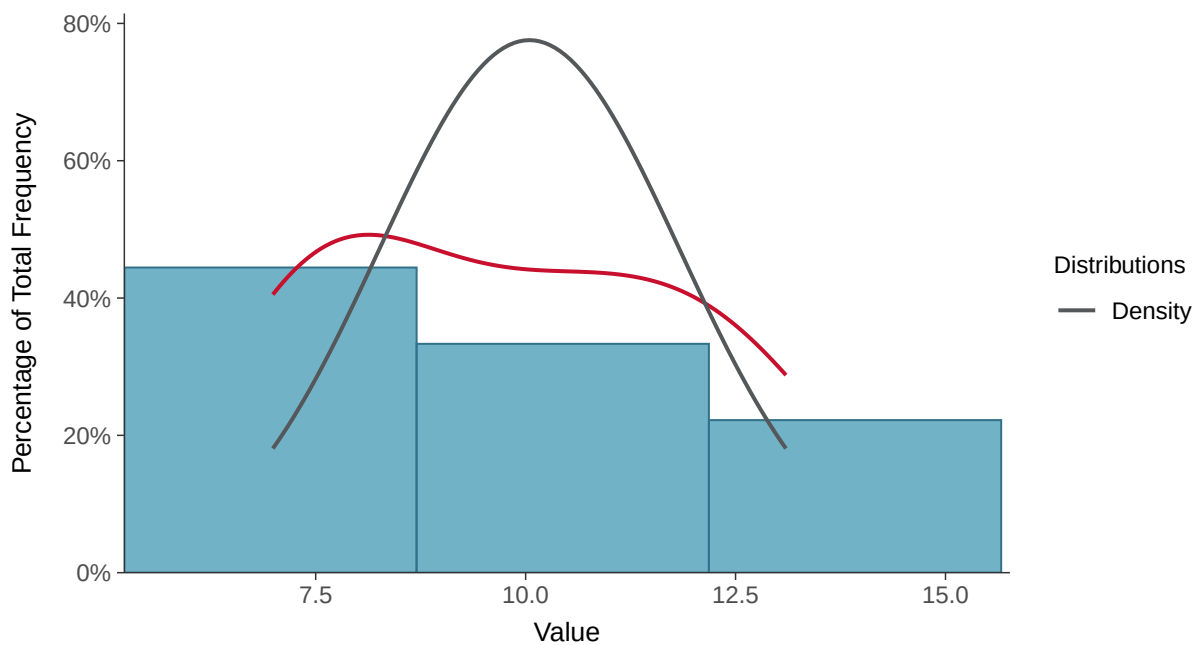
ID: 8_2_120

Scatter Plot

Radium-226+228, W-6B1 (pci/l)

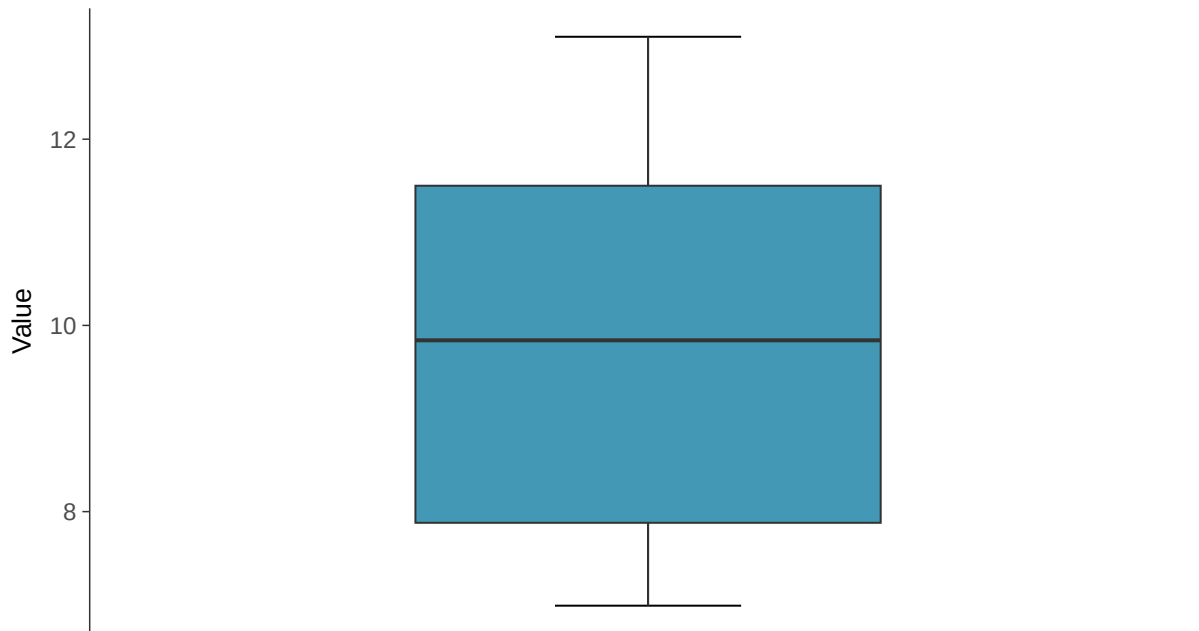
**Histogram**

Radium-226+228, W-6B1 (pci/l)



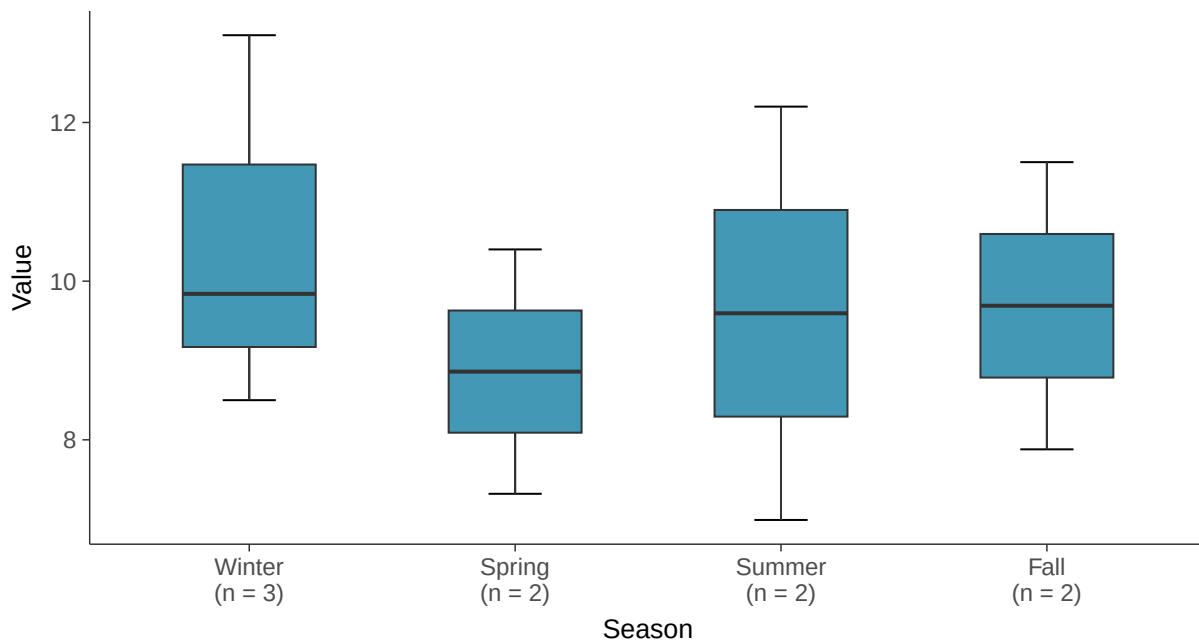
Boxplot

Radium-226+228, W-6B1 (pci/l)



Boxplot by Season

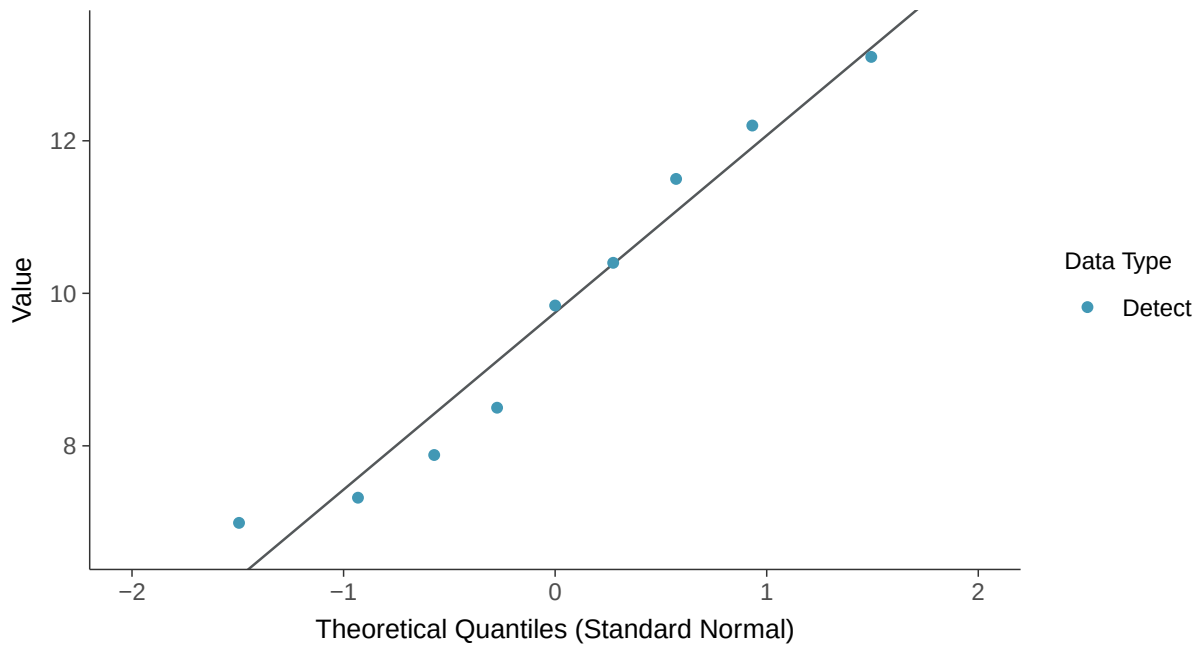
Radium-226+228, W-6B1 (pci/l)



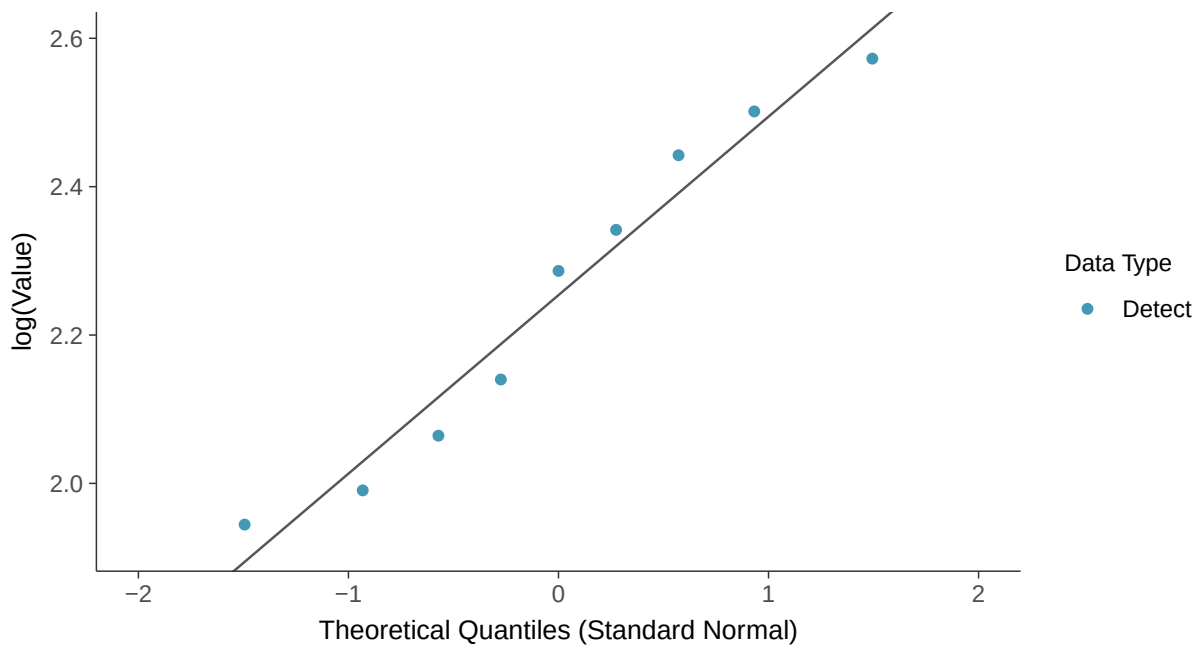
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Normal Q-Q plot

Radium-226+228, W-6B1 (pci/l)

**Lognormal Q-Q plot**

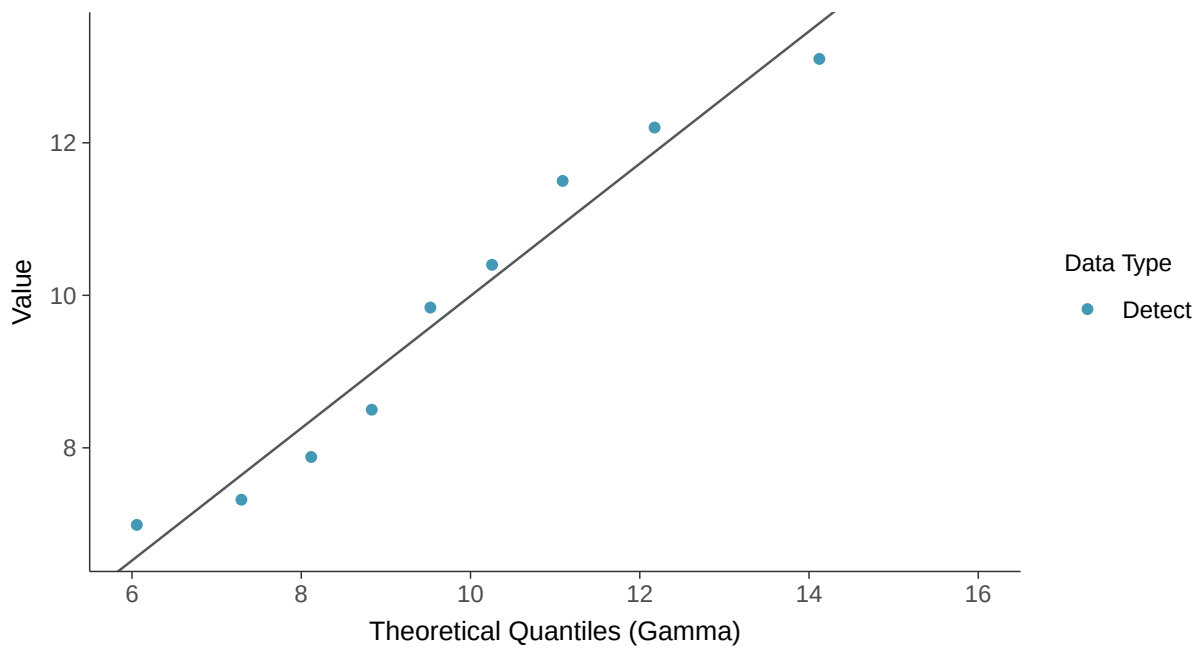
Radium-226+228, W-6B1 (pci/l)





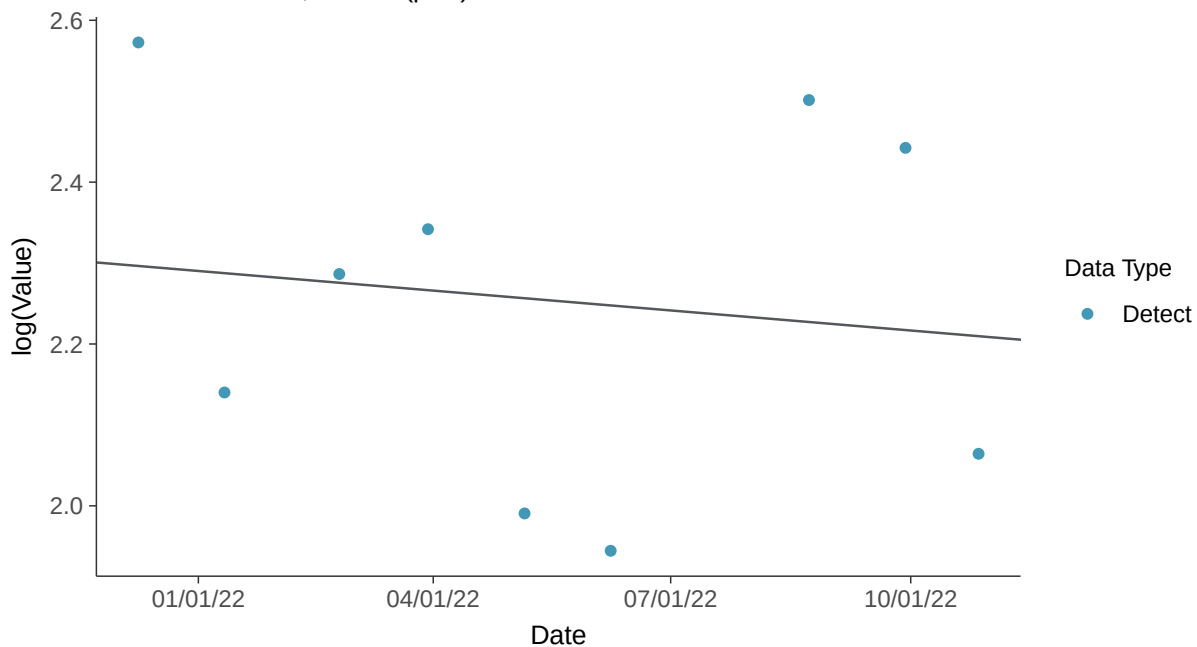
Gamma Q-Q plot

Radium-226+228, W-6B1 (pci/l)



Trend Regression: Lognormal MLE

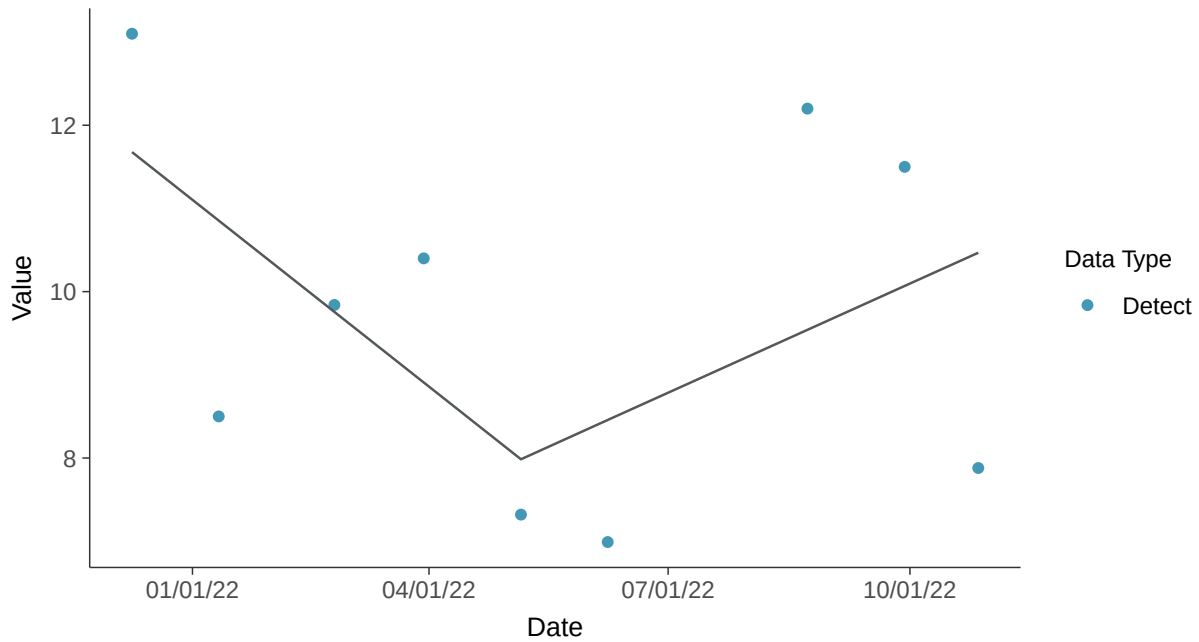
Radium-226+228, W-6B1 (pci/l)



Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Trend Regression: Piecewise Linear-Linear

Radium-226+228, W-6B1 (pci/l)

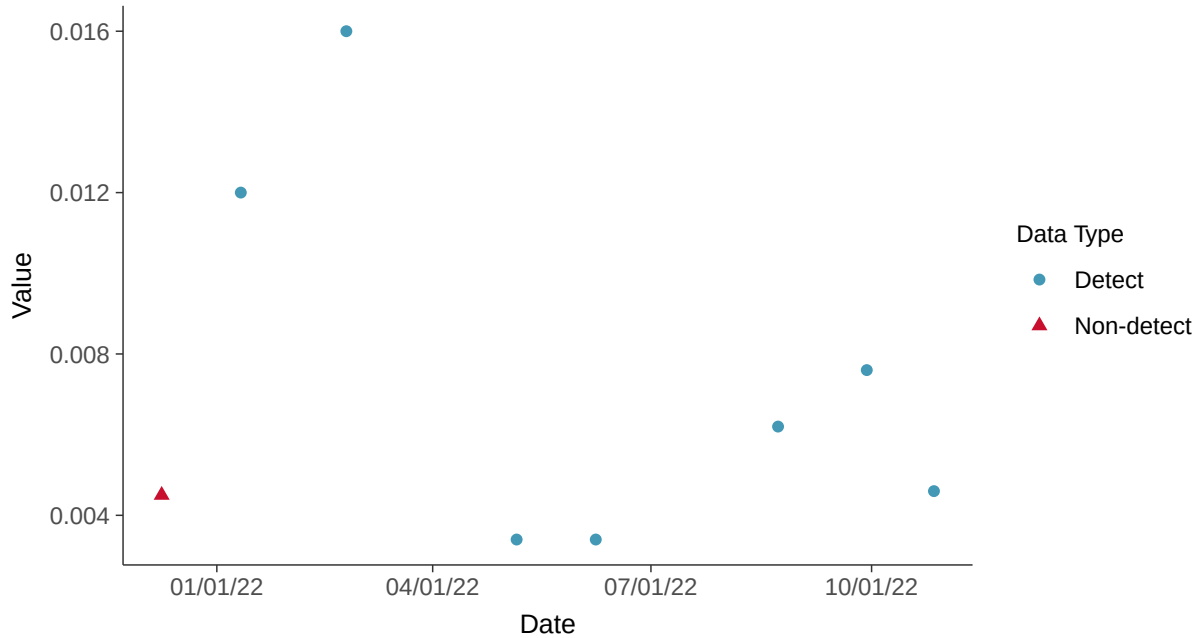


Appendix IV: Selenium, W-6B1

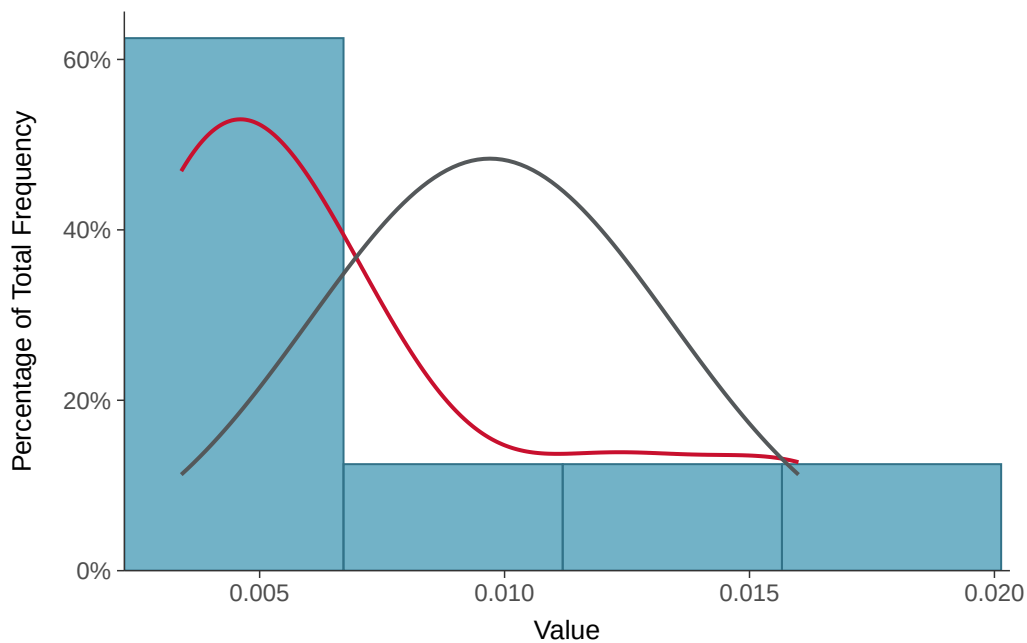
ID: 8_2_122

Scatter Plot

Selenium, W-6B1 (mg/l)

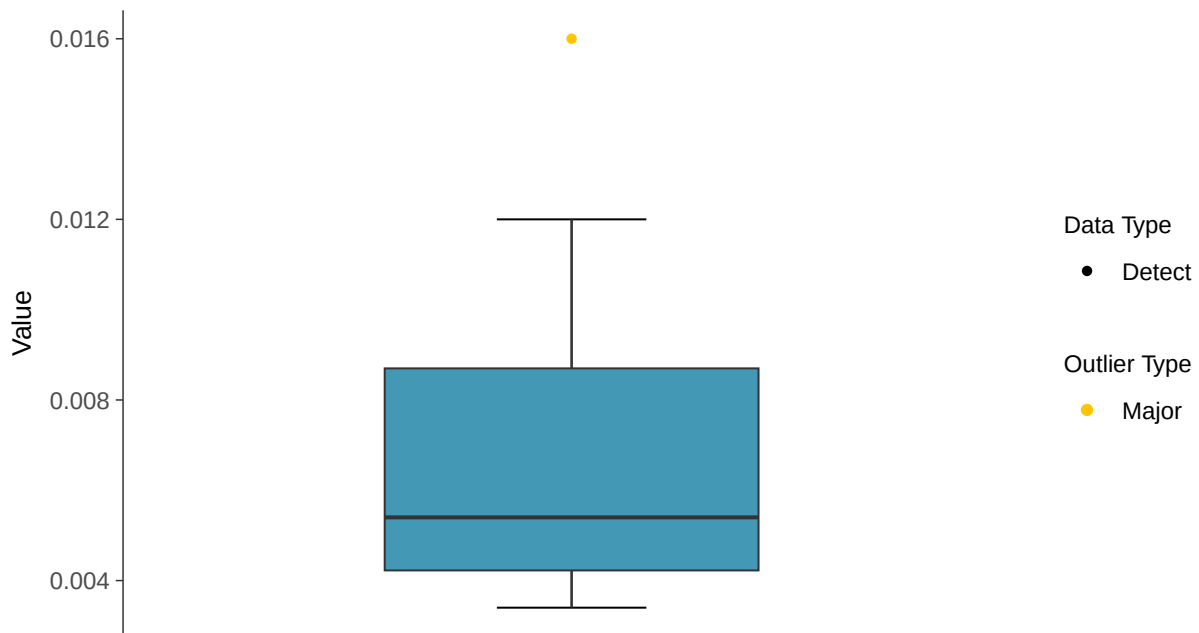
**Histogram**

Selenium, W-6B1 (mg/l)



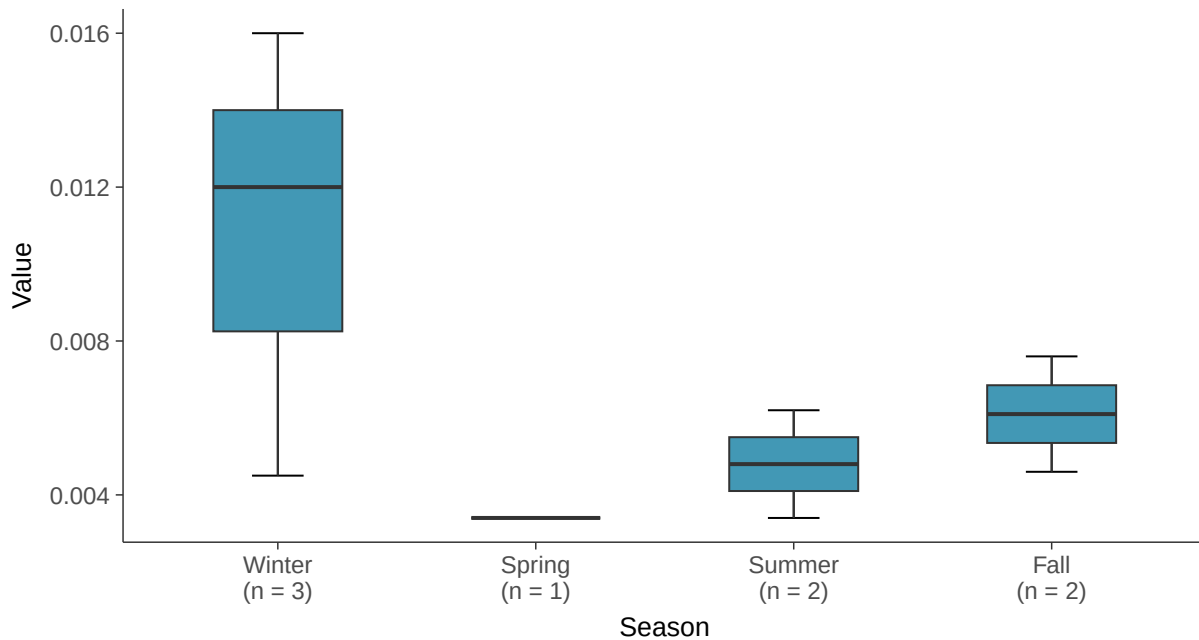
Boxplot

Selenium, W-6B1 (mg/l)



Boxplot by Season

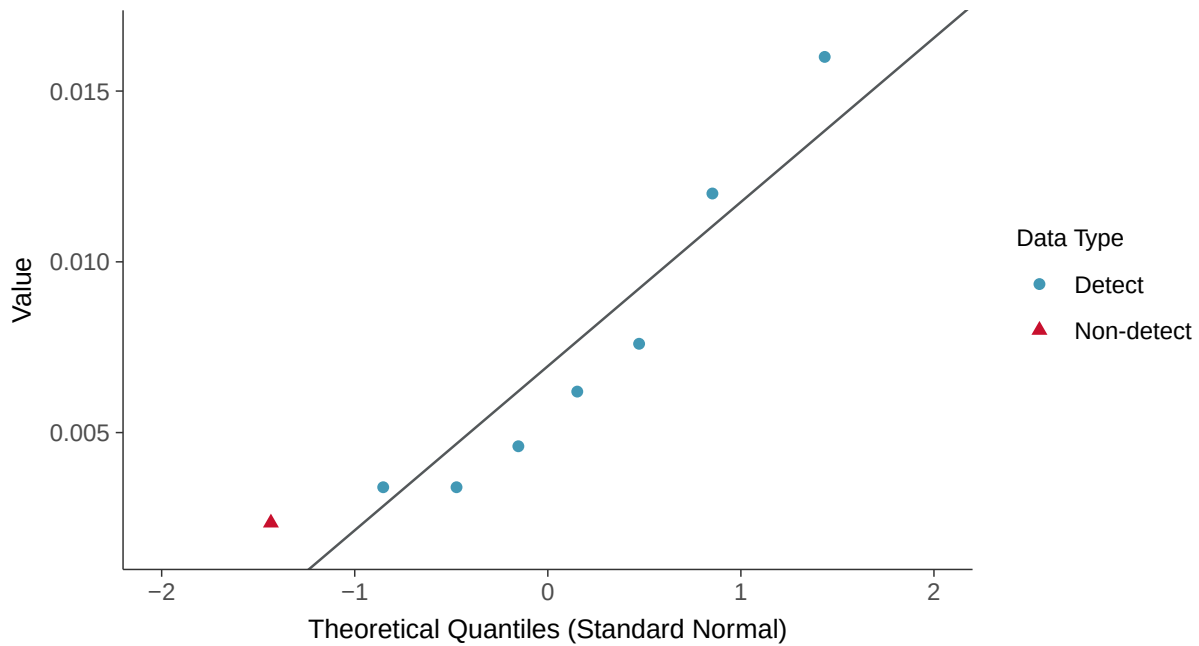
Selenium, W-6B1 (mg/l)



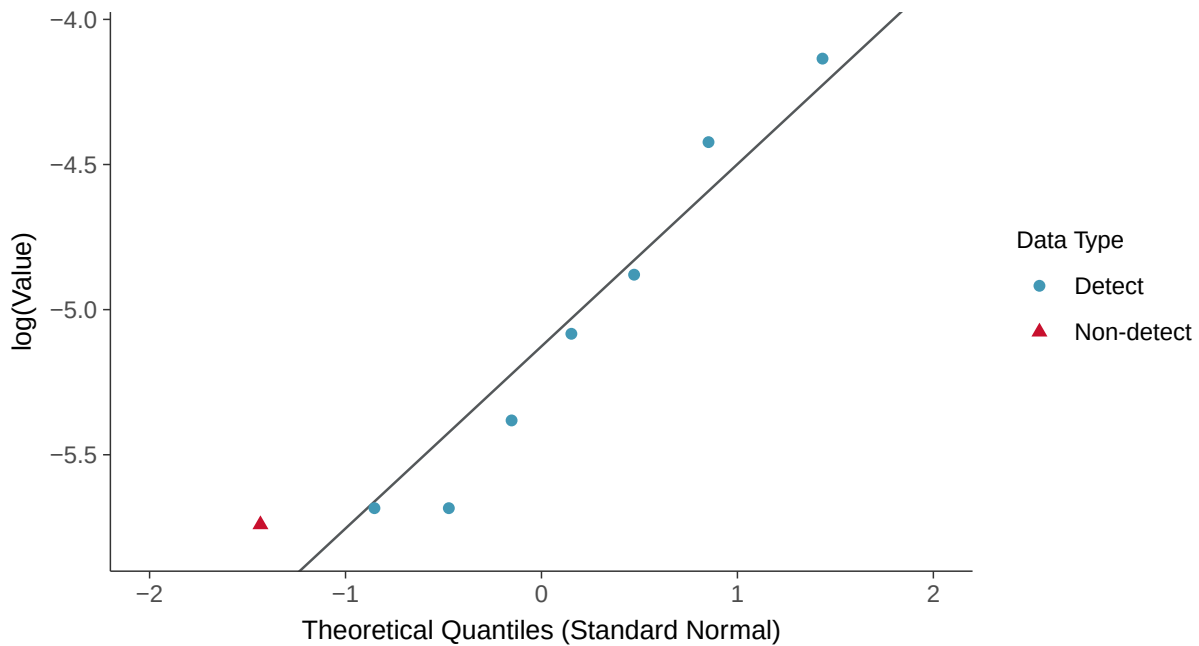
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Normal Q-Q plot using ROS Imputed Estimates

Selenium, W-6B1 (mg/l)

**Lognormal Q-Q plot using ROS Imputed Estimates**

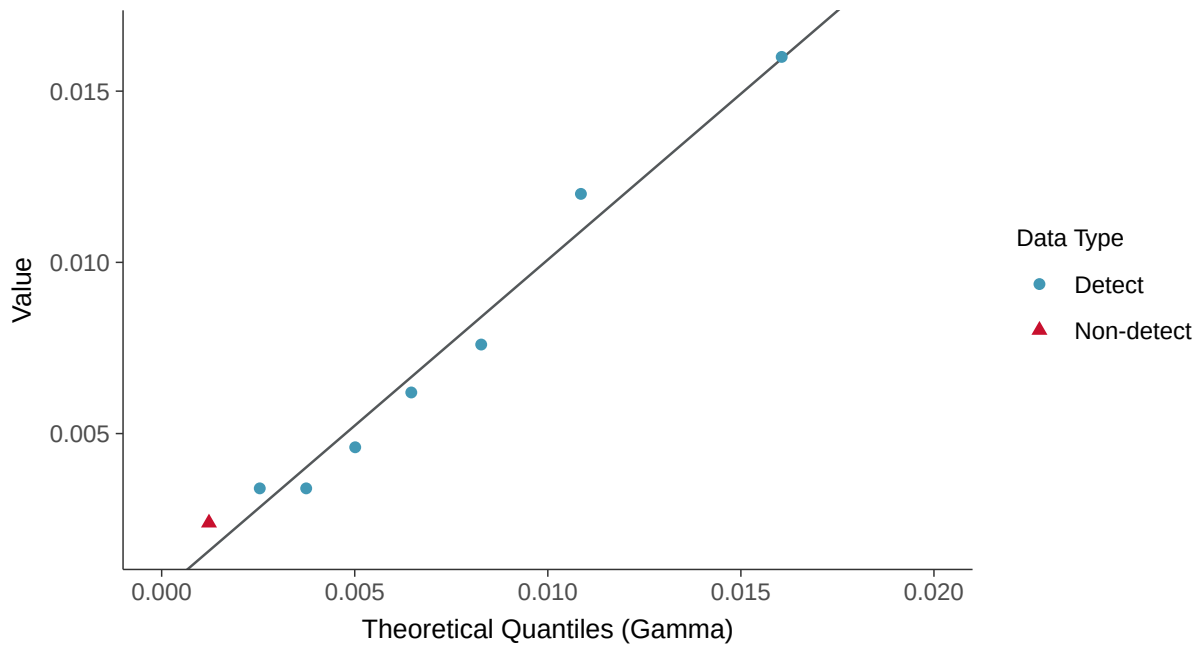
Selenium, W-6B1 (mg/l)



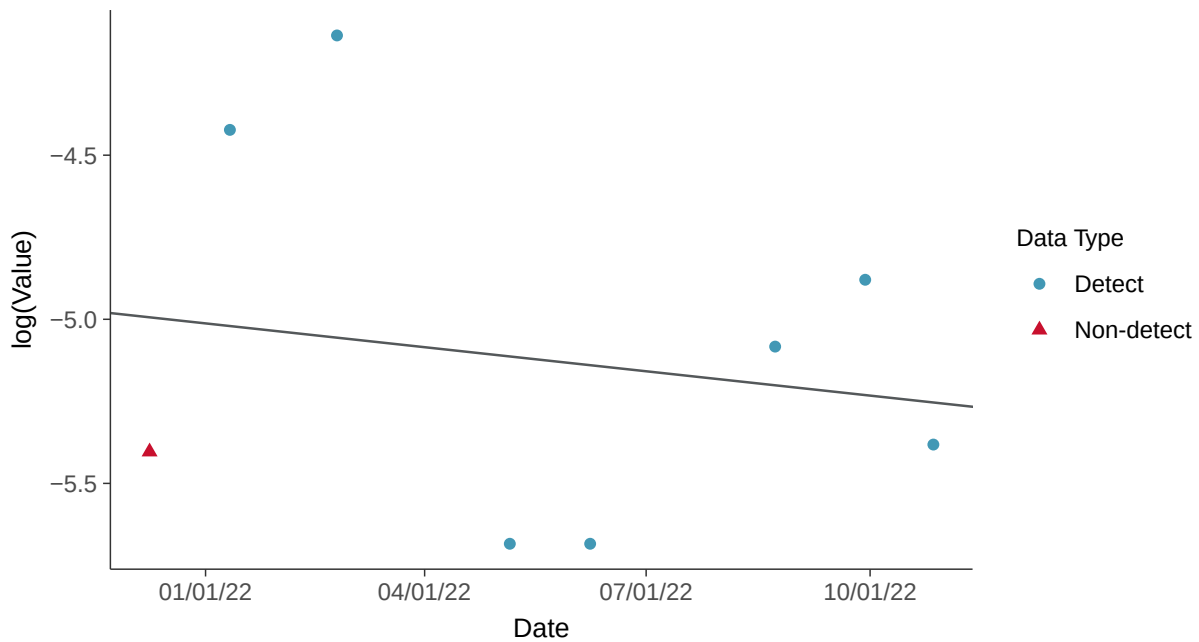
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Gamma Q-Q plot using ROS Imputed Estimates

Selenium, W-6B1 (mg/l)

**Trend Regression: Lognormal MLE**

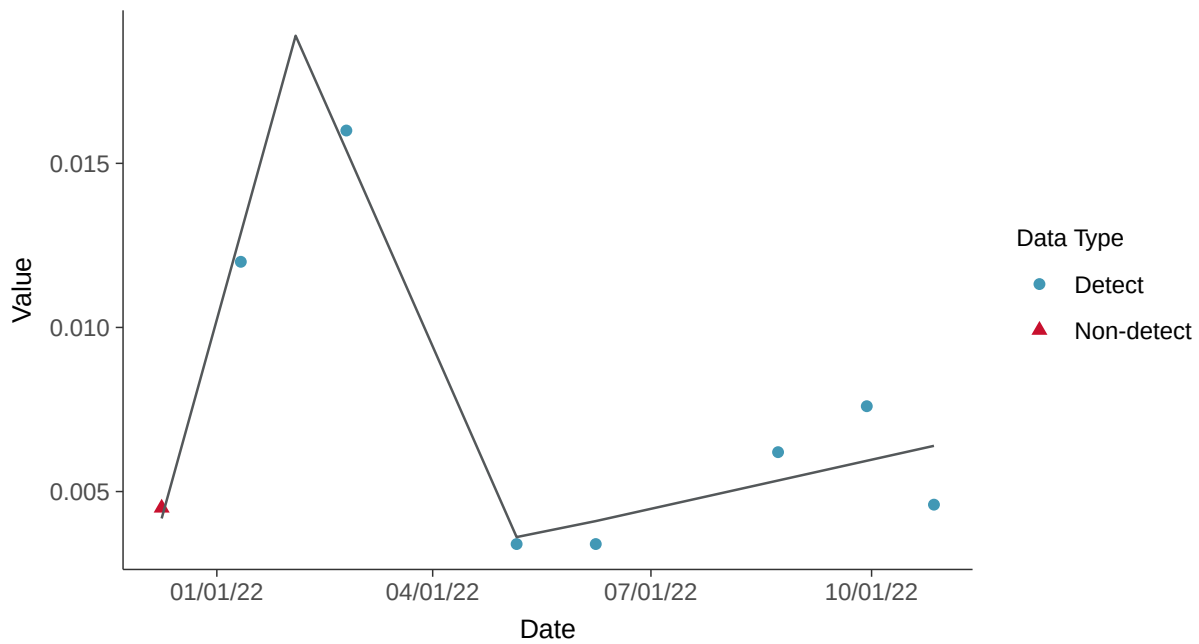
Selenium, W-6B1 (mg/l)





Trend Regression: Piecewise Linear-Linear-Linear

Selenium, W-6B1 (mg/l)

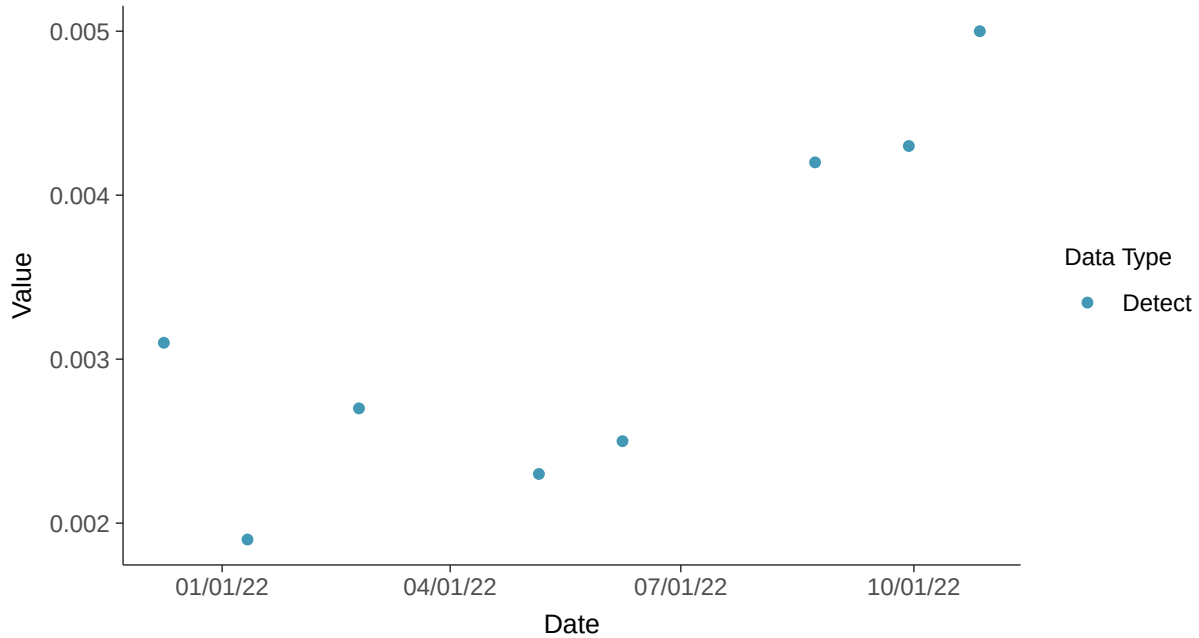


Appendix IV: Thallium, W-6B1

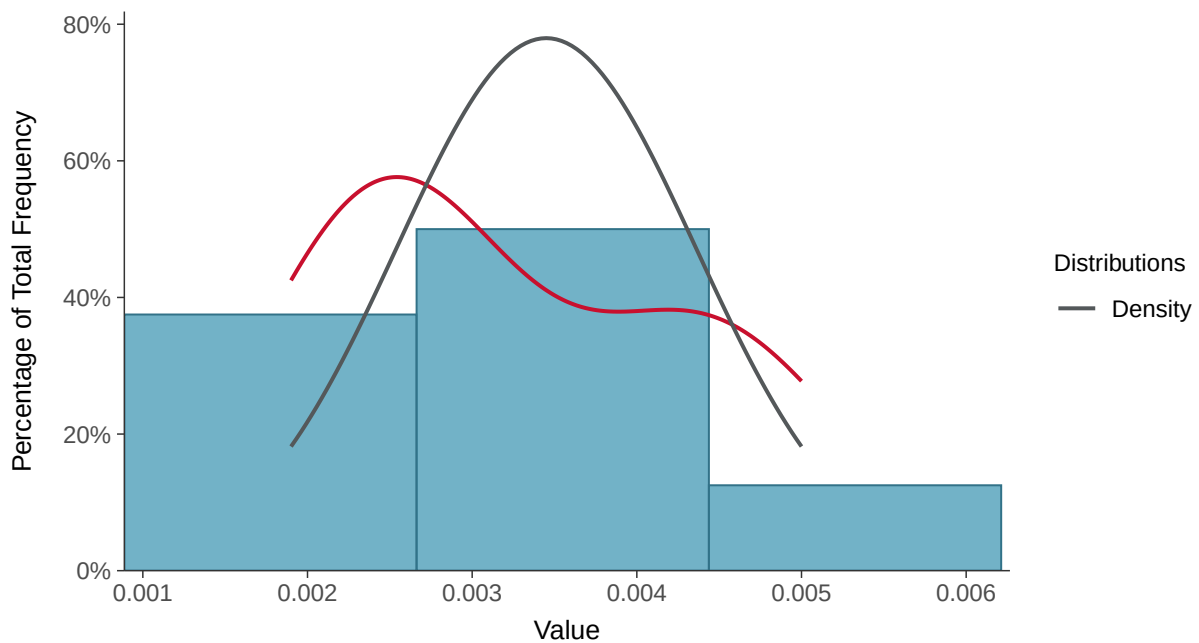
ID: 8_2_126

Scatter Plot

Thallium, W-6B1 (mg/l)

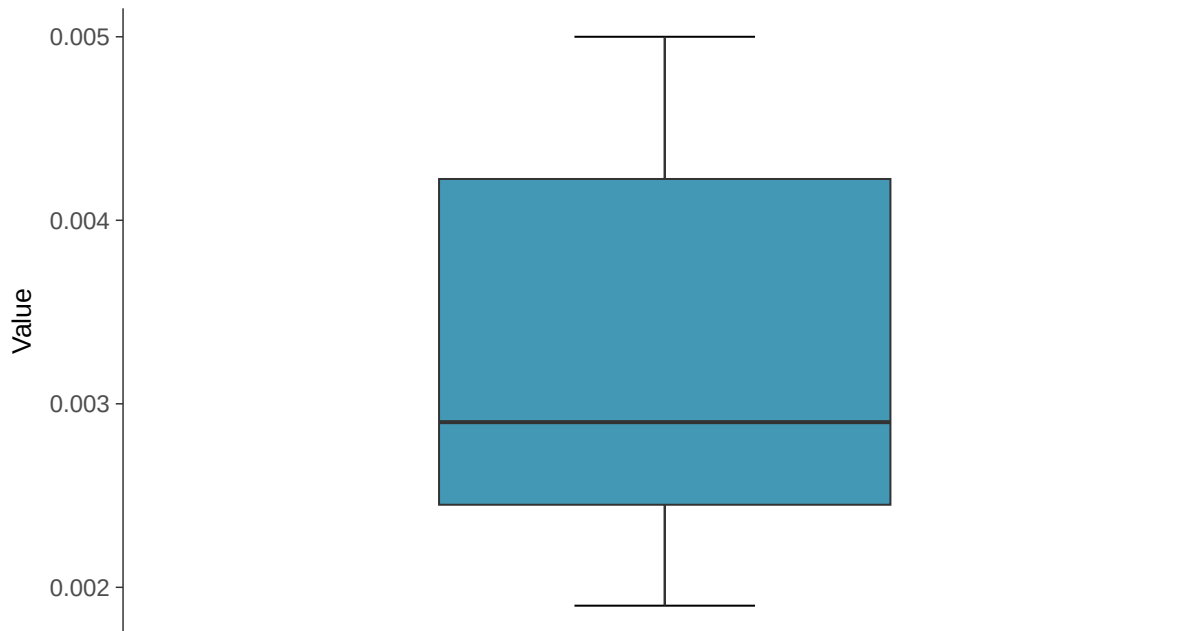
**Histogram**

Thallium, W-6B1 (mg/l)



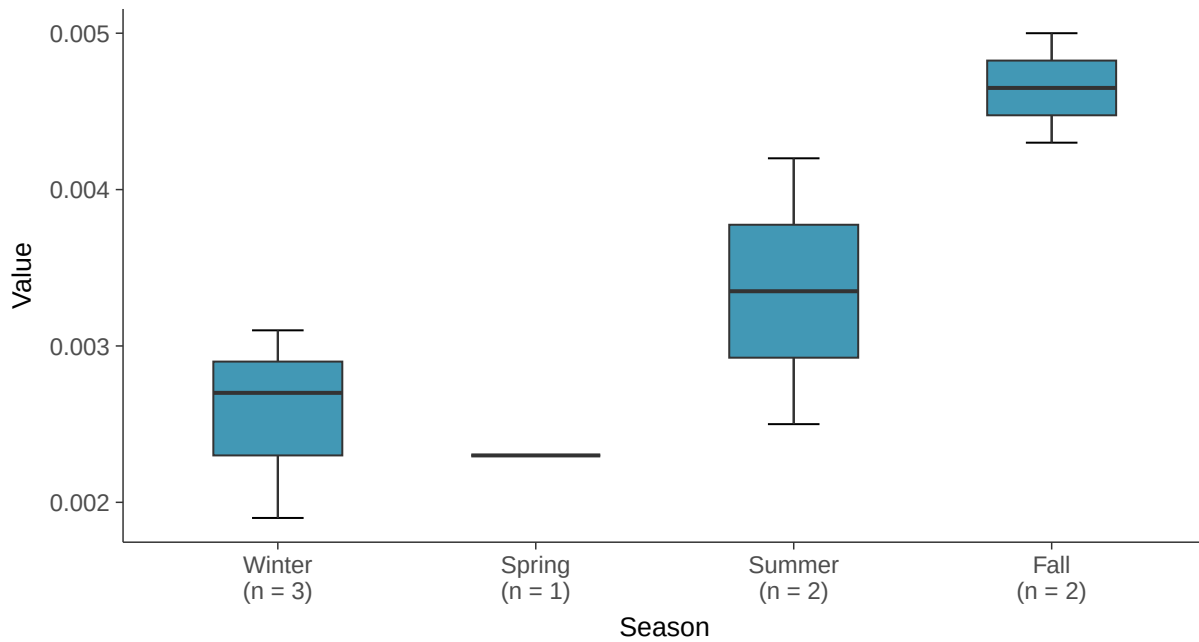
Boxplot

Thallium, W-6B1 (mg/l)



Boxplot by Season

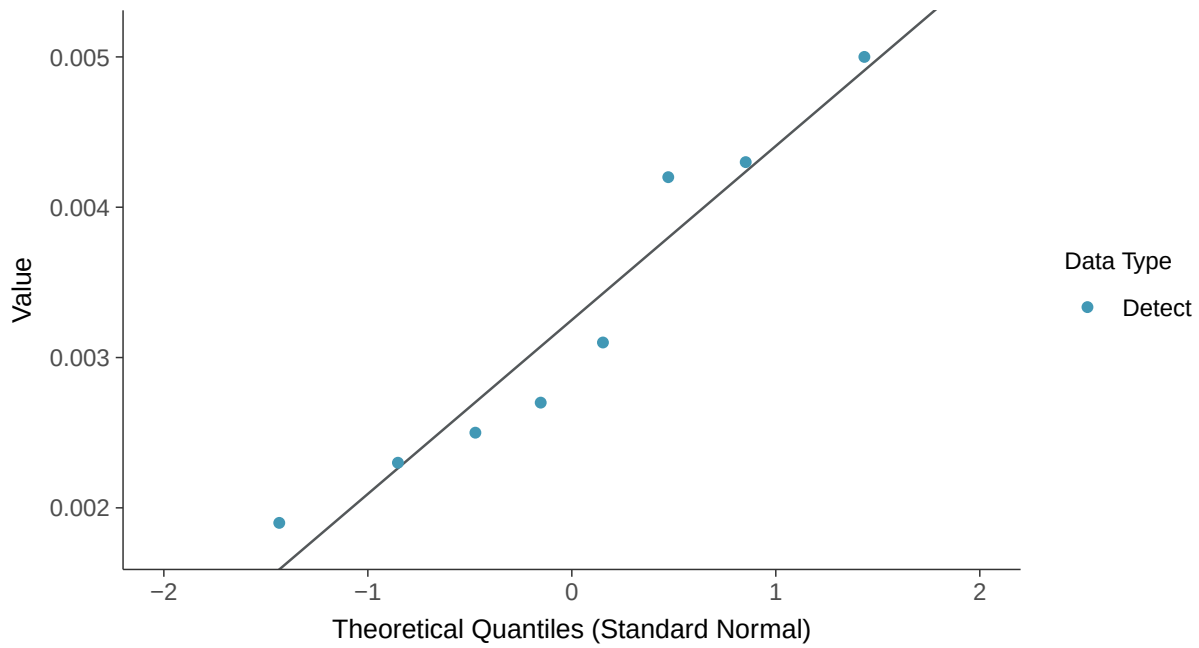
Thallium, W-6B1 (mg/l)





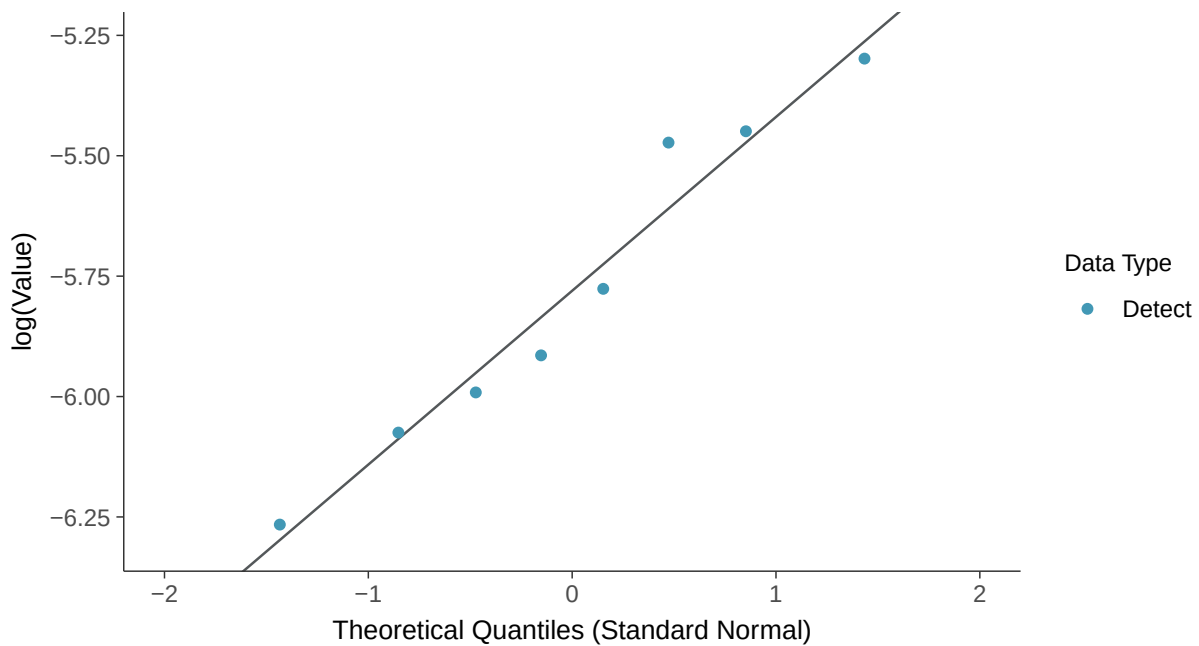
Normal Q-Q plot

Thallium, W-6B1 (mg/l)



Lognormal Q-Q plot

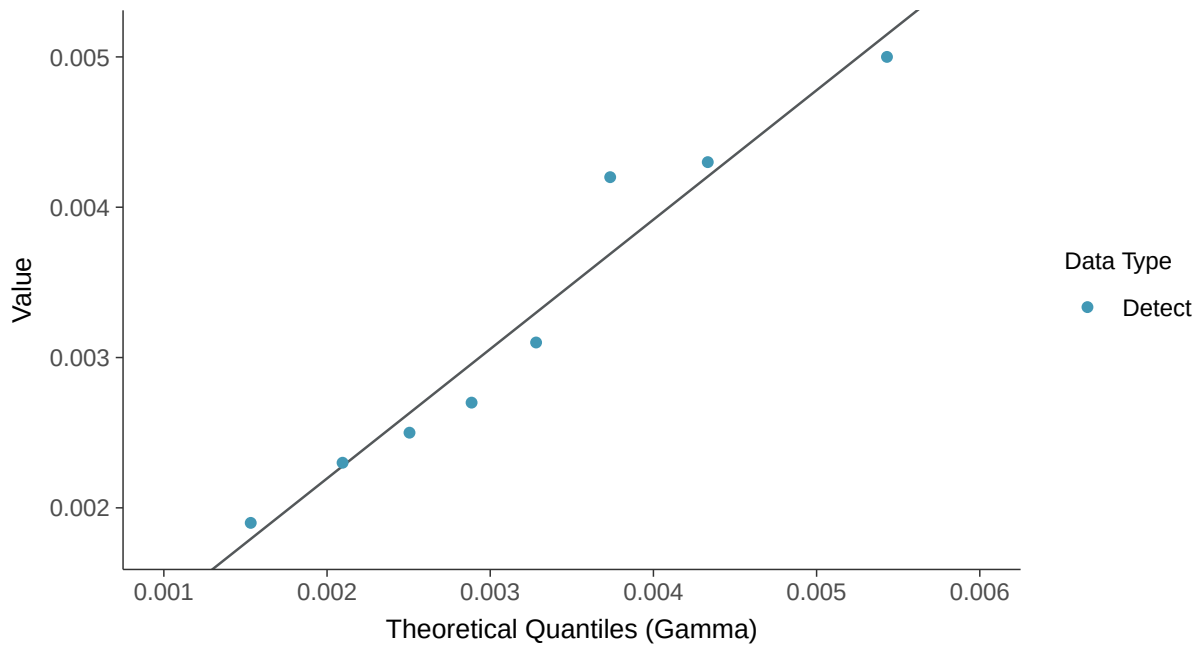
Thallium, W-6B1 (mg/l)





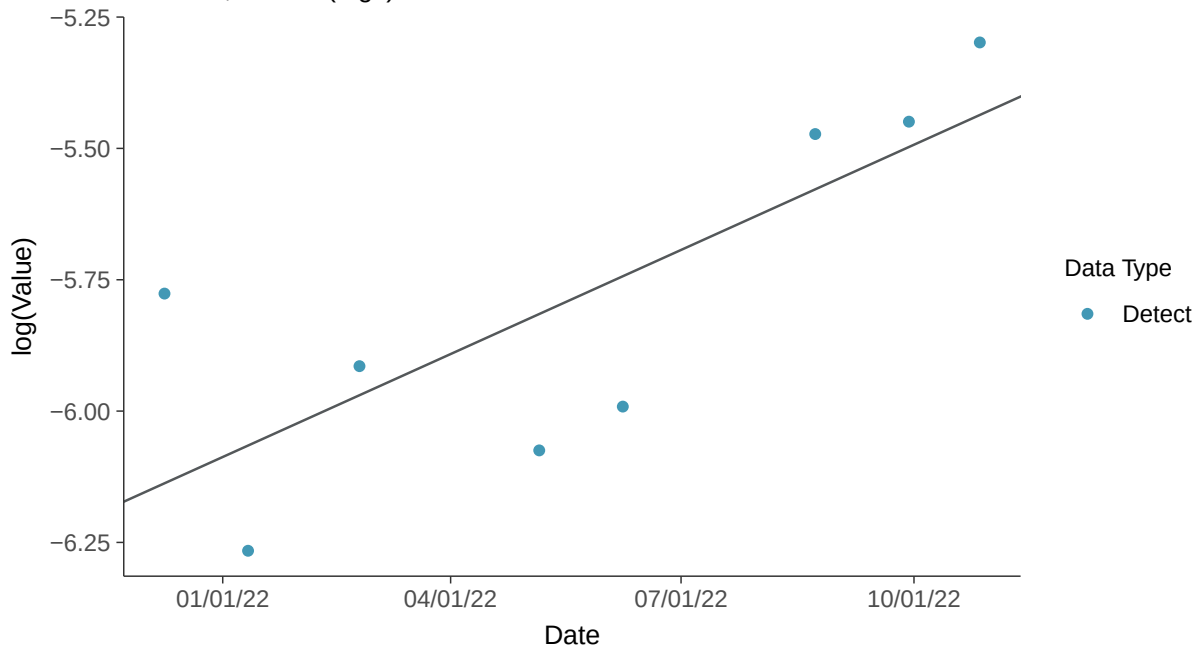
Gamma Q-Q plot

Thallium, W-6B1 (mg/l)



Trend Regression: Lognormal MLE

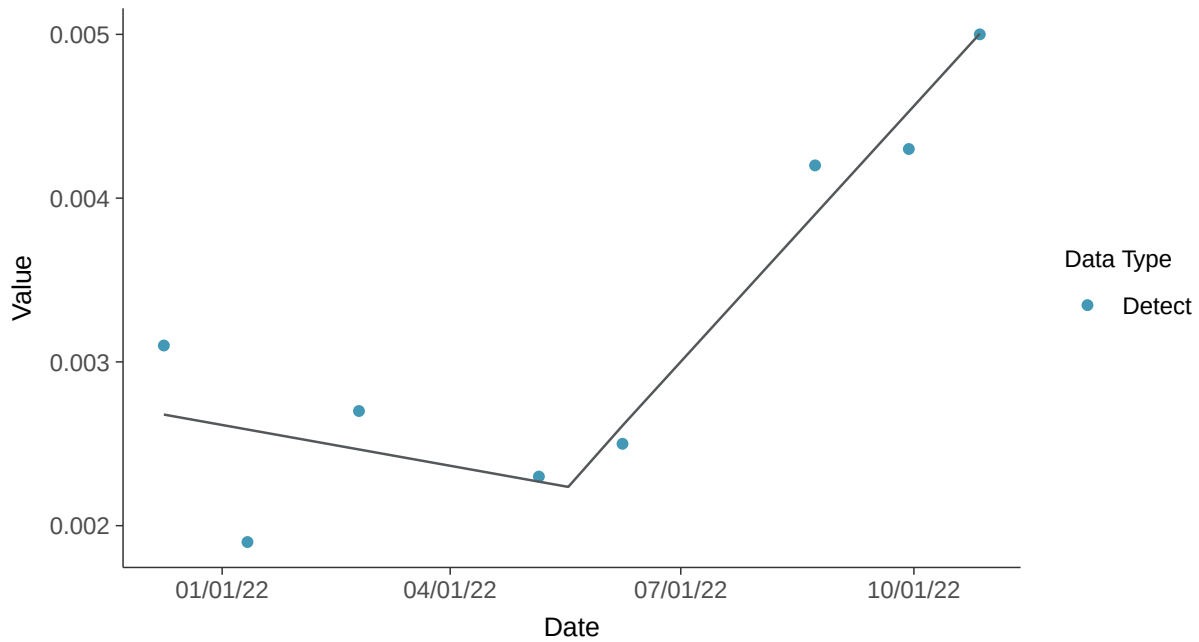
Thallium, W-6B1 (mg/l)





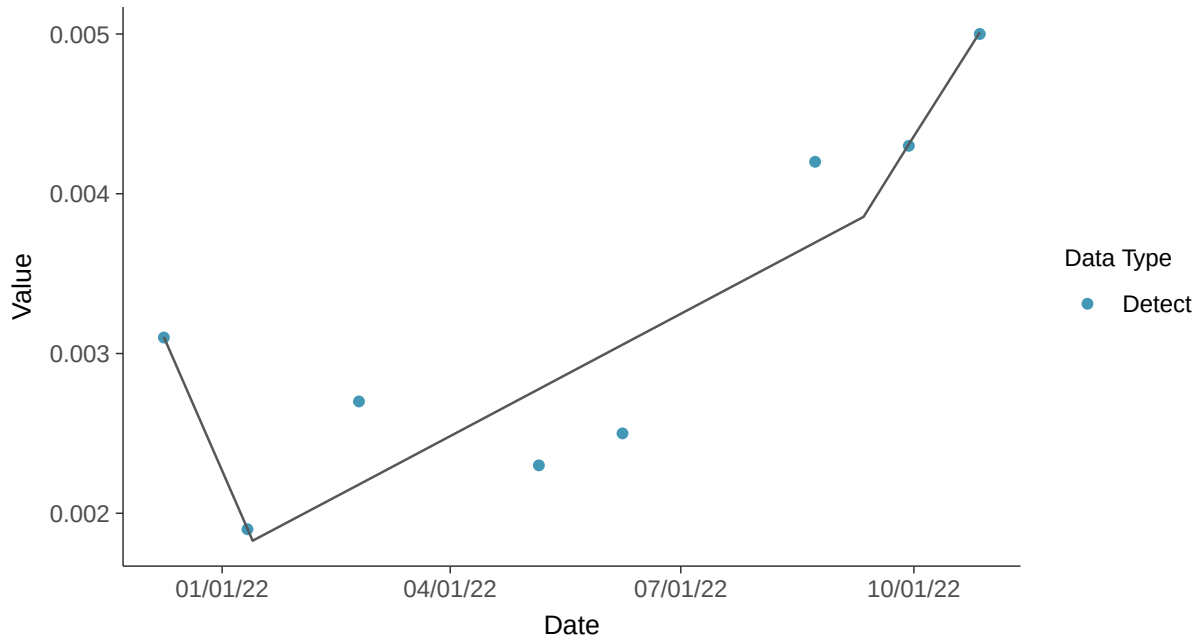
Trend Regression: Piecewise Linear-Linear

Thallium, W-6B1 (mg/l)



Trend Regression: Piecewise Linear-Linear-Linear

Thallium, W-6B1 (mg/l)

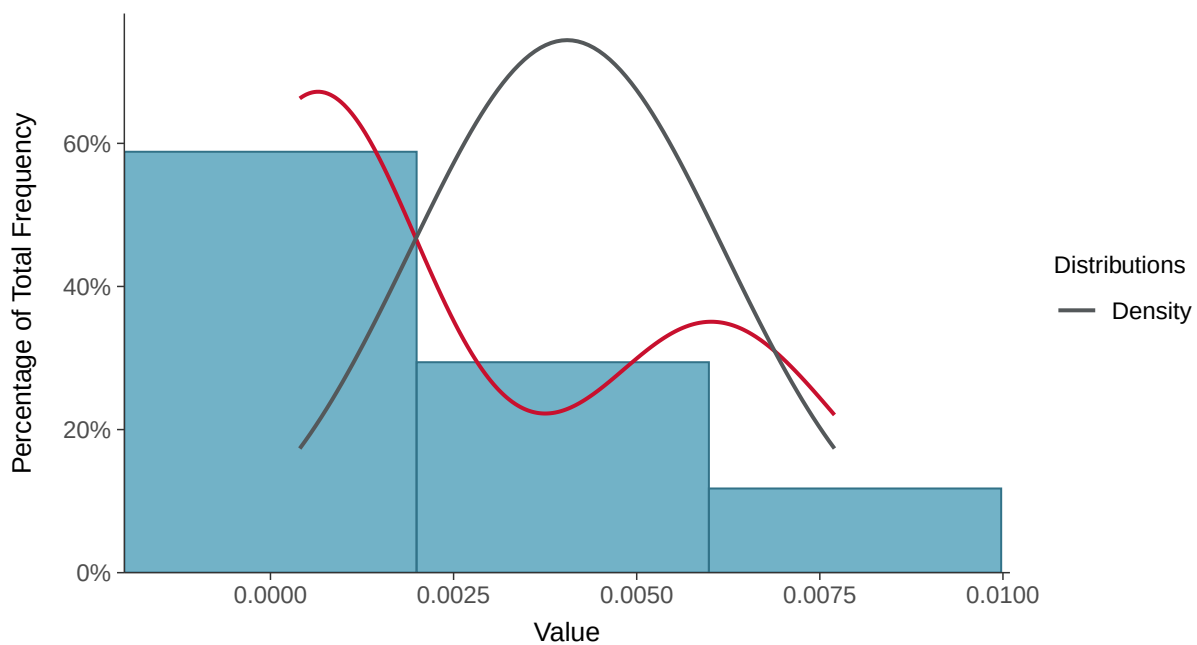


Scatter Plot

A scatter plot showing the relationship between 'Value' (Y-axis) and 'Date' (X-axis). The Y-axis ranges from 0.000 to 0.008 with increments of 0.002. The X-axis shows dates from approximately 2020-10-01 to 2022-03-01, with major ticks at 01/01/21, 07/01/21, 01/01/22, and 07/01/22. The legend indicates two data types: 'Detect' (blue circles) and 'Non-detect' (red triangles). The 'Detect' data points are clustered near the bottom of the plot, with values around 0.0005. The 'Non-detect' data points are more scattered, with values ranging from approximately 0.0005 to 0.0078. Notable peaks for 'Non-detect' occur around 2021-01-01 and 2022-01-01.

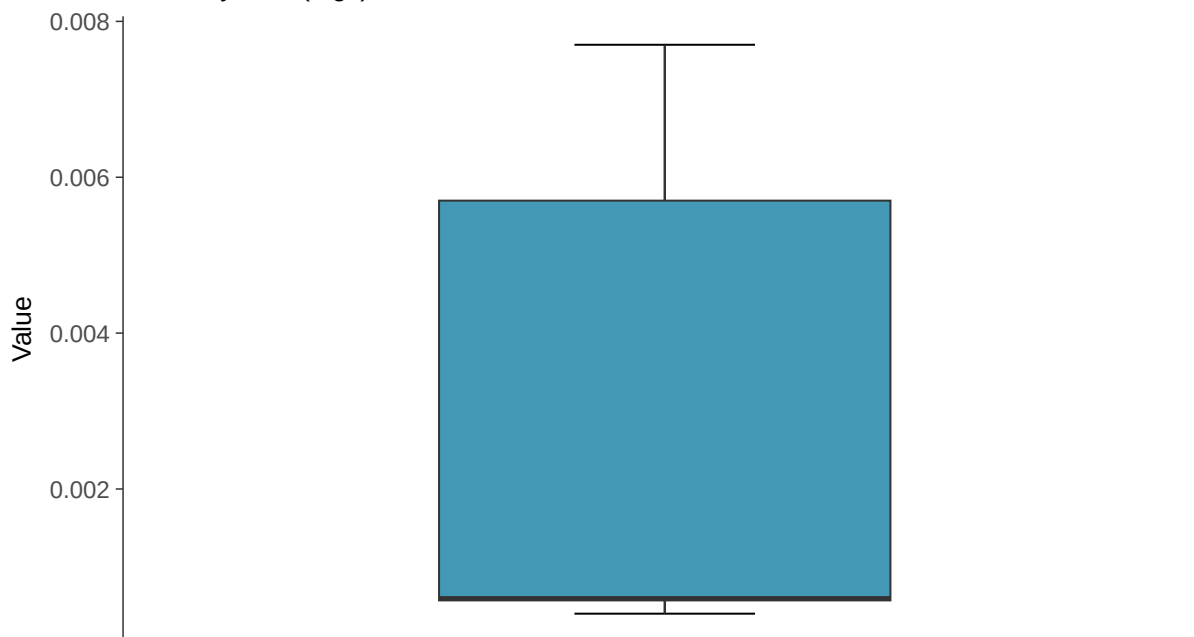
Date	Value	Data Type
2020-10-01	0.0005	Detect
2020-10-15	0.0005	Detect
2020-10-25	0.0005	Non-detect
2020-11-05	0.0005	Non-detect
2020-11-15	0.0010	Non-detect
2020-11-25	0.0030	Non-detect
2020-12-05	0.0057	Non-detect
2020-12-15	0.0057	Non-detect
2020-12-25	0.0057	Non-detect
2021-01-05	0.0057	Non-detect
2021-02-15	0.0005	Non-detect
2021-03-15	0.0057	Non-detect
2021-12-15	0.0005	Non-detect
2022-01-05	0.0078	Non-detect
2022-01-15	0.0070	Non-detect
2022-02-15	0.0005	Non-detect
2022-03-15	0.0005	Detect

Antimony, W-7 (mg/l)



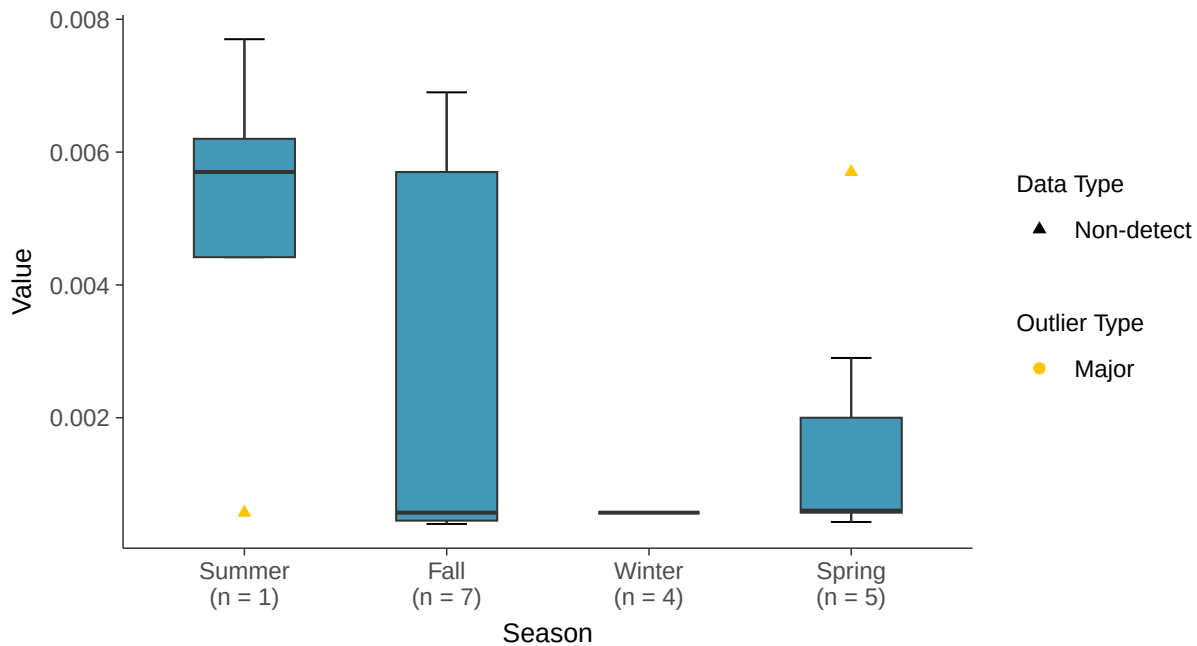
Boxplot

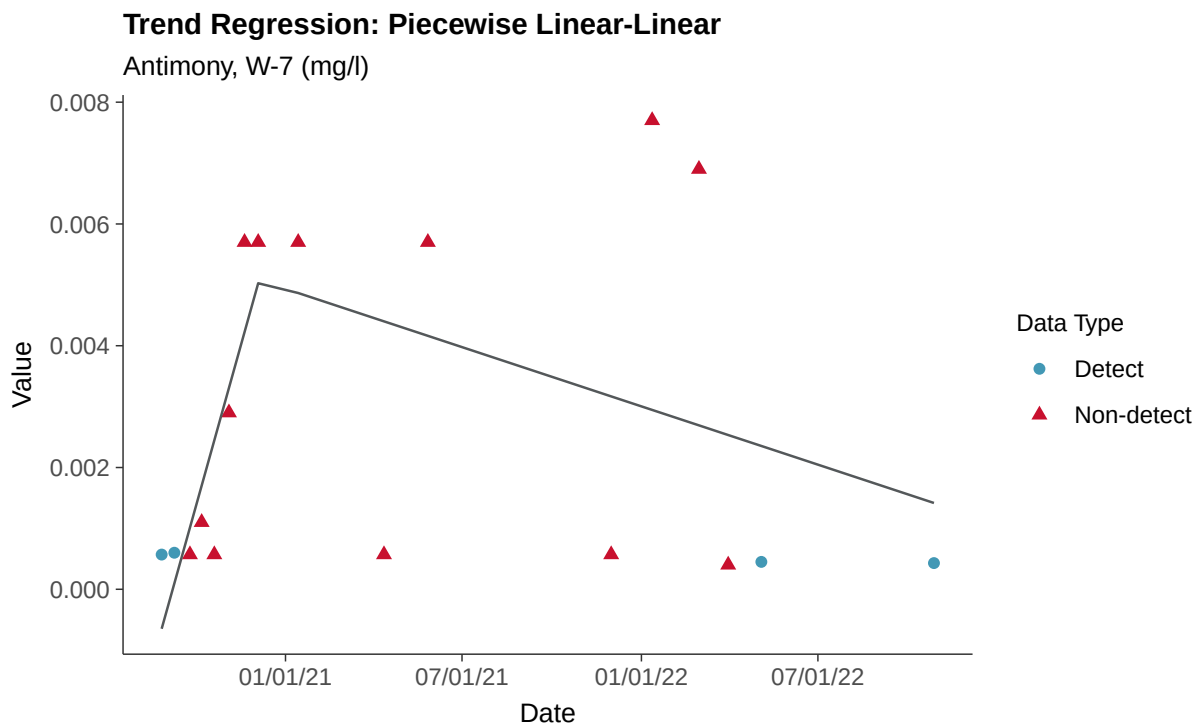
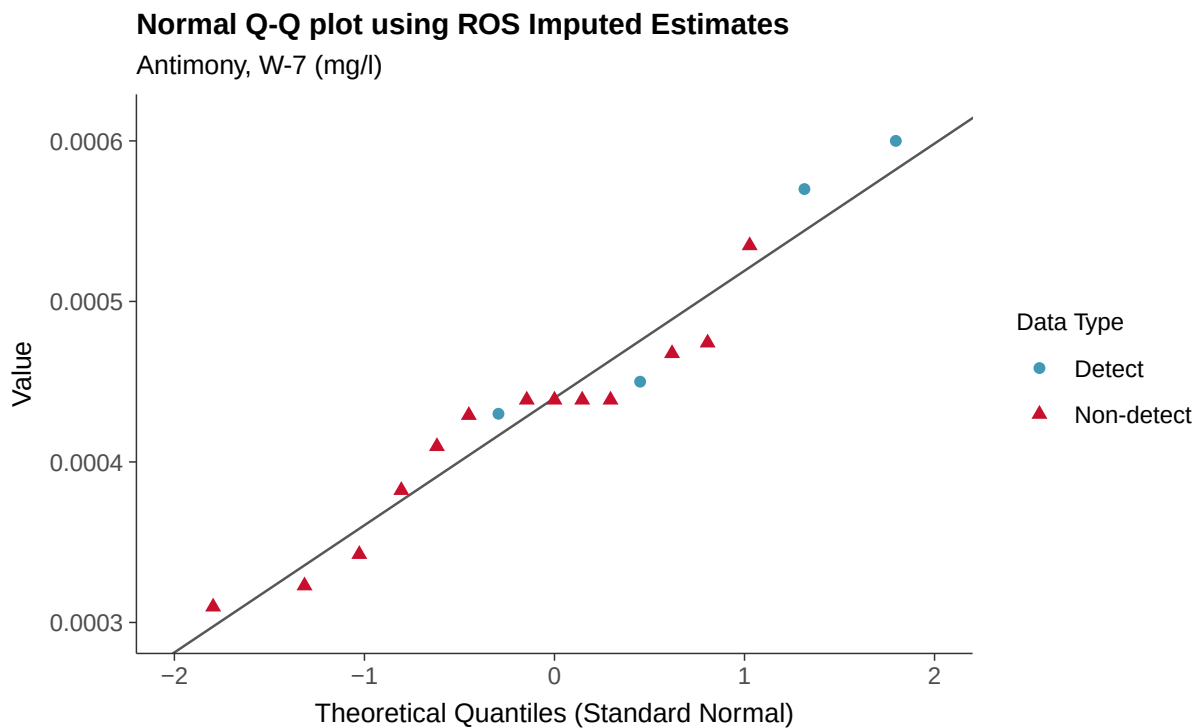
Antimony, W-7 (mg/l)



Boxplot by Season

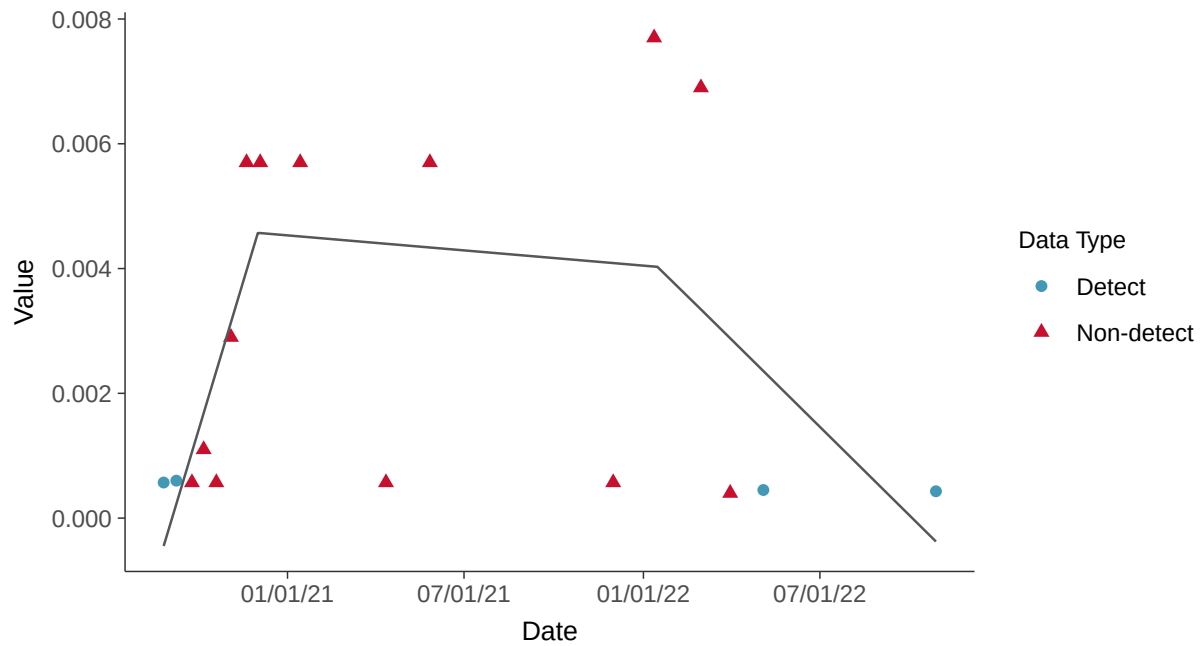
Antimony, W-7 (mg/l)





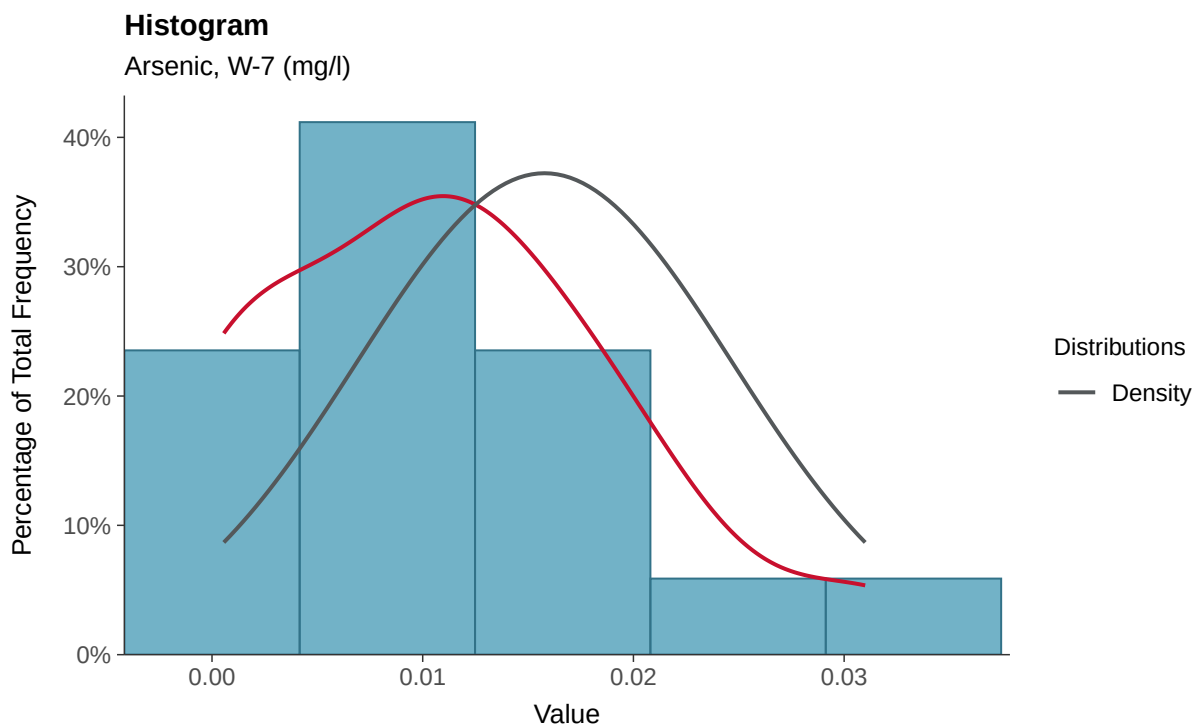
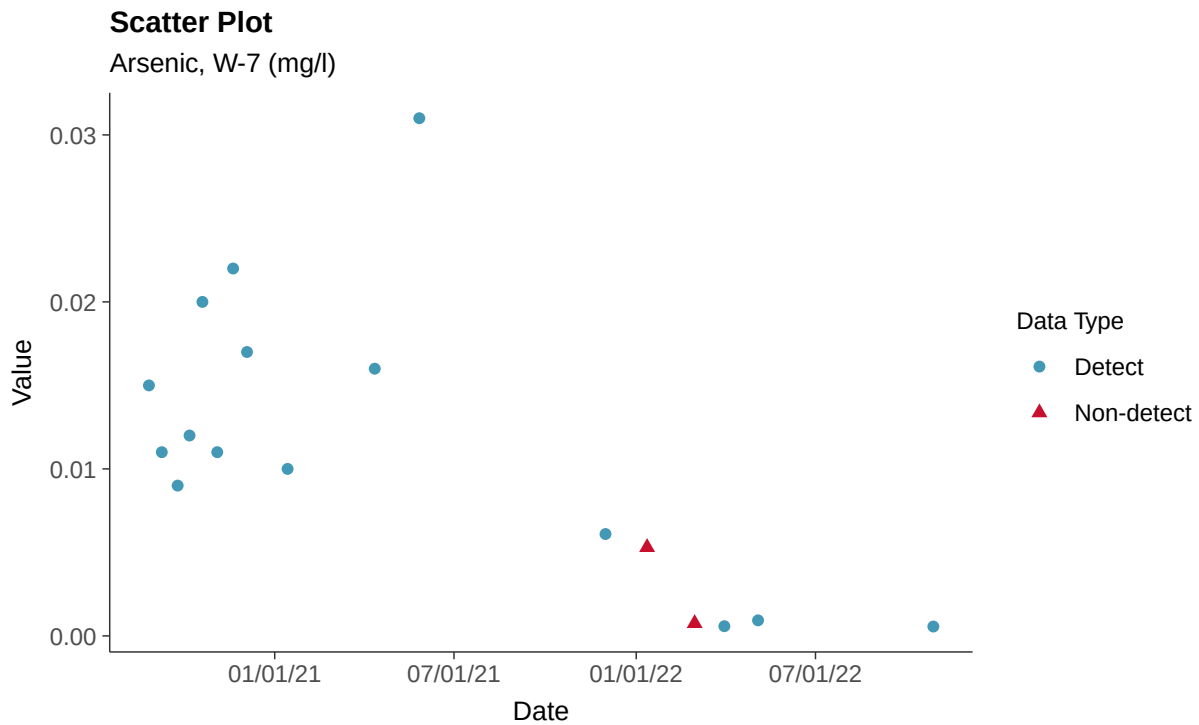
Trend Regression: Piecewise Linear-Linear-Linear

Antimony, W-7 (mg/l)



Appendix IV: Arsenic, W-7

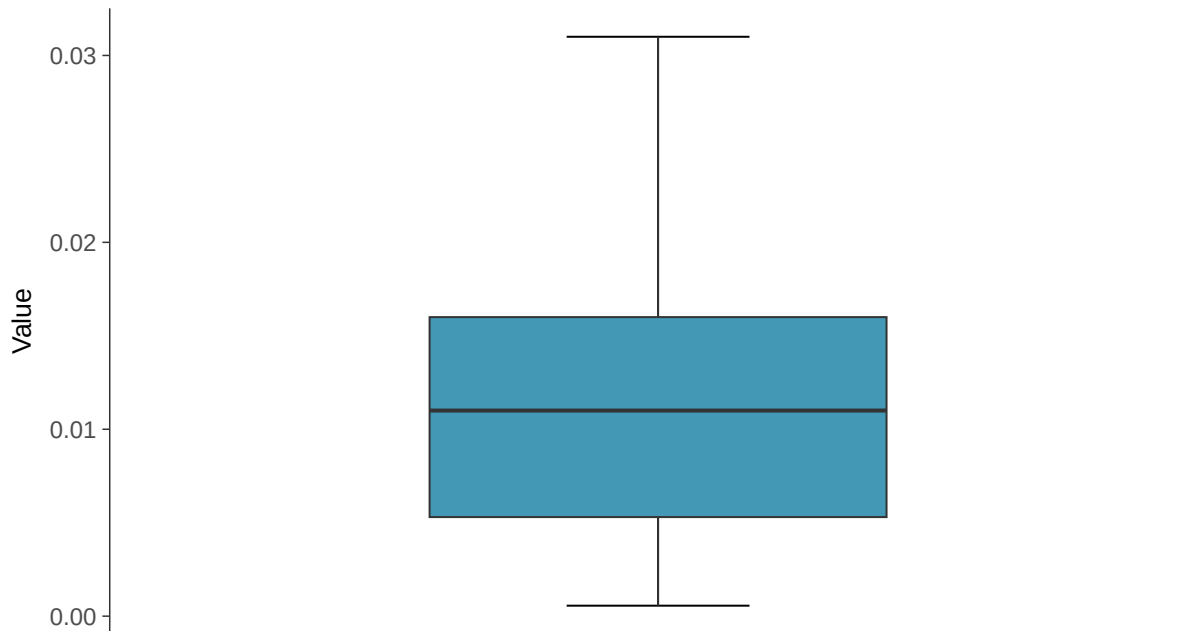
ID: 9_2_102





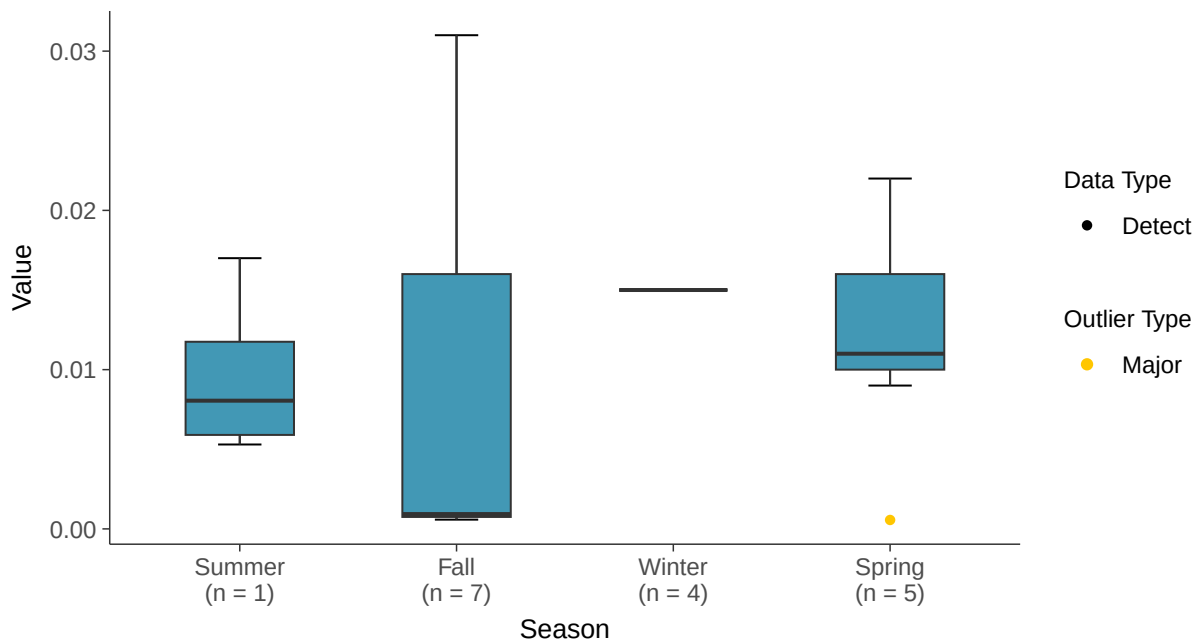
Boxplot

Arsenic, W-7 (mg/l)



Boxplot by Season

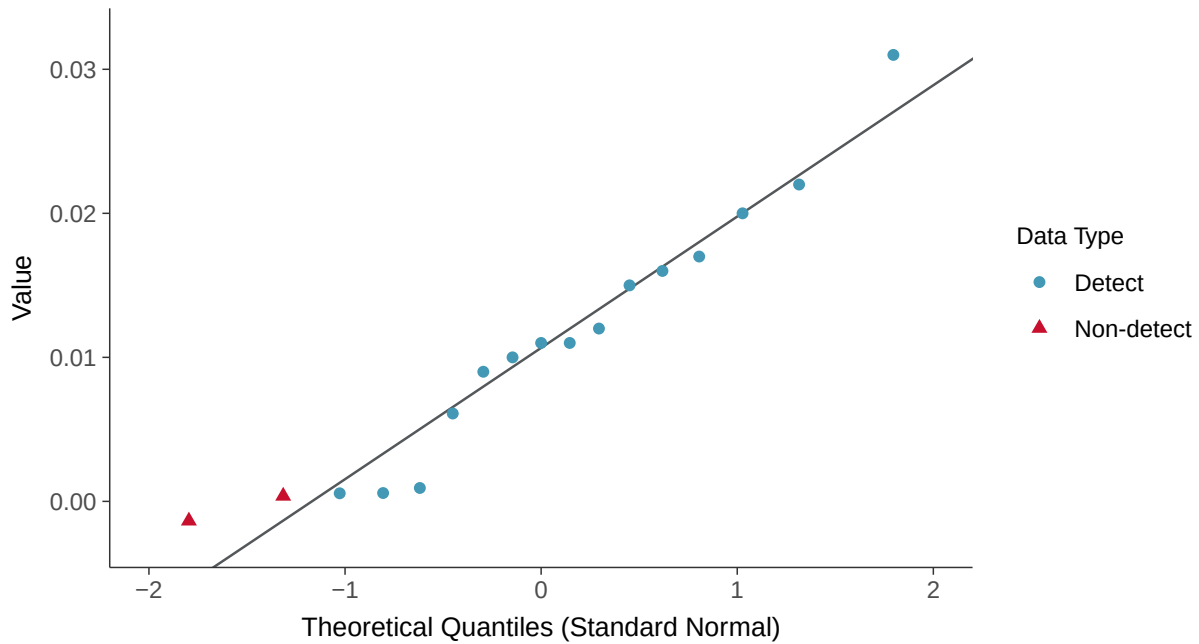
Arsenic, W-7 (mg/l)



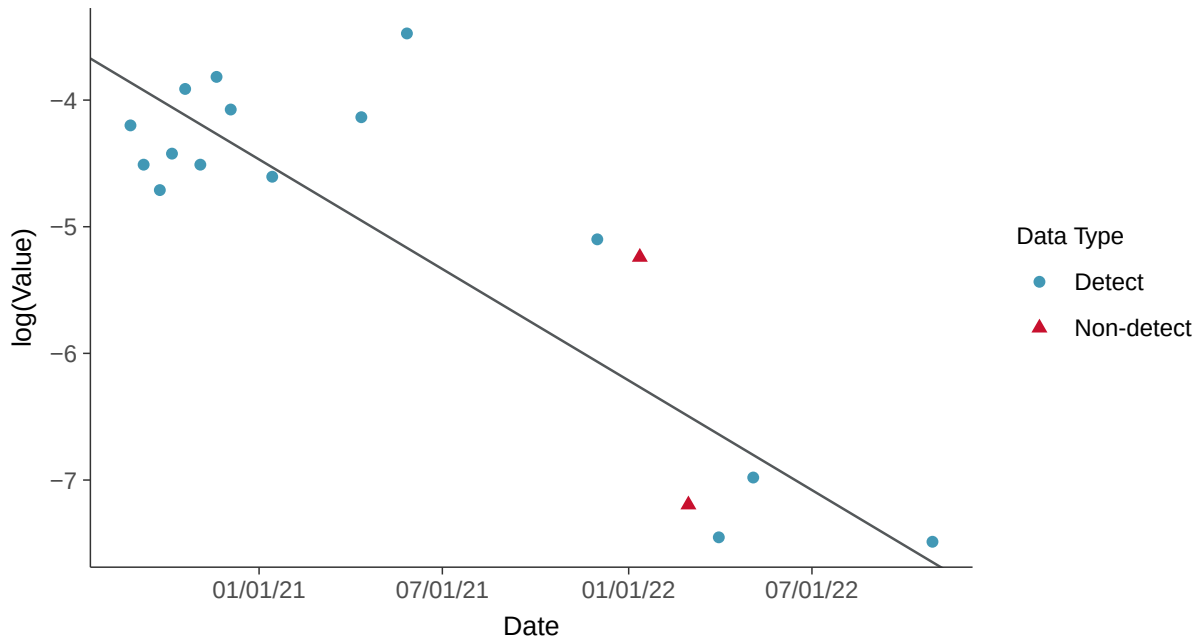
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Normal Q-Q plot using ROS Imputed Estimates

Arsenic, W-7 (mg/l)

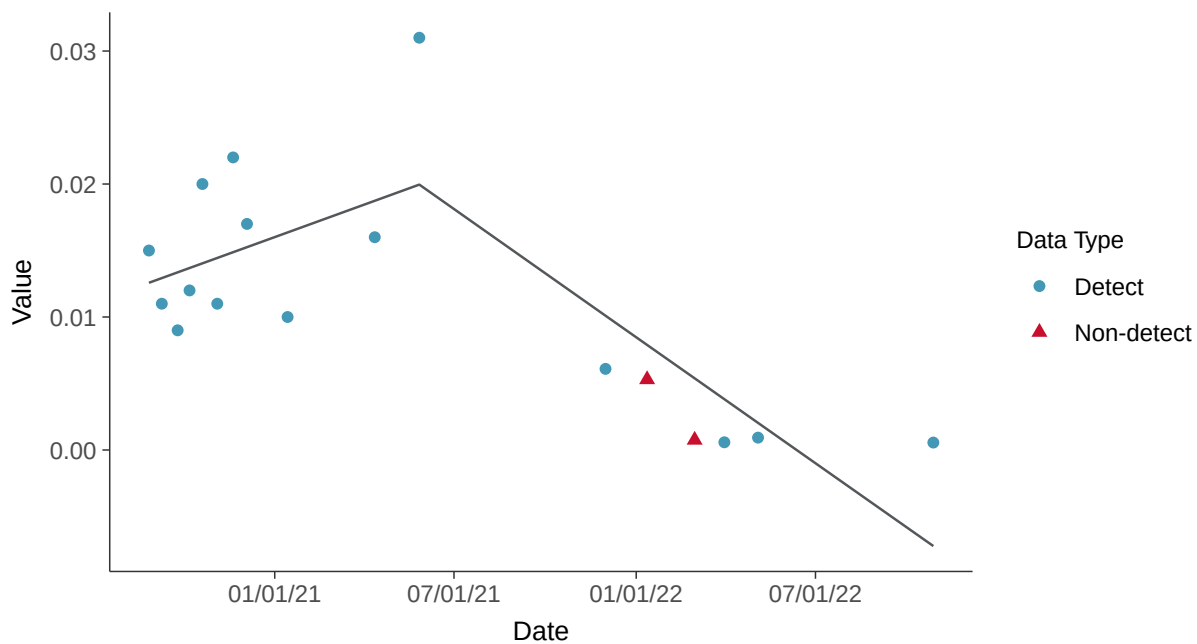
**Trend Regression: Lognormal MLE**

Arsenic, W-7 (mg/l)



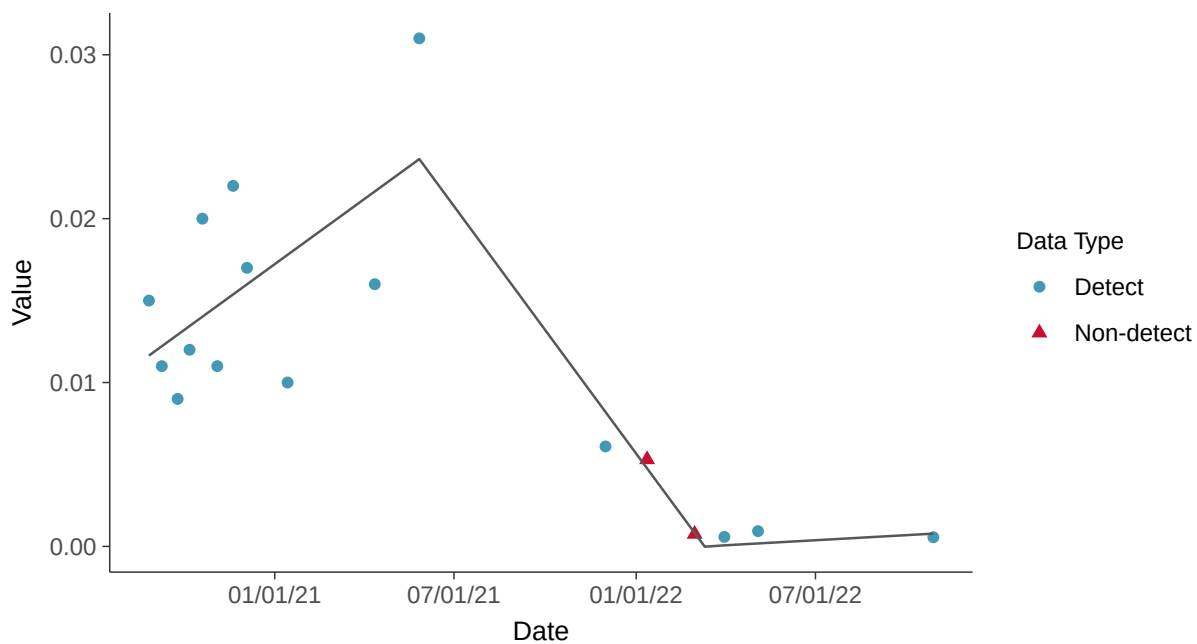
Trend Regression: Piecewise Linear-Linear

Arsenic, W-7 (mg/l)



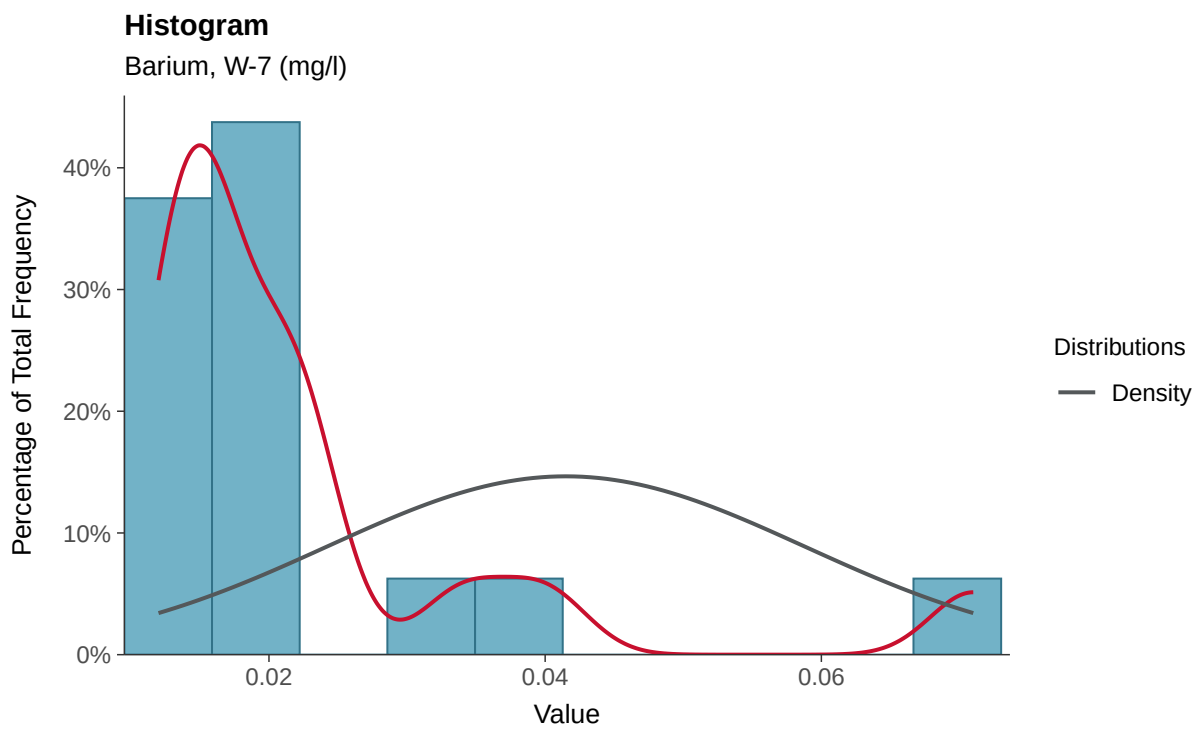
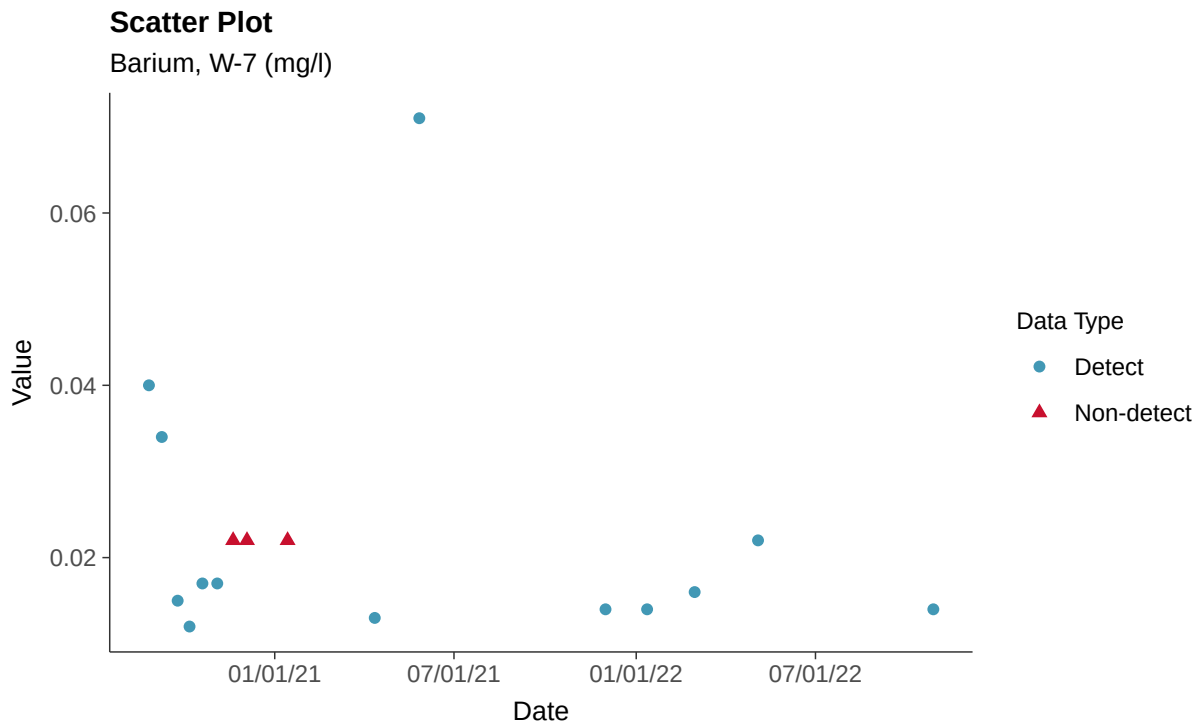
Trend Regression: Piecewise Linear-Linear-Linear

Arsenic, W-7 (mg/l)



Appendix IV: Barium, W-7

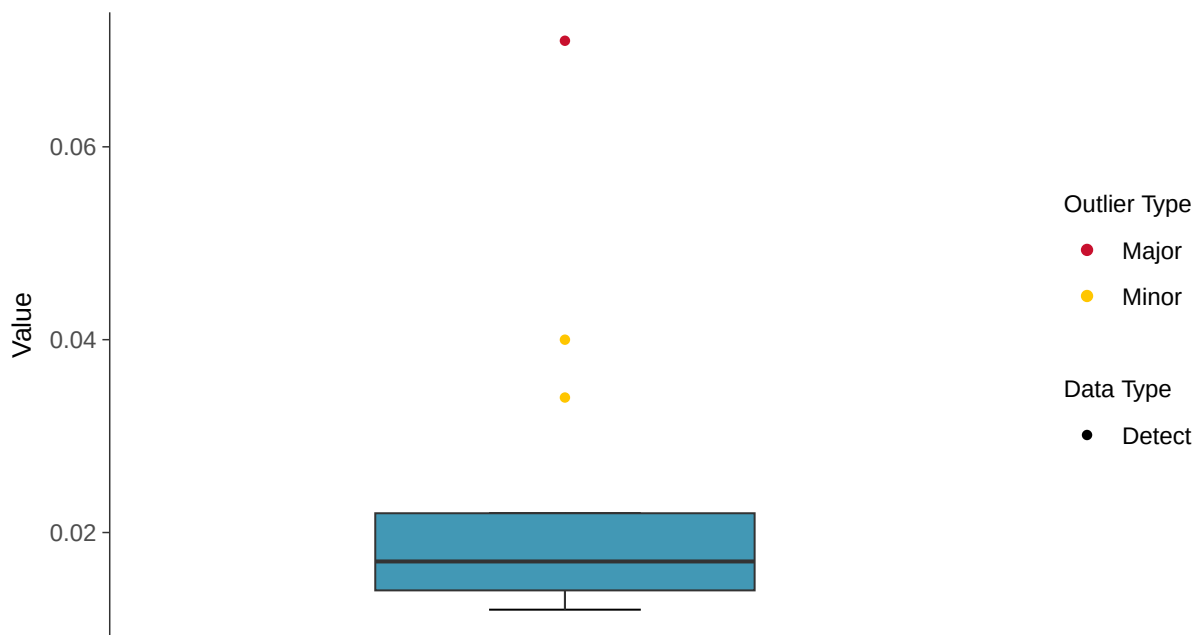
ID: 9_2_103





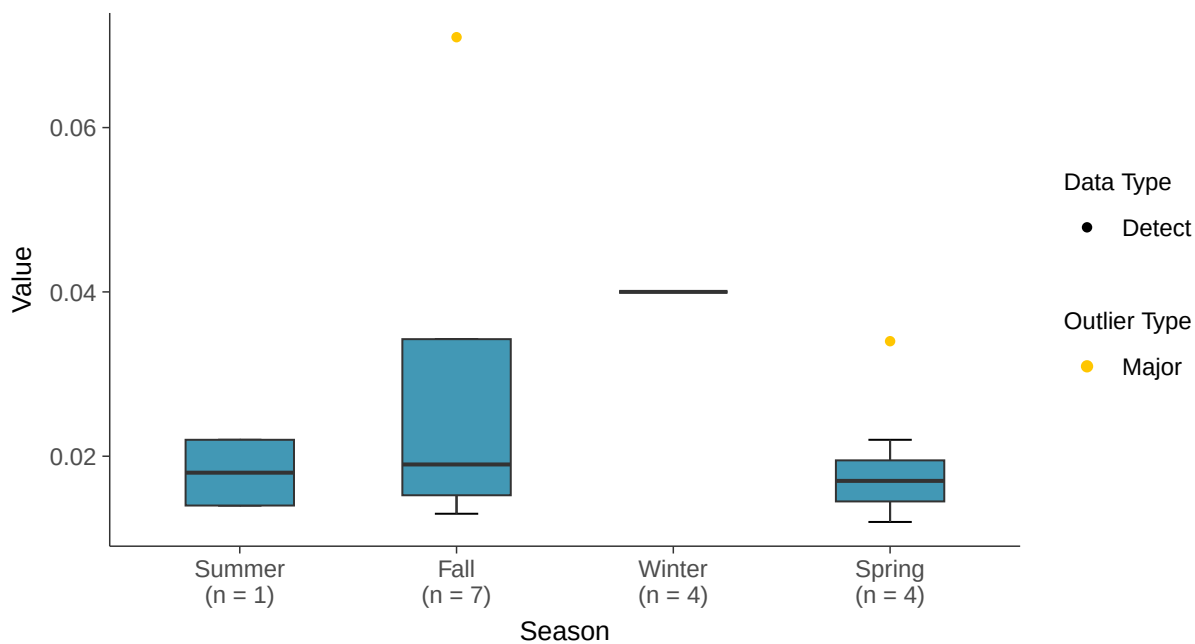
Boxplot

Barium, W-7 (mg/l)



Boxplot by Season

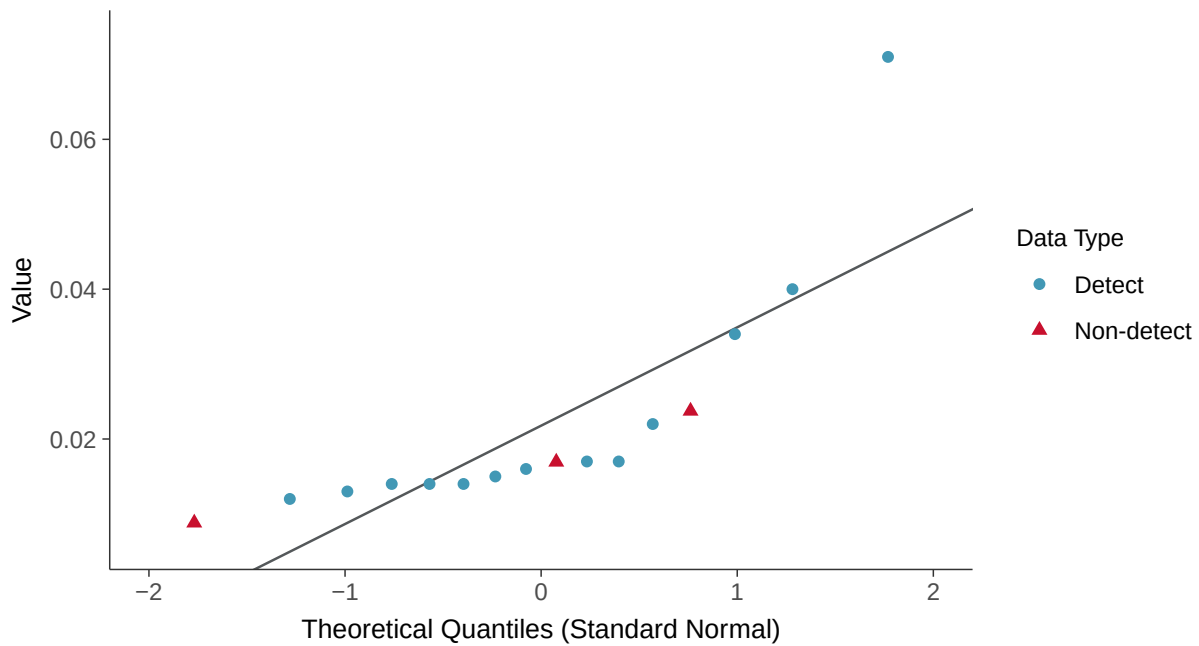
Barium, W-7 (mg/l)



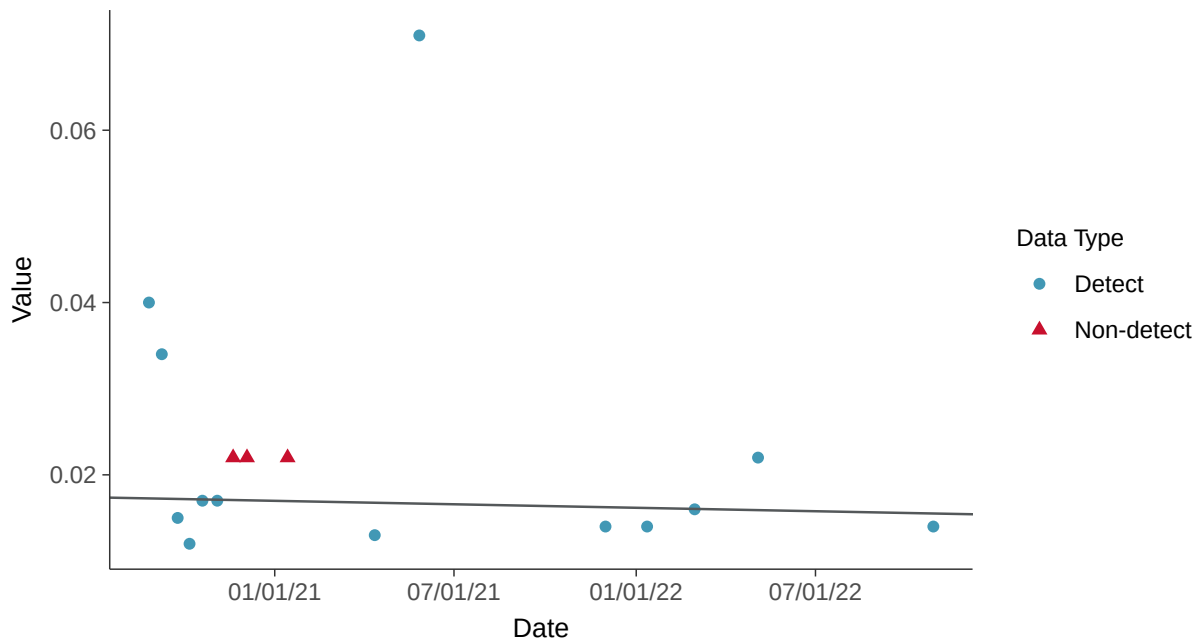
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Normal Q-Q plot using ROS Imputed Estimates

Barium, W-7 (mg/l)

**Trend Regression: Mann-Kendall/Theil-Sen Estimate**

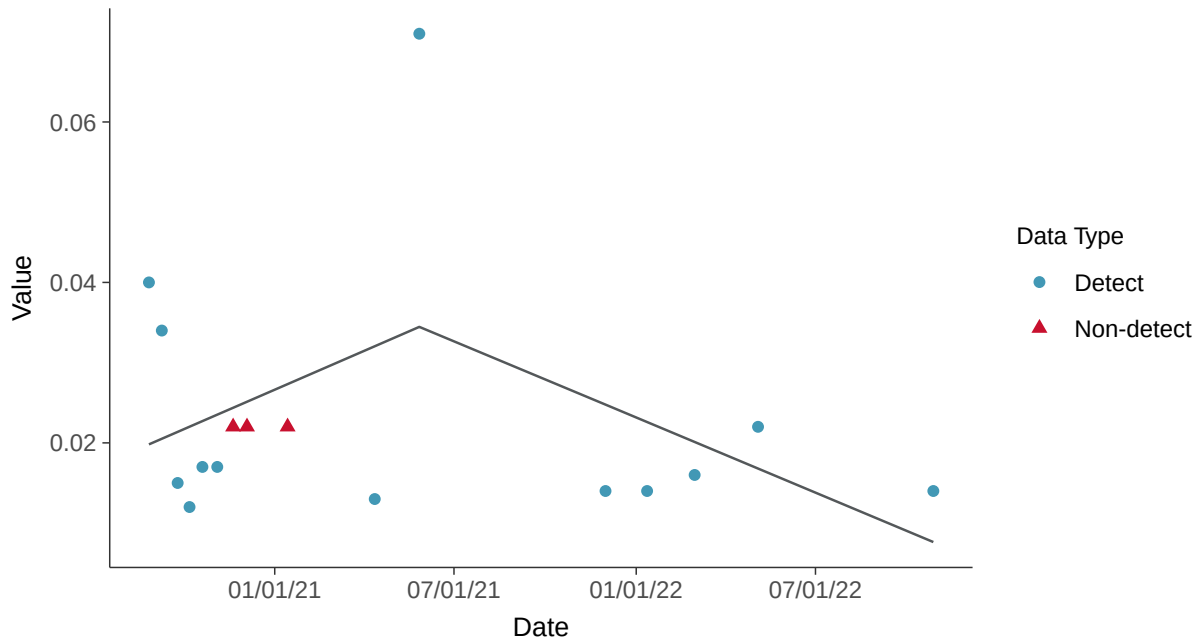
Barium, W-7 (mg/l)



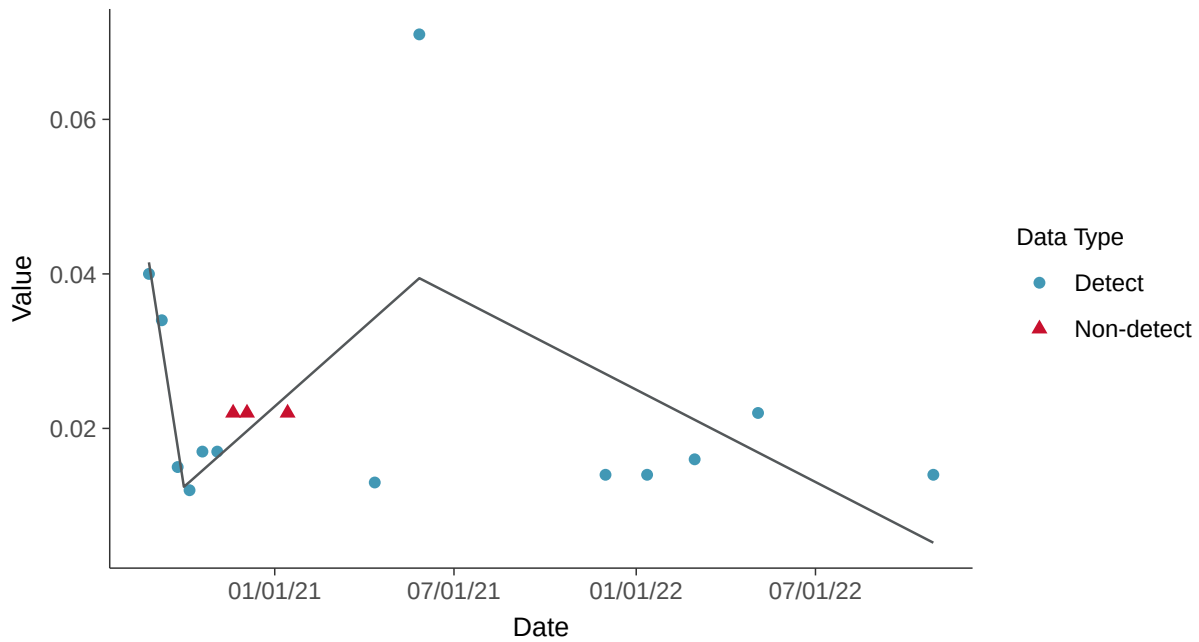
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Trend Regression: Piecewise Linear-Linear

Barium, W-7 (mg/l)

**Trend Regression: Piecewise Linear-Linear-Linear**

Barium, W-7 (mg/l)



Scatter Plot
Beryllium, W-7 (mg/l)

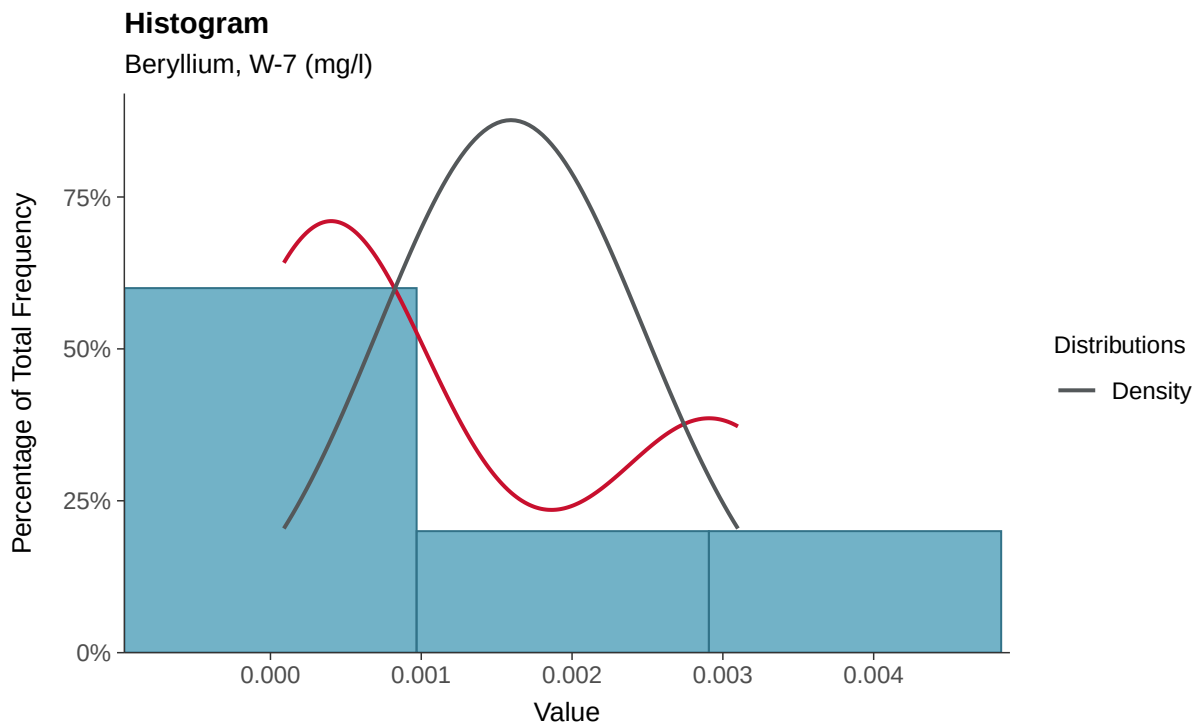
Value

Date

Data Type

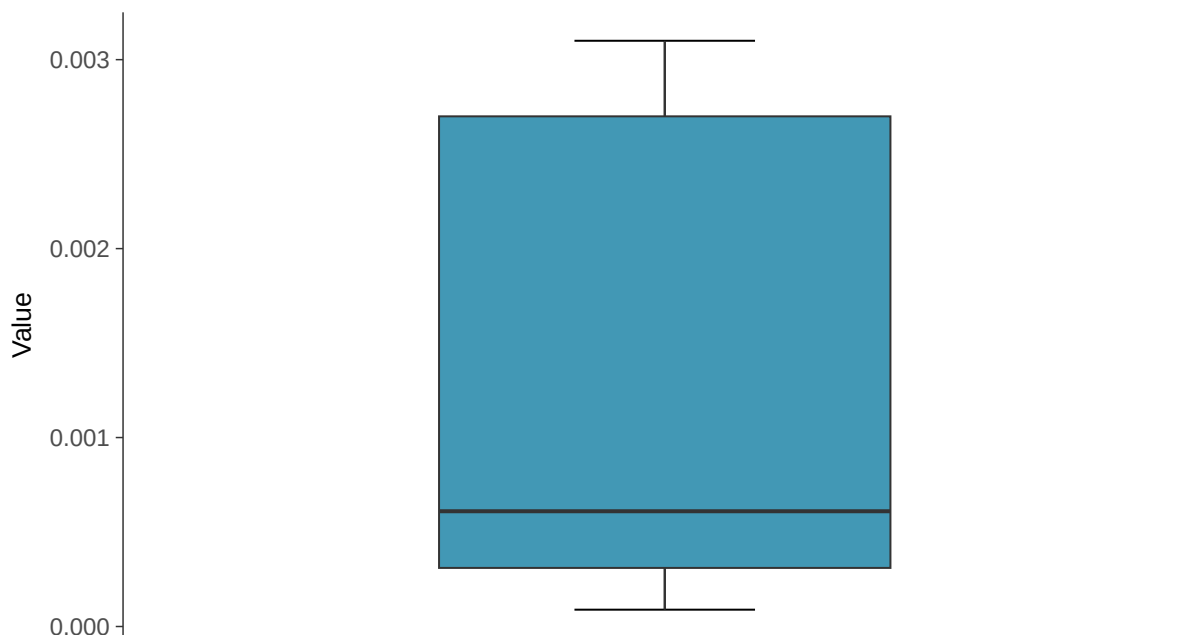
- Detect
- Non-detect

Date	Value (mg/l)	Data Type
2020-03-01	0.0003	Non-detect
2020-03-15	0.0003	Non-detect
2020-03-30	0.0003	Non-detect
2020-04-15	0.0003	Non-detect
2020-05-01	0.0006	Non-detect
2020-05-15	0.0015	Non-detect
2020-06-01	0.0031	Non-detect
2020-06-15	0.0031	Non-detect
2020-07-01	0.0031	Non-detect
2020-08-15	0.0003	Non-detect
2021-01-01	0.0006	Non-detect
2021-03-01	0.0027	Non-detect
2021-04-01	0.0027	Non-detect
2021-06-01	0.0005	Detect
2021-10-01	0.0001	Detect



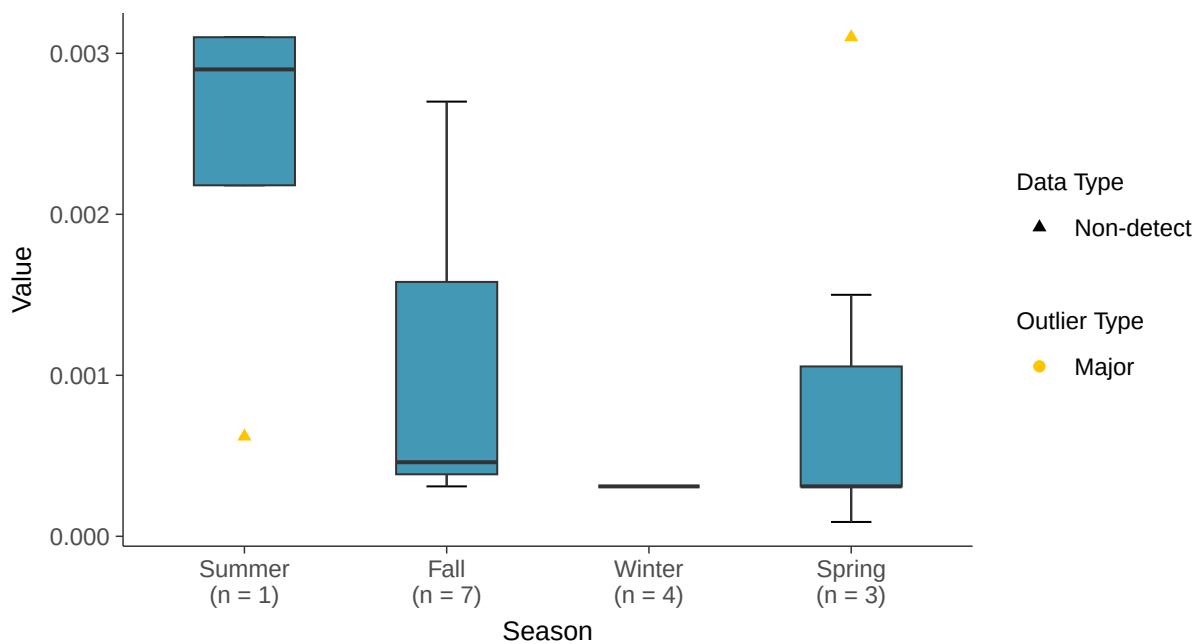
Boxplot

Beryllium, W-7 (mg/l)



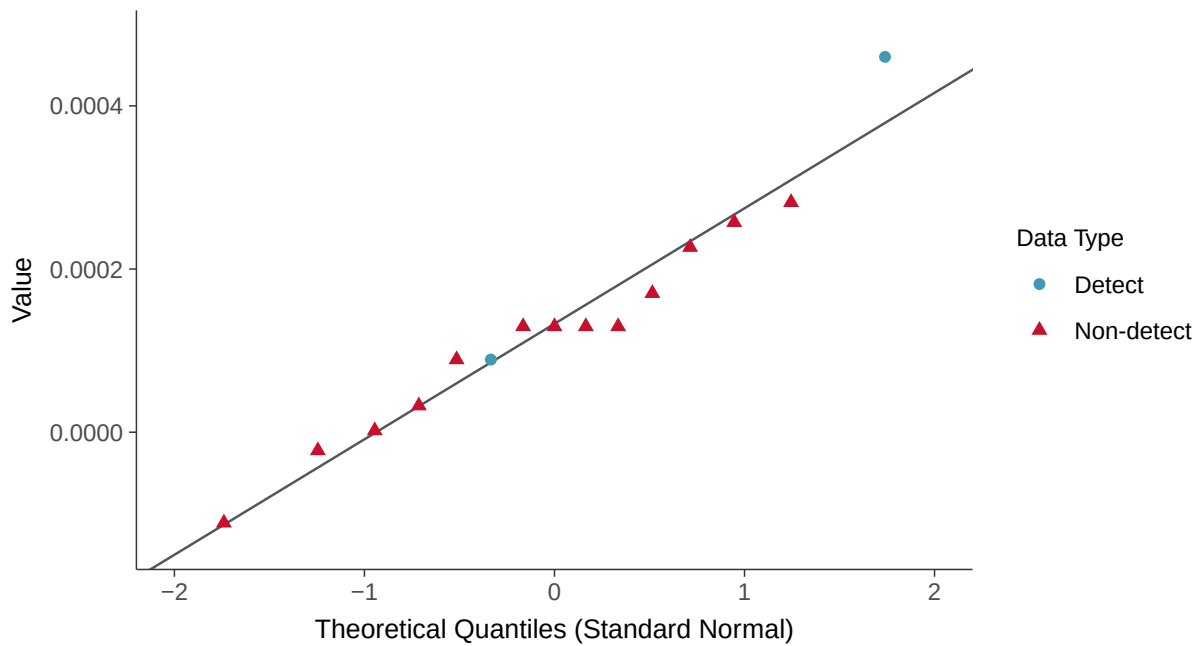
Boxplot by Season

Beryllium, W-7 (mg/l)



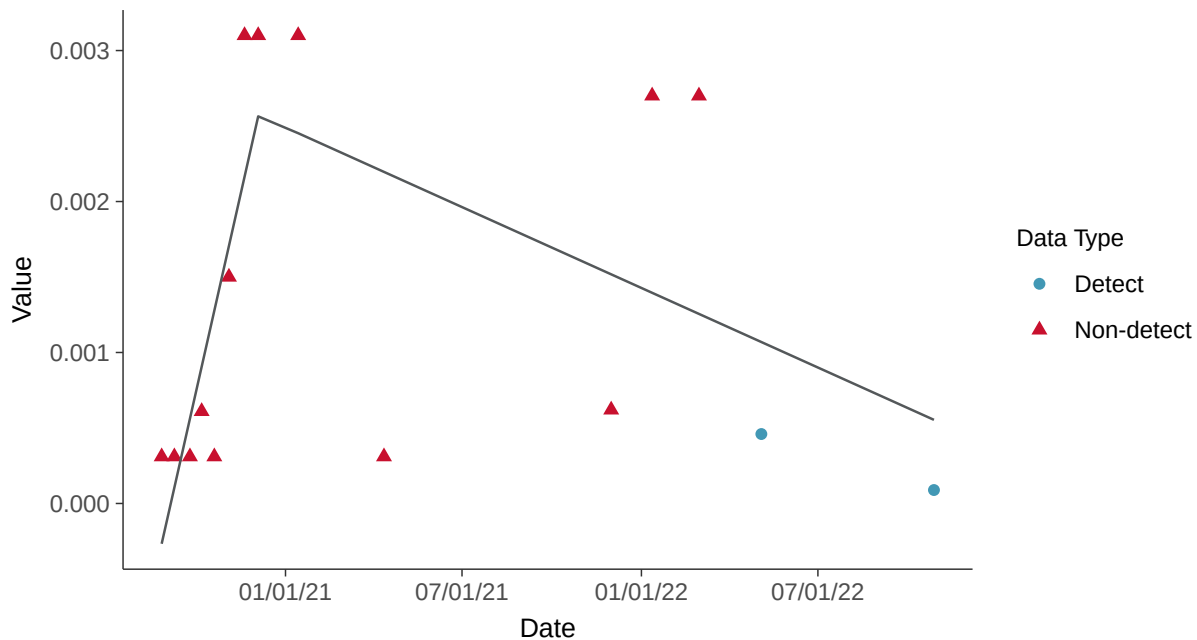
Normal Q-Q plot using ROS Imputed Estimates

Beryllium, W-7 (mg/l)



Trend Regression: Piecewise Linear-Linear

Beryllium, W-7 (mg/l)



Scatter Plot
Cadmium, W-7 (mg/l)

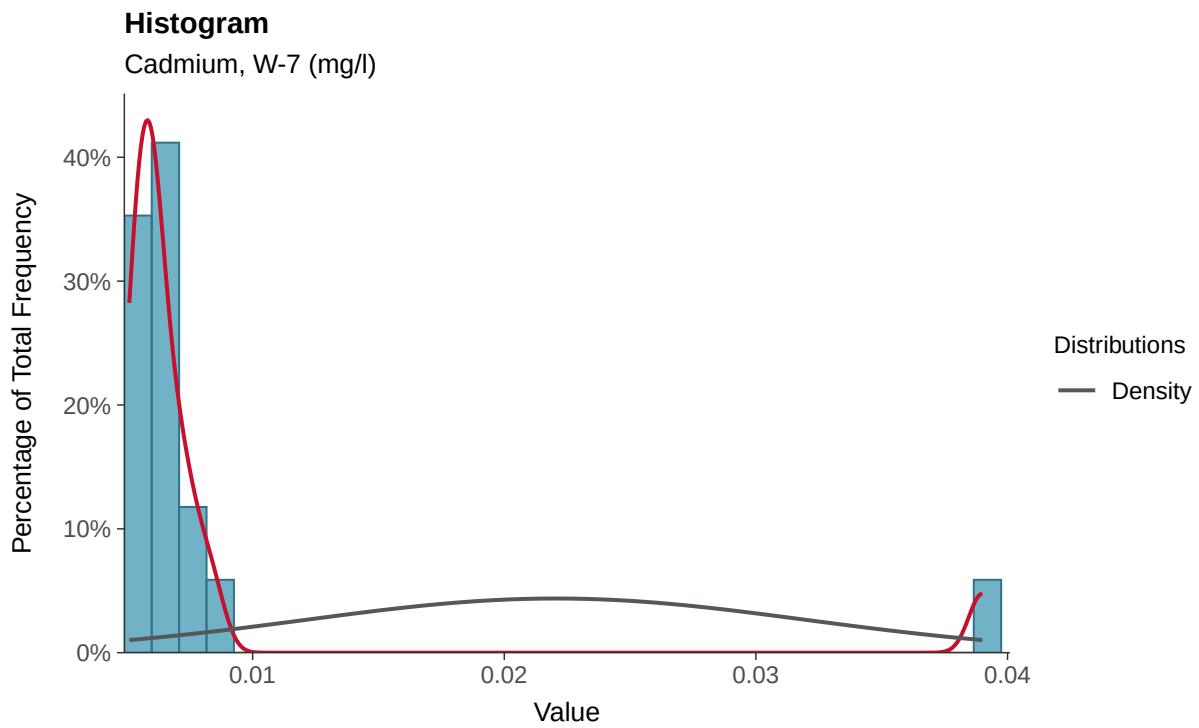
Value

Date

Data Type

- Detect

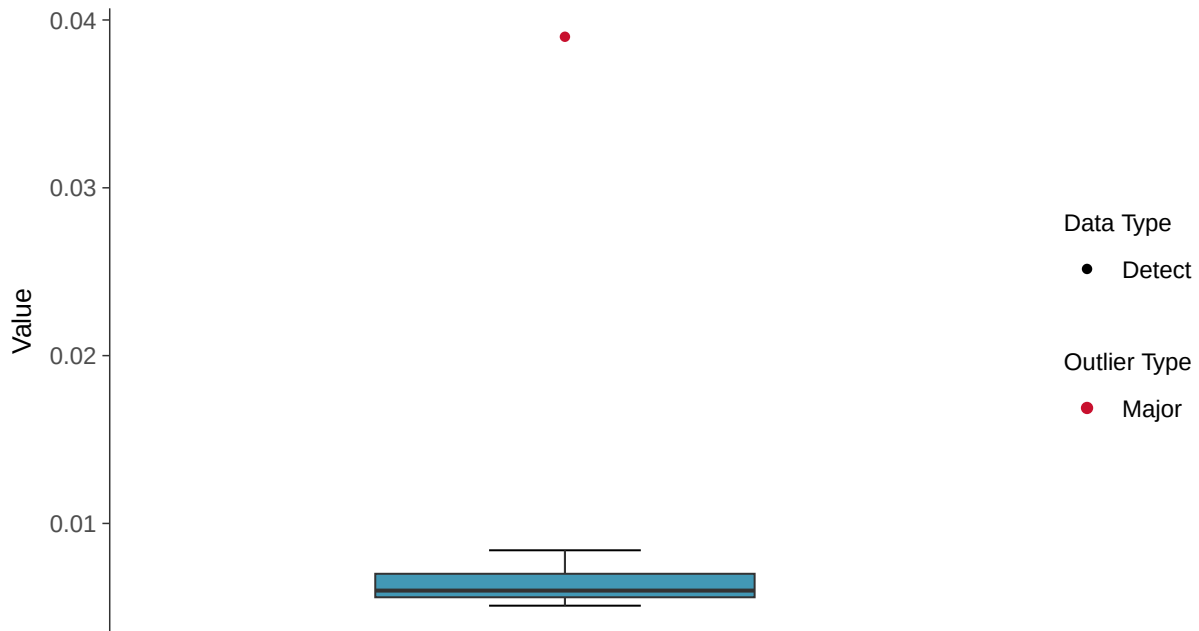
Date	Value (mg/l)	Data Type
2021-03-15	0.006	Detect
2021-03-25	0.006	Detect
2021-04-05	0.005	Detect
2021-04-15	0.005	Detect
2021-04-25	0.006	Detect
2021-05-05	0.006	Detect
2021-05-15	0.007	Detect
2021-06-05	0.006	Detect
2021-06-15	0.007	Detect
2021-07-05	0.039	Detect
2021-07-15	0.005	Detect
2021-08-05	0.006	Detect
2021-08-15	0.007	Detect
2021-09-05	0.008	Detect
2021-09-15	0.007	Detect
2021-10-05	0.006	Detect
2021-10-15	0.007	Detect
2021-10-25	0.008	Detect
2021-11-05	0.007	Detect
2021-11-15	0.006	Detect
2021-11-25	0.007	Detect
2021-12-05	0.006	Detect
2021-12-15	0.007	Detect
2021-12-25	0.006	Detect
2022-01-05	0.007	Detect
2022-01-15	0.008	Detect
2022-01-25	0.009	Detect
2022-02-05	0.008	Detect
2022-02-15	0.007	Detect
2022-02-25	0.006	Detect
2022-03-05	0.007	Detect
2022-03-15	0.006	Detect
2022-03-25	0.007	Detect
2022-04-05	0.008	Detect
2022-04-15	0.009	Detect
2022-04-25	0.008	Detect
2022-05-05	0.007	Detect
2022-05-15	0.006	Detect
2022-05-25	0.007	Detect
2022-06-05	0.008	Detect
2022-06-15	0.009	Detect
2022-06-25	0.008	Detect
2022-07-05	0.007	Detect
2022-07-15	0.006	Detect
2022-07-25	0.007	Detect
2022-08-05	0.008	Detect
2022-08-15	0.009	Detect
2022-08-25	0.008	Detect
2022-09-05	0.007	Detect
2022-09-15	0.006	Detect
2022-09-25	0.007	Detect
2022-10-05	0.008	Detect
2022-10-15	0.009	Detect
2022-10-25	0.008	Detect
2022-11-05	0.007	Detect
2022-11-15	0.006	Detect
2022-11-25	0.007	Detect
2022-12-05	0.008	Detect
2022-12-15	0.009	Detect
2022-12-25	0.008	Detect
2023-01-05	0.007	Detect
2023-01-15	0.006	Detect
2023-01-25	0.007	Detect
2023-02-05	0.008	Detect
2023-02-15	0.009	Detect
2023-02-25	0.008	Detect
2023-03-05	0.007	Detect
2023-03-15	0.006	Detect
2023-03-25	0.007	Detect
2023-04-05	0.008	Detect
2023-04-15	0.009	Detect
2023-04-25	0.008	Detect
2023-05-05	0.007	Detect
2023-05-15	0.006	Detect
2023-05-25	0.007	Detect
2023-06-05	0.008	Detect
2023-06-15	0.009	Detect
2023-06-25	0.008	Detect
2023-07-05	0.007	Detect
2023-07-15	0.006	Detect
2023-07-25	0.007	Detect
2023-08-05	0.008	Detect
2023-08-15	0.009	Detect
2023-08-25	0.008	Detect
2023-09-05	0.007	Detect
2023-09-15	0.006	Detect
2023-09-25	0.007	Detect
2023-10-05	0.008	Detect
2023-10-15	0.009	Detect
2023-10-25	0.008	Detect
2023-11-05	0.007	Detect
2023-11-15	0.006	Detect
2023-11-25	0.007	Detect
2023-12-05	0.008	Detect
2023-12-15	0.009	Detect
2023-12-25	0.008	Detect
2024-01-05	0.007	Detect
2024-01-15	0.006	Detect
2024-01-25	0.007	Detect
2024-02-05	0.008	Detect
2024-02-15	0.009	Detect
2024-02-25	0.008	Detect
2024-03-05	0.007	Detect
2024-03-15	0.006	Detect
2024-03-25	0.007	Detect
2024-04-05	0.008	Detect
2024-04-15	0.009	Detect
2024-04-25	0.008	



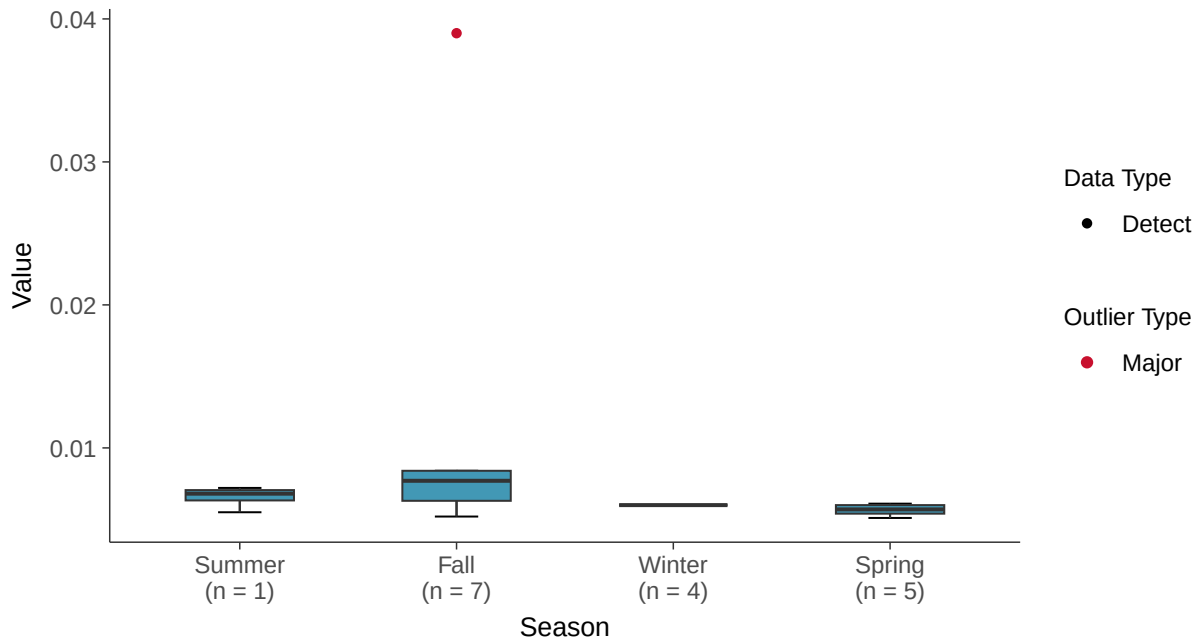
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

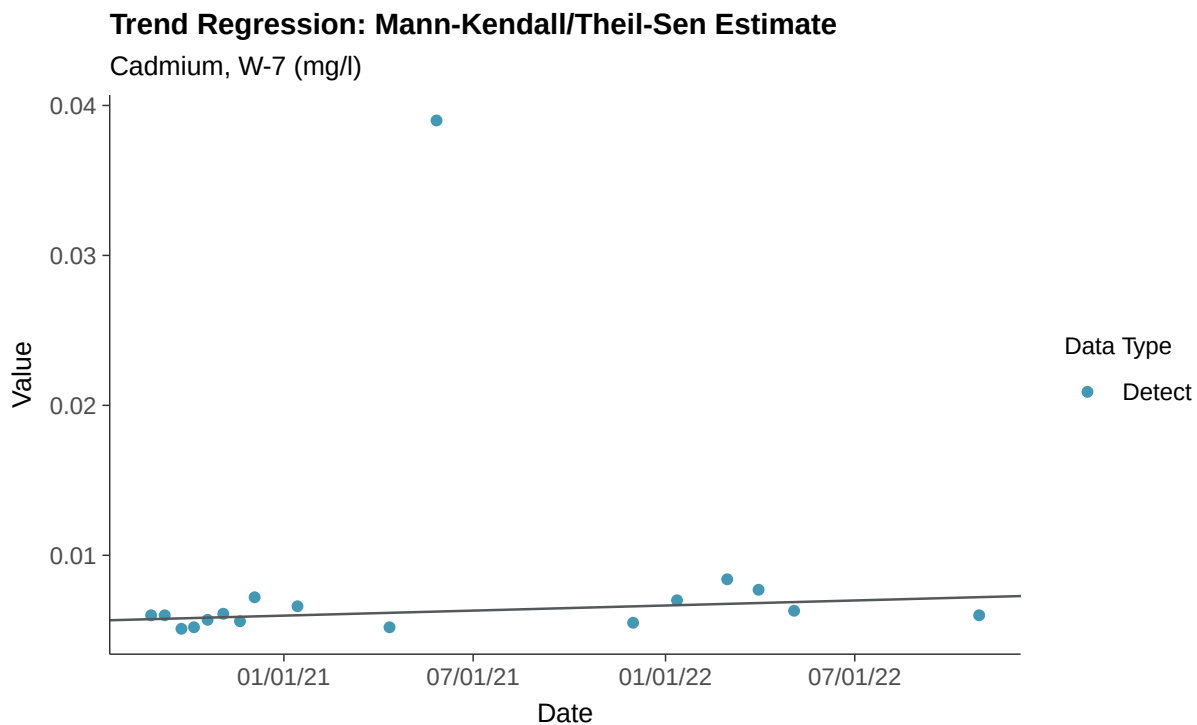
Cadmium, W-7 (mg/l)

**Boxplot by Season**

Cadmium, W-7 (mg/l)



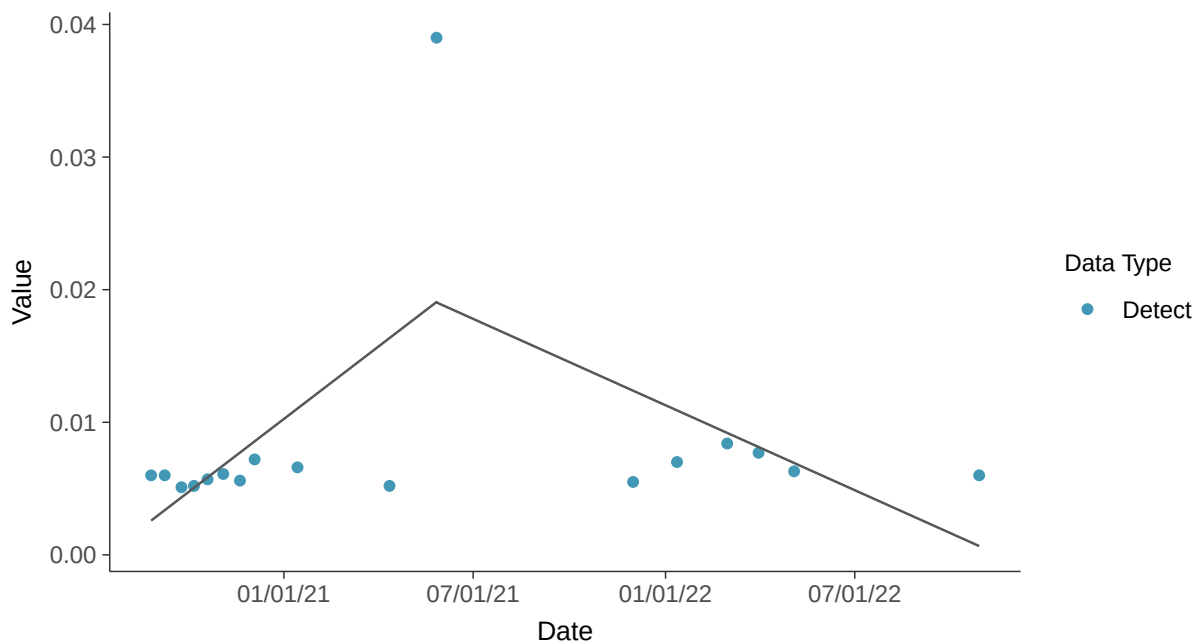
Cadmium, W-7 (mg/l)





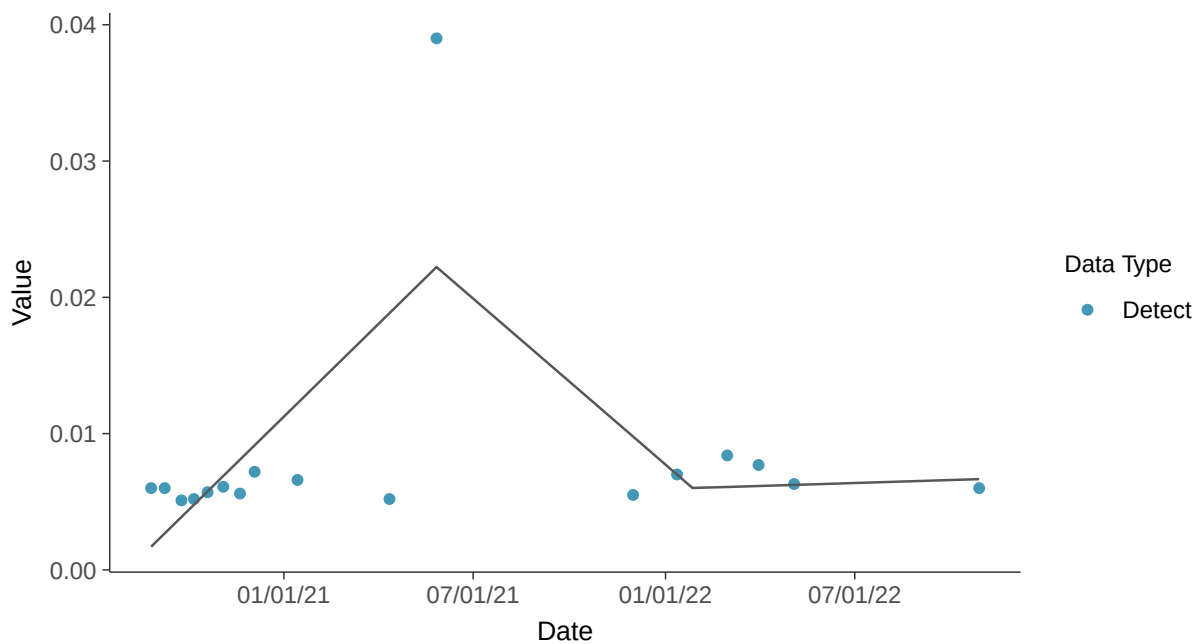
Trend Regression: Piecewise Linear-Linear

Cadmium, W-7 (mg/l)



Trend Regression: Piecewise Linear-Linear-Linear

Cadmium, W-7 (mg/l)

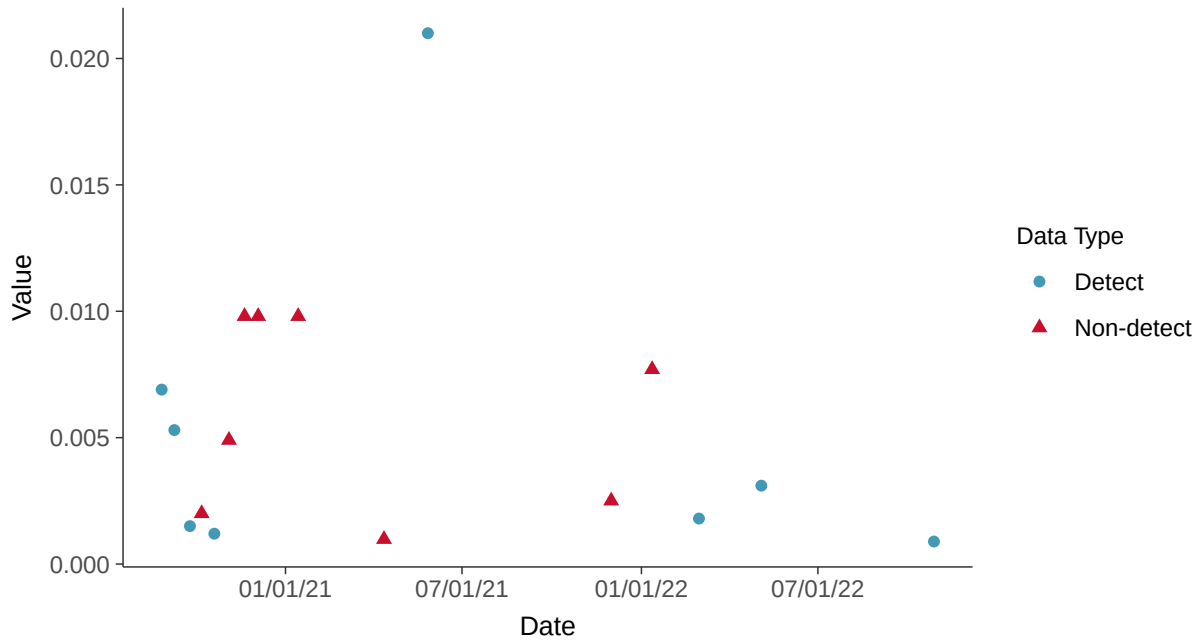


Appendix IV: Chromium, Total, W-7

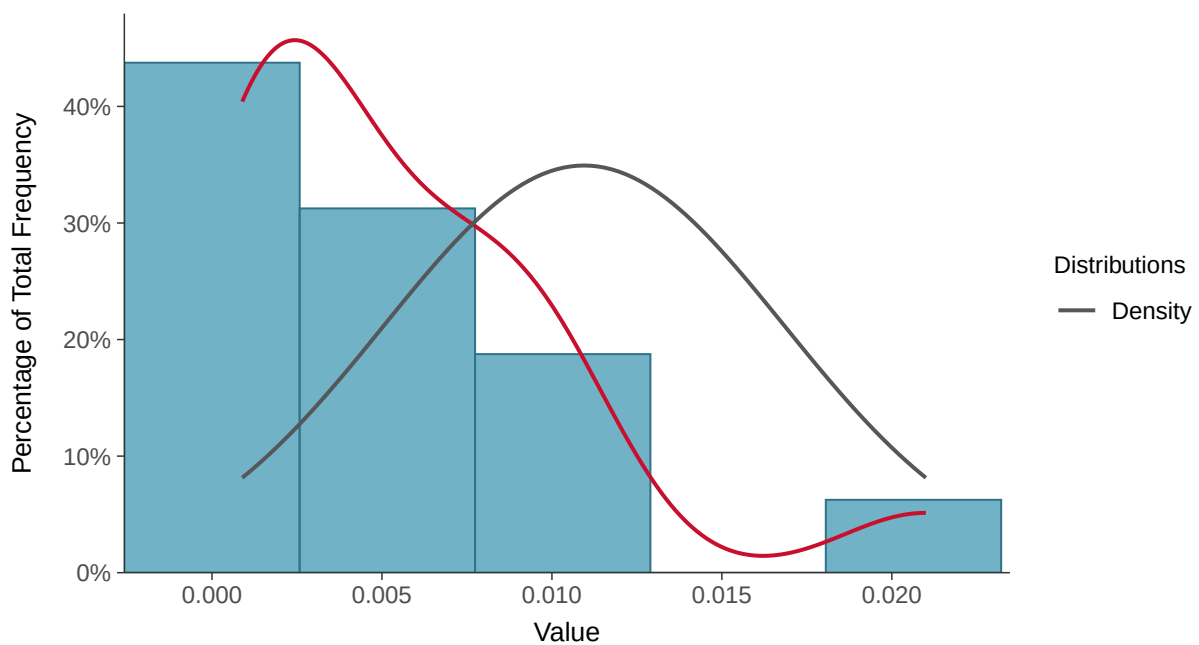
ID: 9_2_109

Scatter Plot

Chromium, Total, W-7 (mg/l)

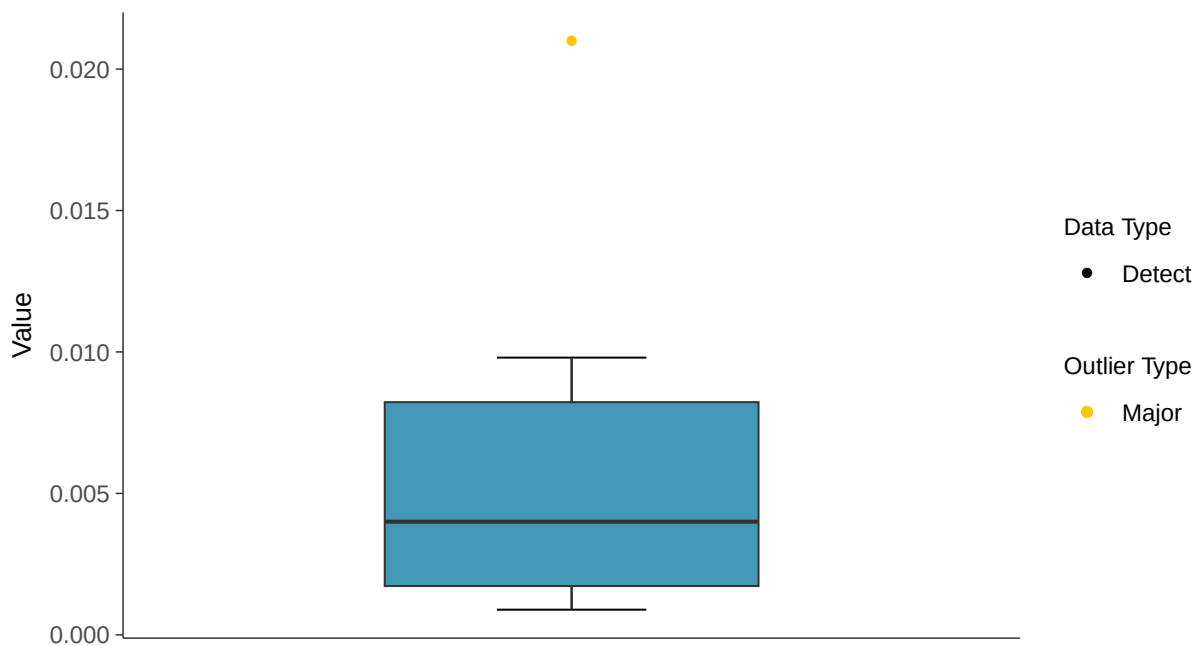
**Histogram**

Chromium, Total, W-7 (mg/l)



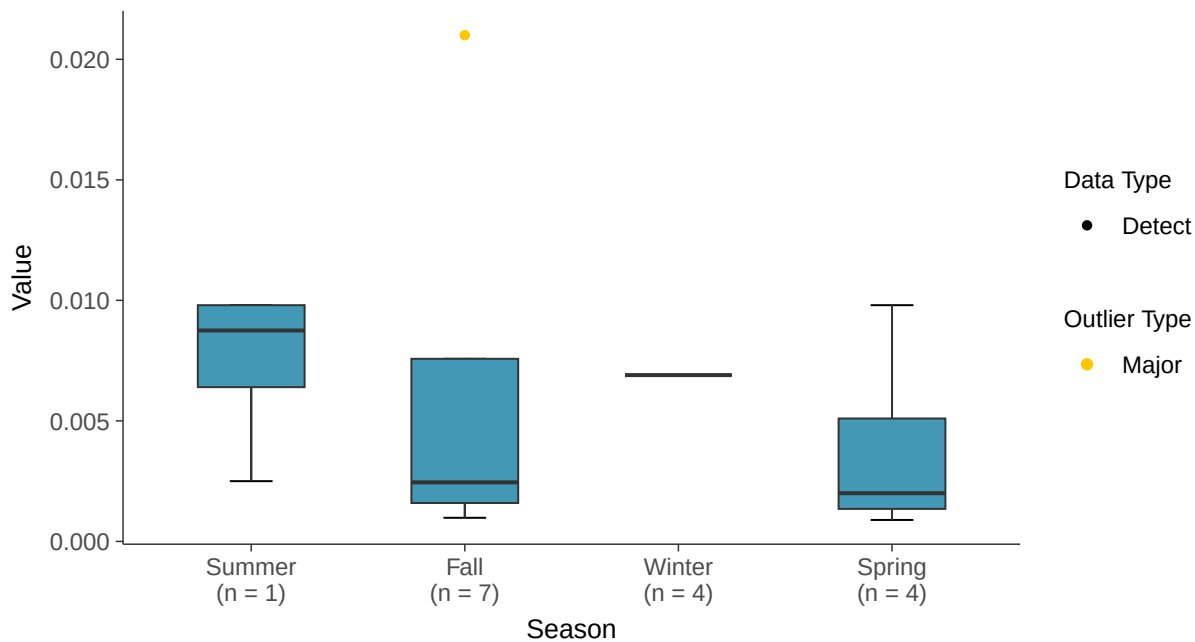
Boxplot

Chromium, Total, W-7 (mg/l)



Boxplot by Season

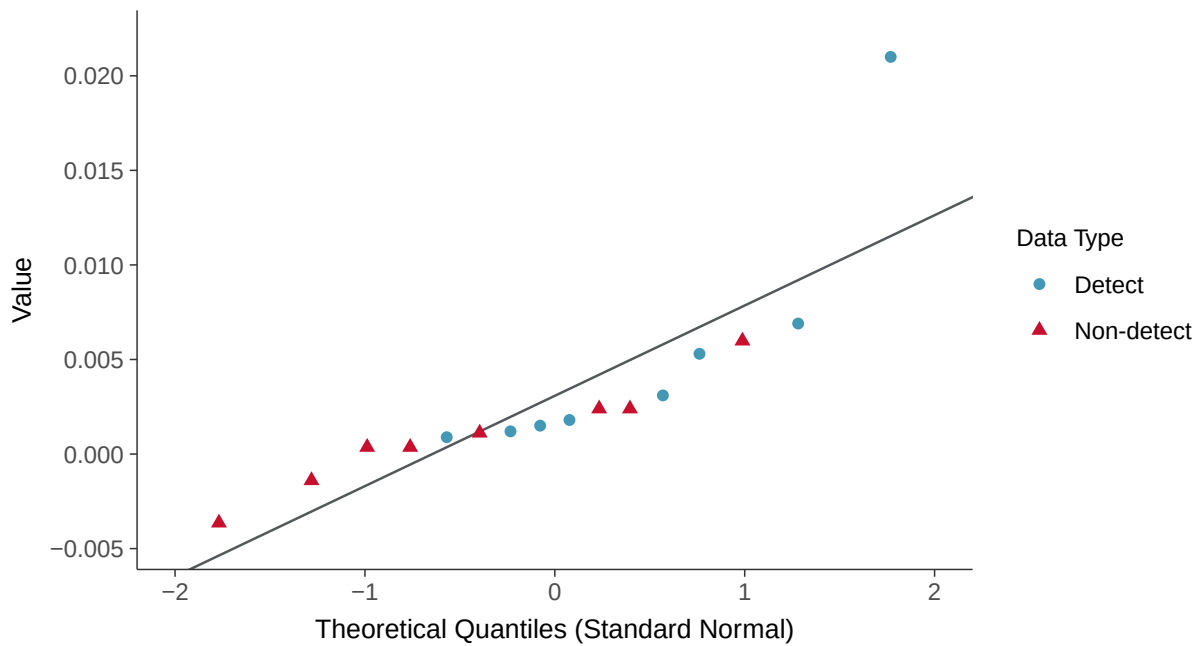
Chromium, Total, W-7 (mg/l)





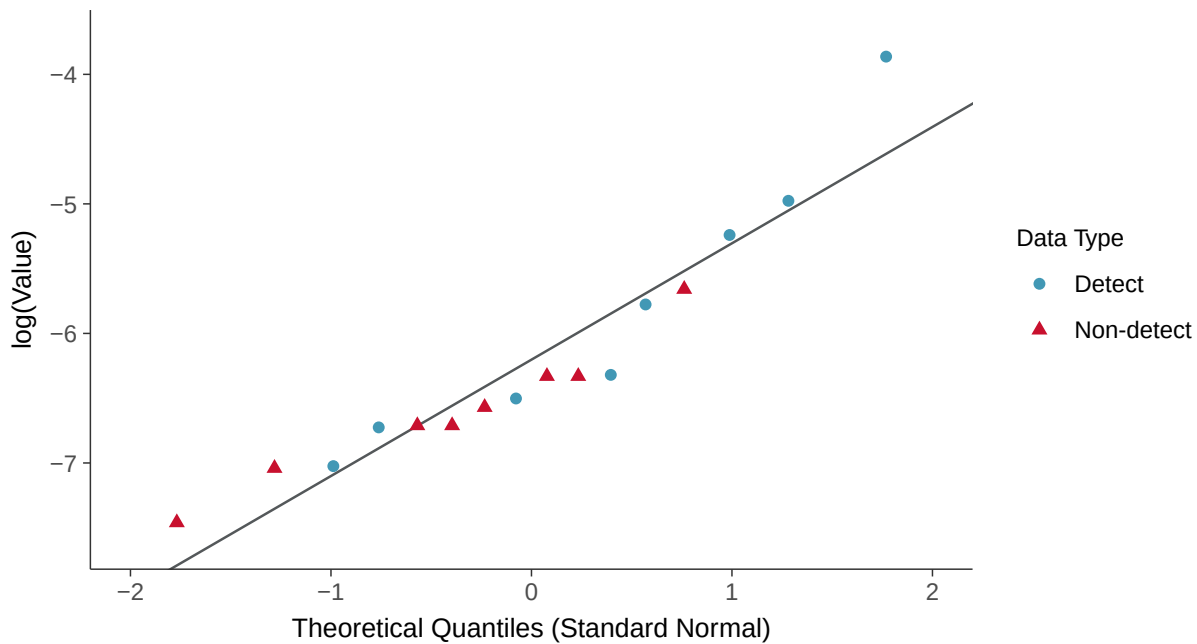
Normal Q-Q plot using ROS Imputed Estimates

Chromium, Total, W-7 (mg/l)



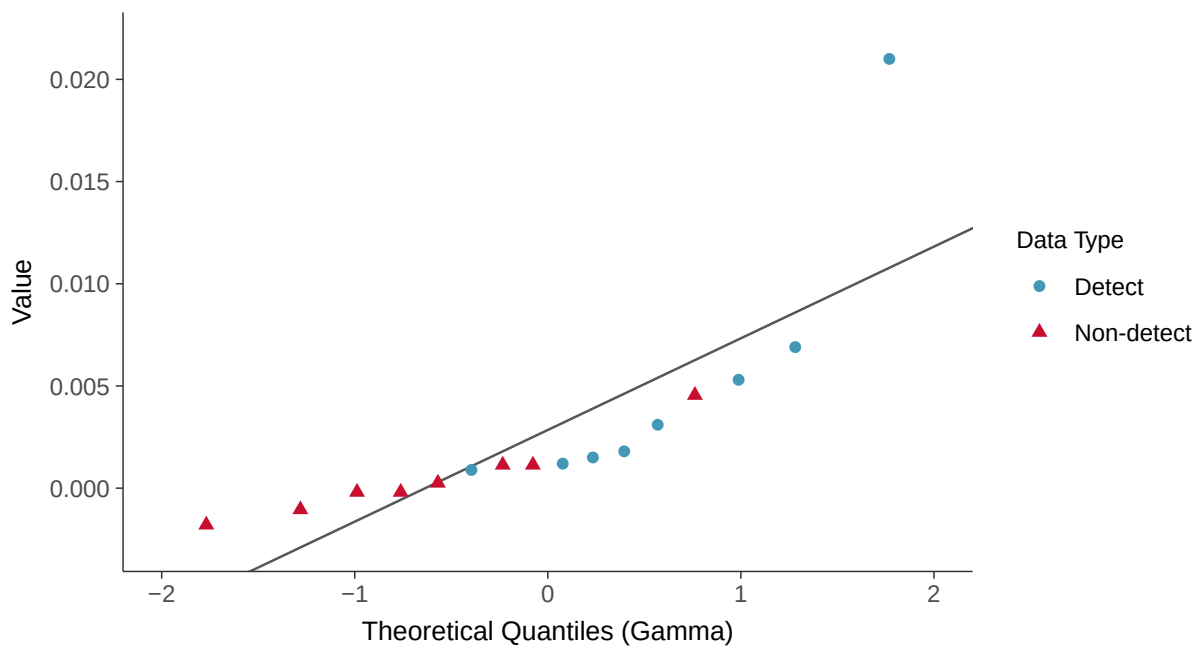
Lognormal Q-Q plot using ROS Imputed Estimates

Chromium, Total, W-7 (mg/l)



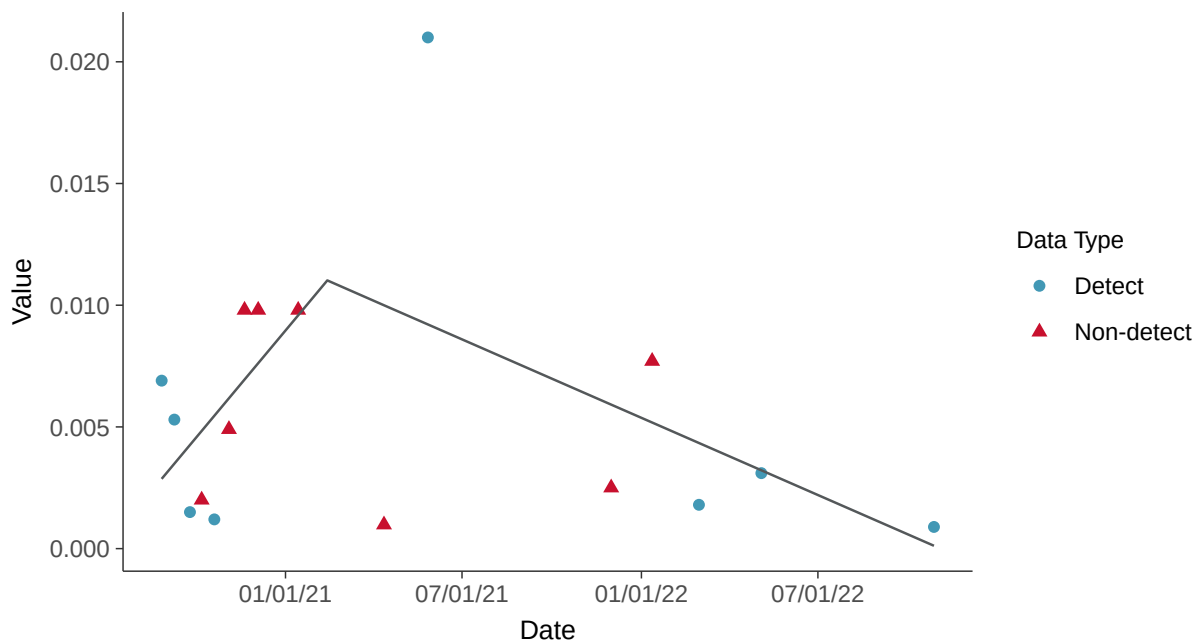
Gamma Q-Q plot using ROS Imputed Estimates

Chromium, Total, W-7 (mg/l)



Trend Regression: Piecewise Linear-Linear

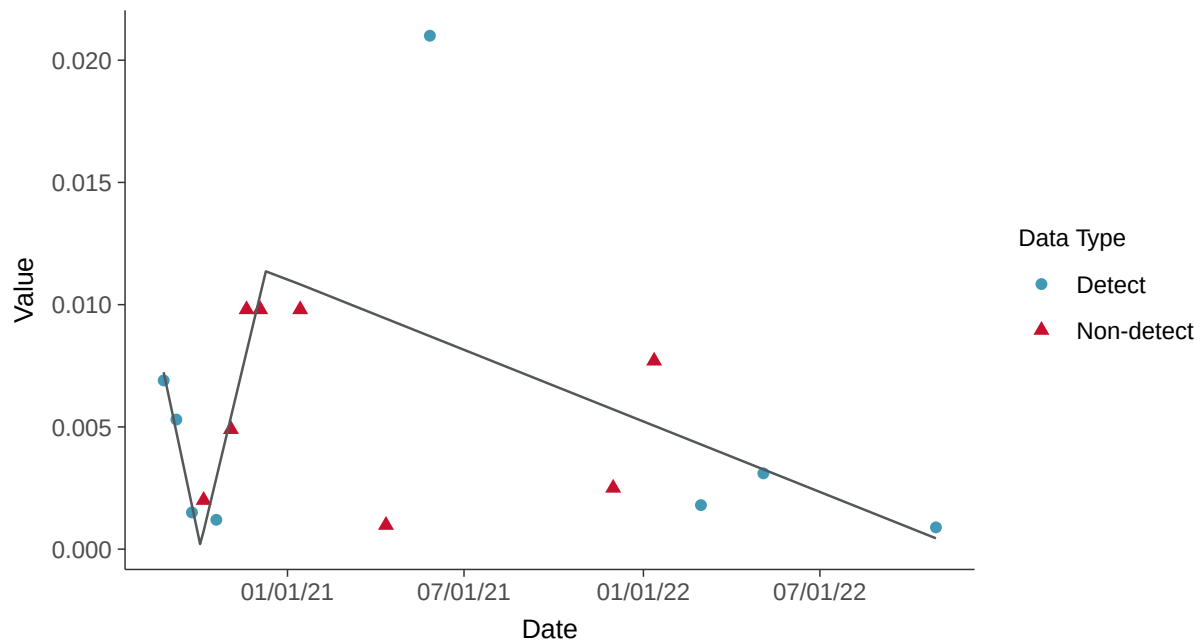
Chromium, Total, W-7 (mg/l)





Trend Regression: Piecewise Linear-Linear-Linear

Chromium, Total, W-7 (mg/l)



Scatter Plot
Cobalt, W-7 (mg/l)

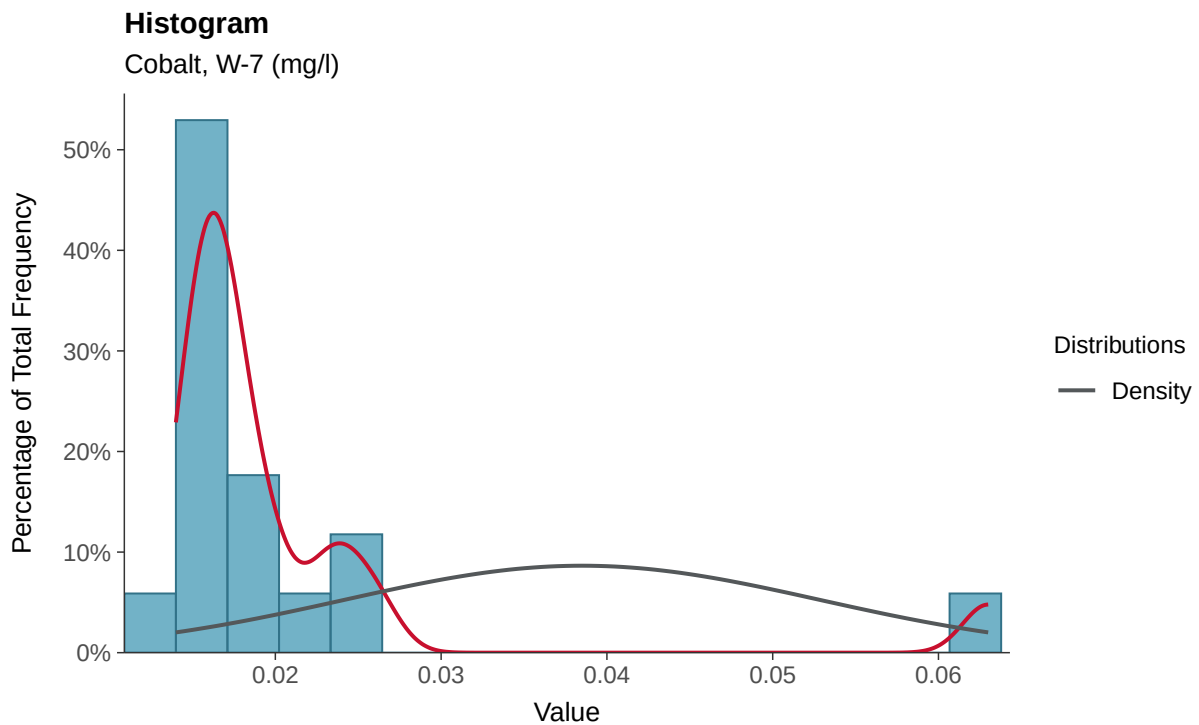
Value

Date

Data Type

- Detect

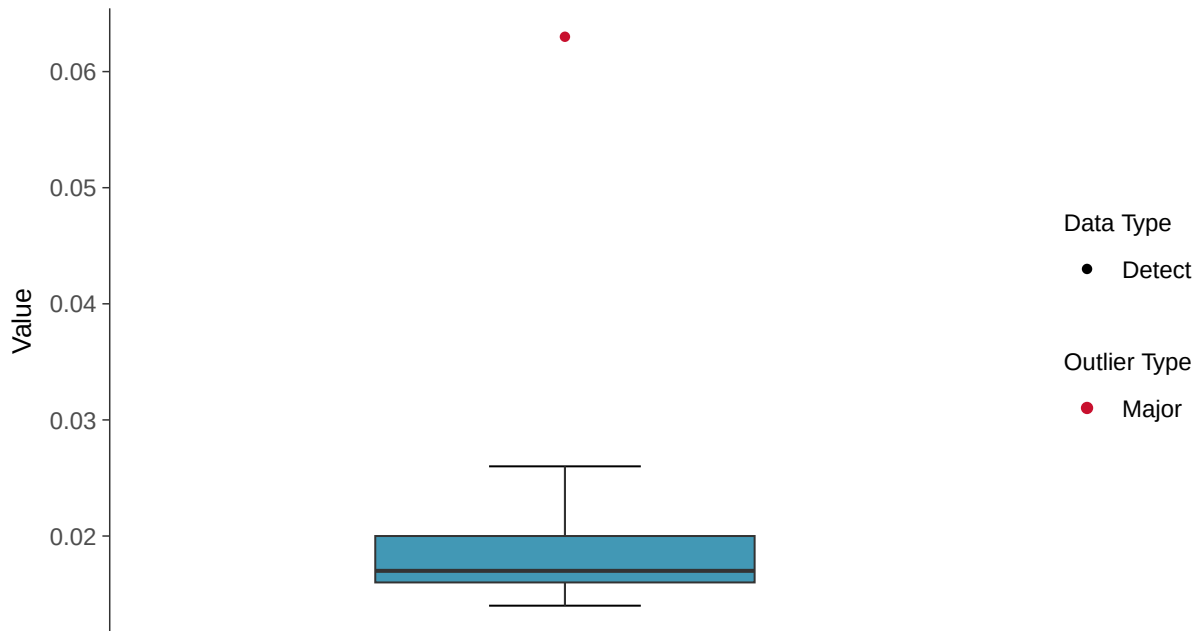
Date	Value (mg/l)	Data Type
2020-03-15	0.017	Detect
2020-04-01	0.016	Detect
2020-04-15	0.015	Detect
2020-05-01	0.014	Detect
2020-05-15	0.015	Detect
2020-06-01	0.015	Detect
2020-06-15	0.016	Detect
2020-07-01	0.018	Detect
2020-08-15	0.017	Detect
2020-10-01	0.063	Detect
2021-01-01	0.020	Detect
2021-02-01	0.023	Detect
2021-03-15	0.014	Detect
2021-04-15	0.026	Detect
2021-05-15	0.019	Detect
2021-09-01	0.024	Detect



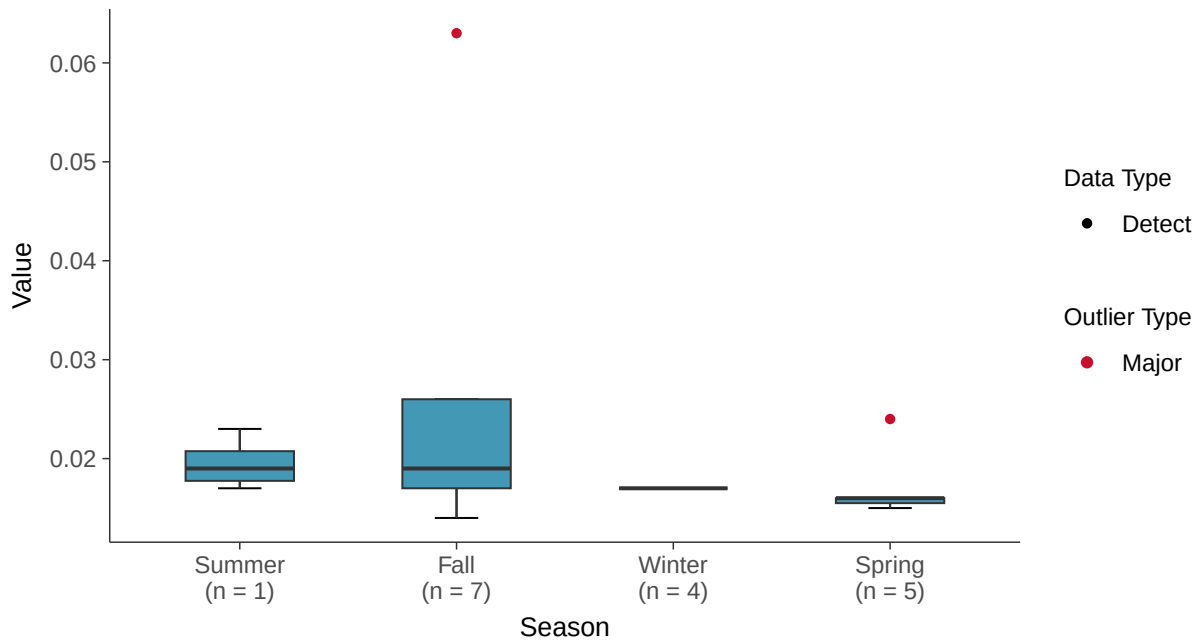
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Cobalt, W-7 (mg/l)

**Boxplot by Season**

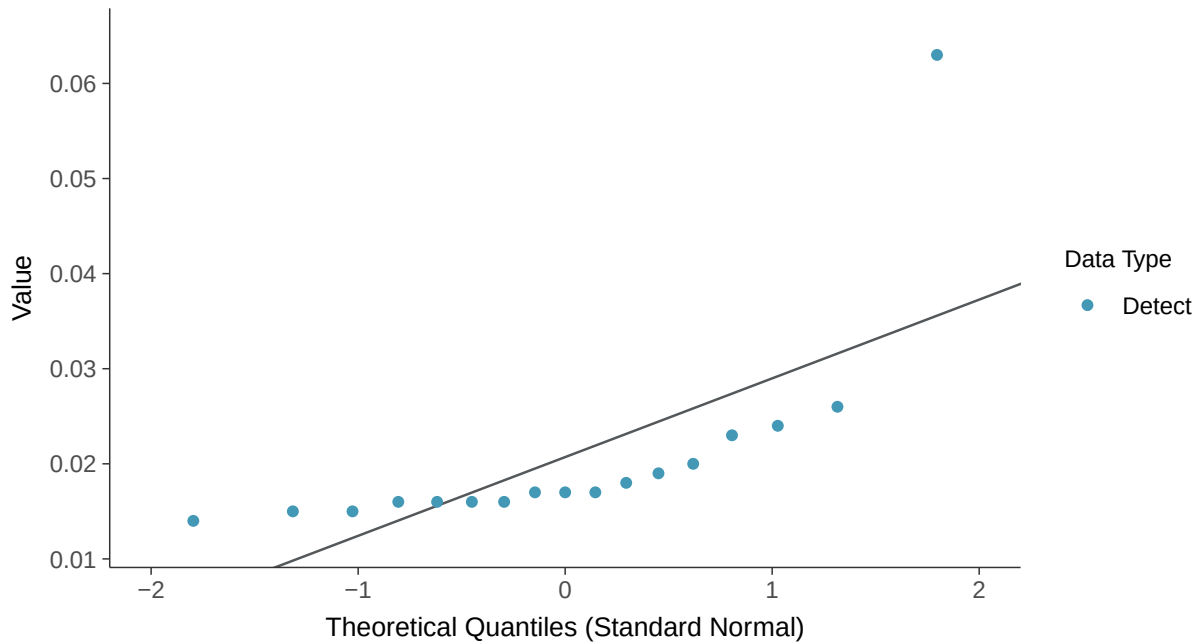
Cobalt, W-7 (mg/l)



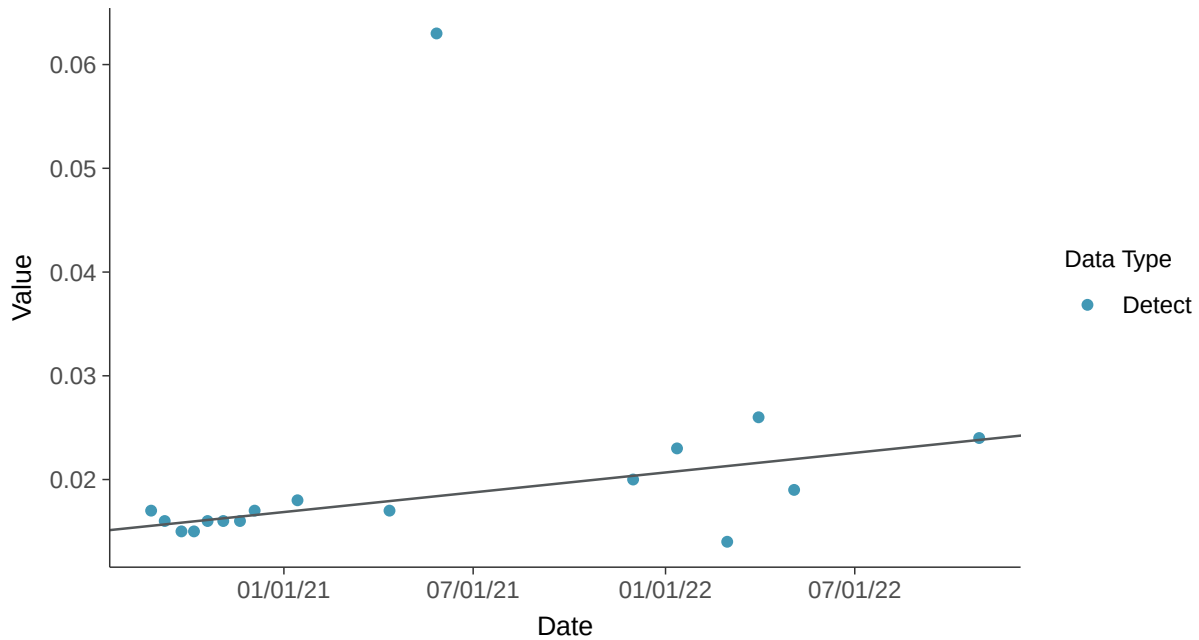
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

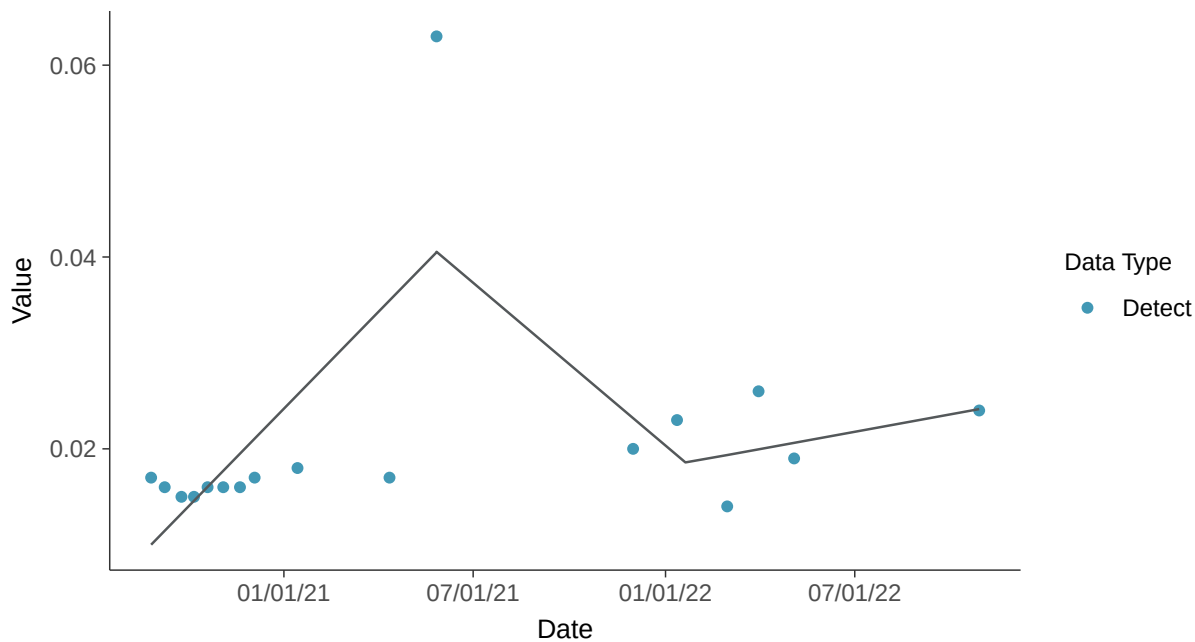
Normal Q-Q plot

Cobalt, W-7 (mg/l)

**Trend Regression: Mann-Kendall/Theil-Sen Estimate**

Cobalt, W-7 (mg/l)



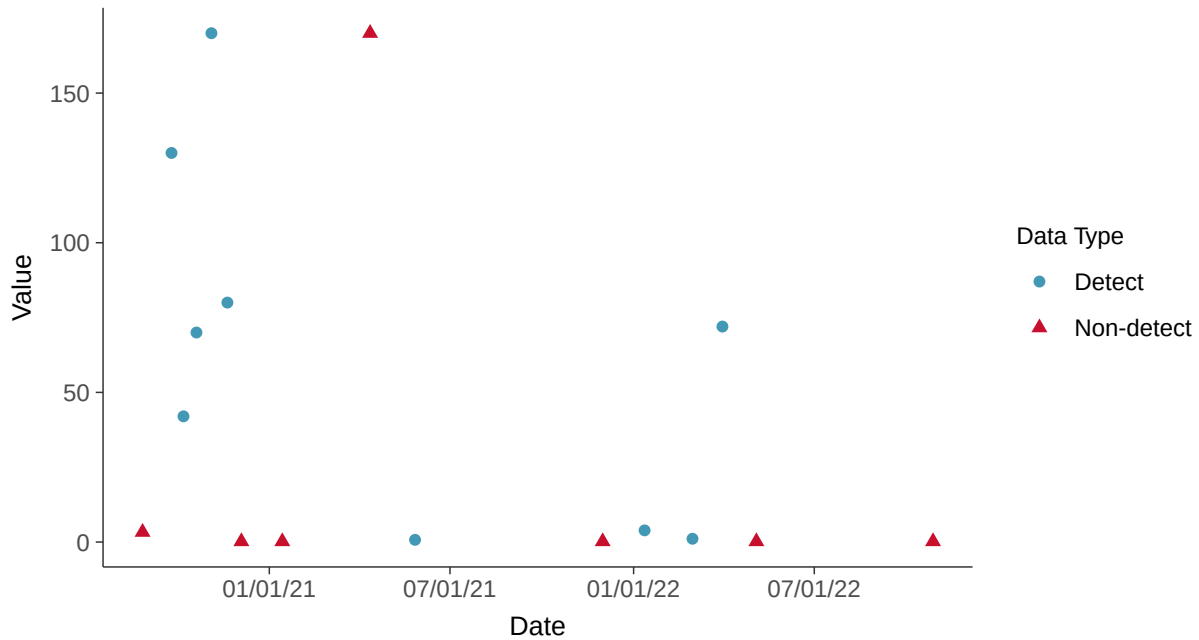


Appendix IV: Fluoride (App IV), W-7

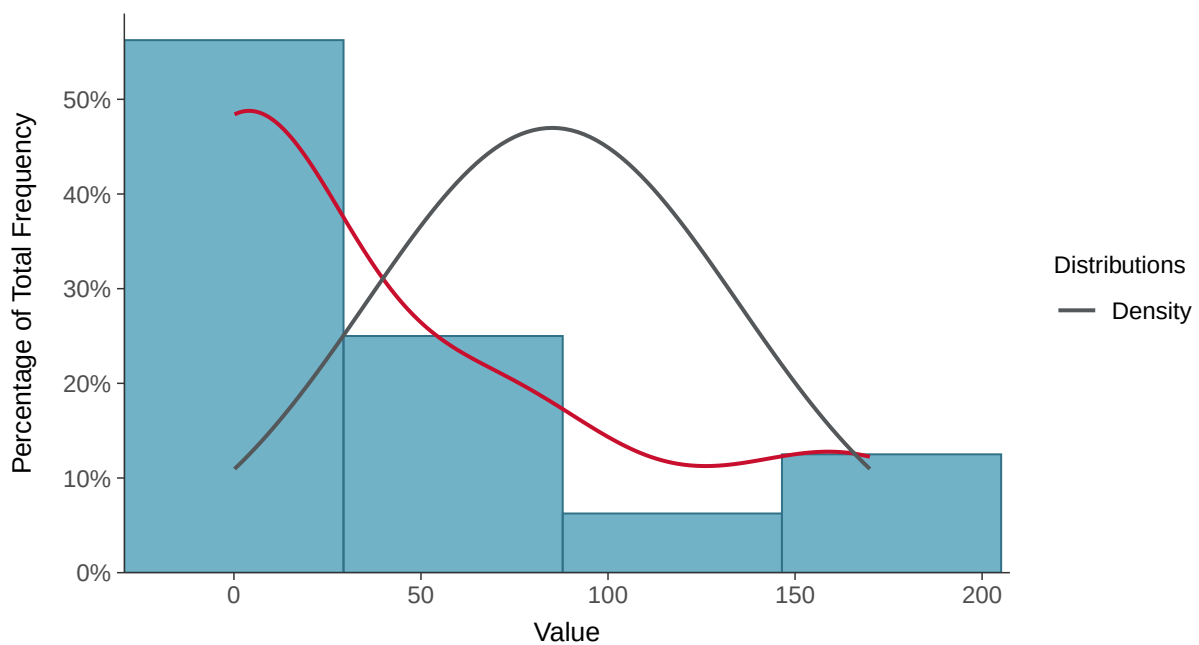
ID: 9_2_112

Scatter Plot

Fluoride (App IV), W-7 (mg/l)

**Histogram**

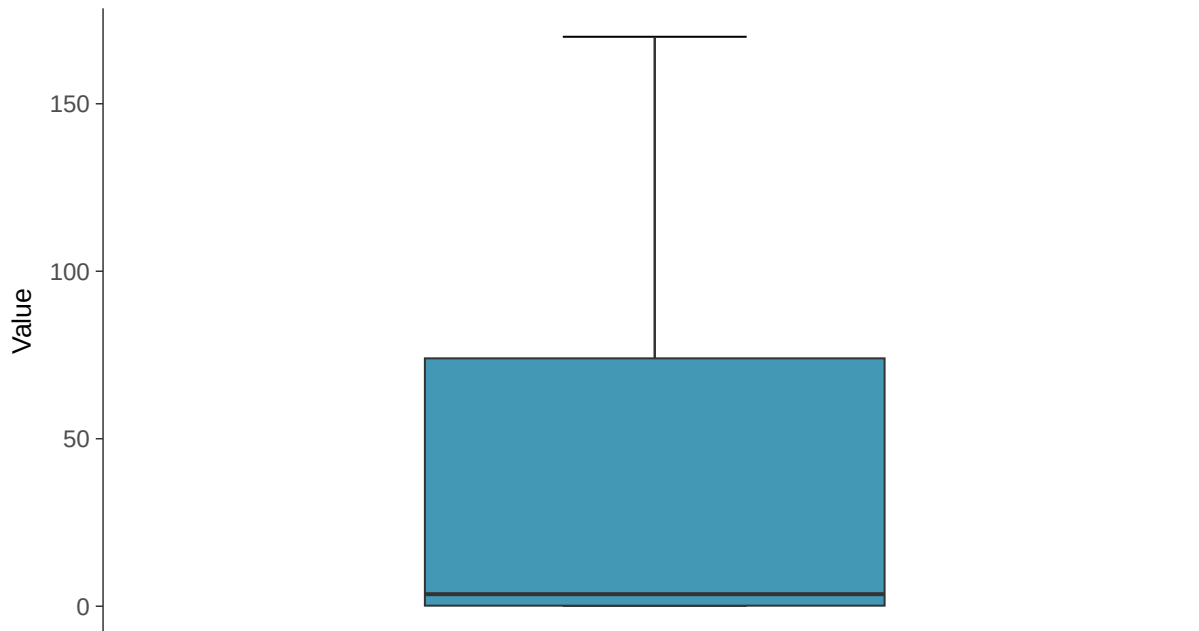
Fluoride (App IV), W-7 (mg/l)





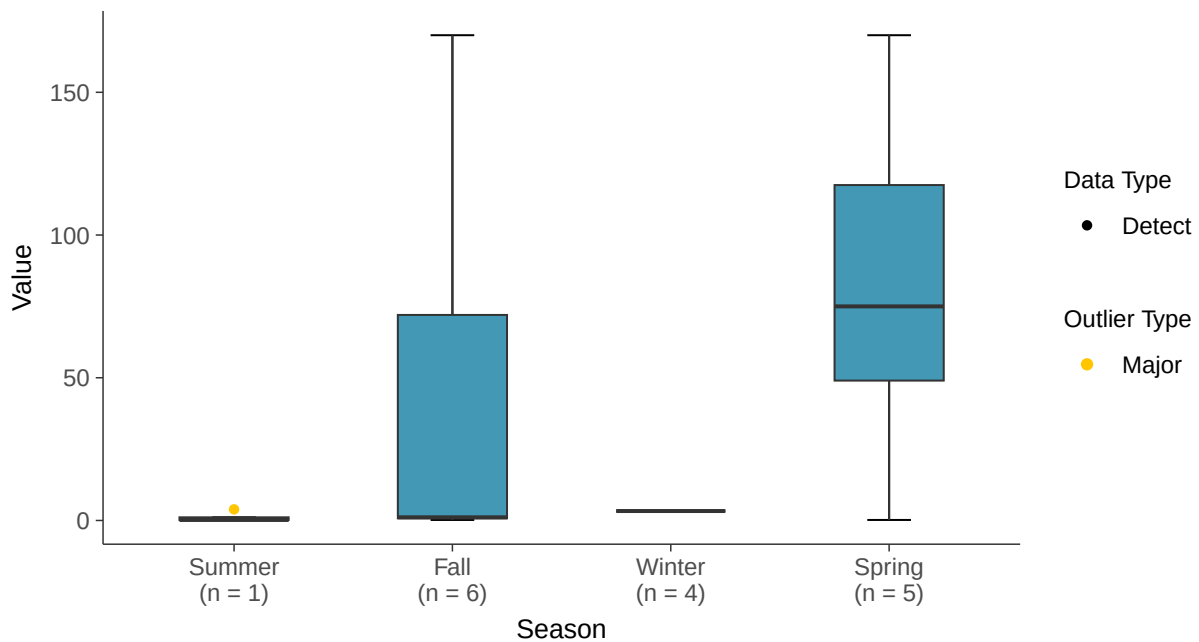
Boxplot

Fluoride (App IV), W-7 (mg/l)



Boxplot by Season

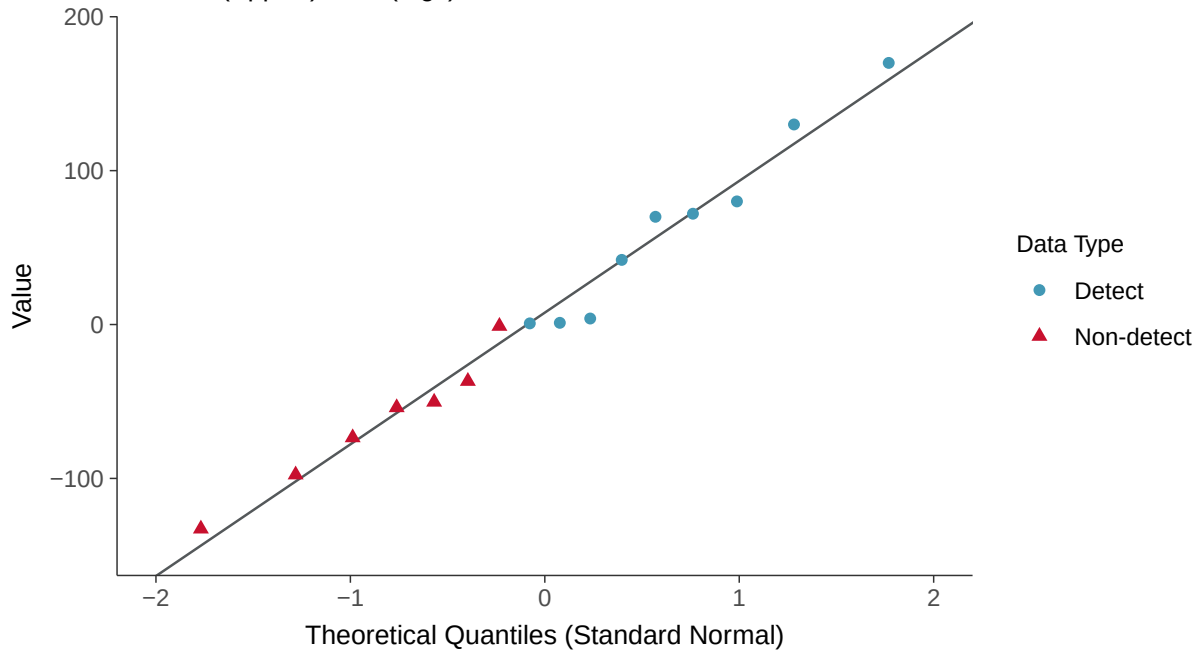
Fluoride (App IV), W-7 (mg/l)





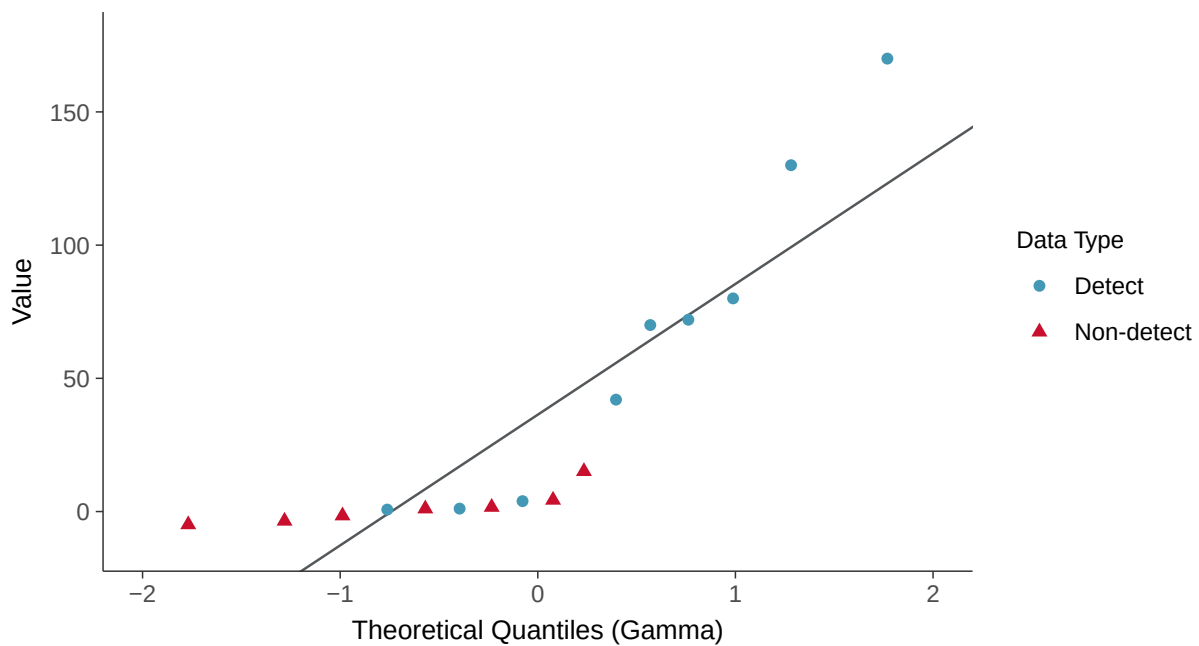
Normal Q-Q plot using ROS Imputed Estimates

Fluoride (App IV), W-7 (mg/l)



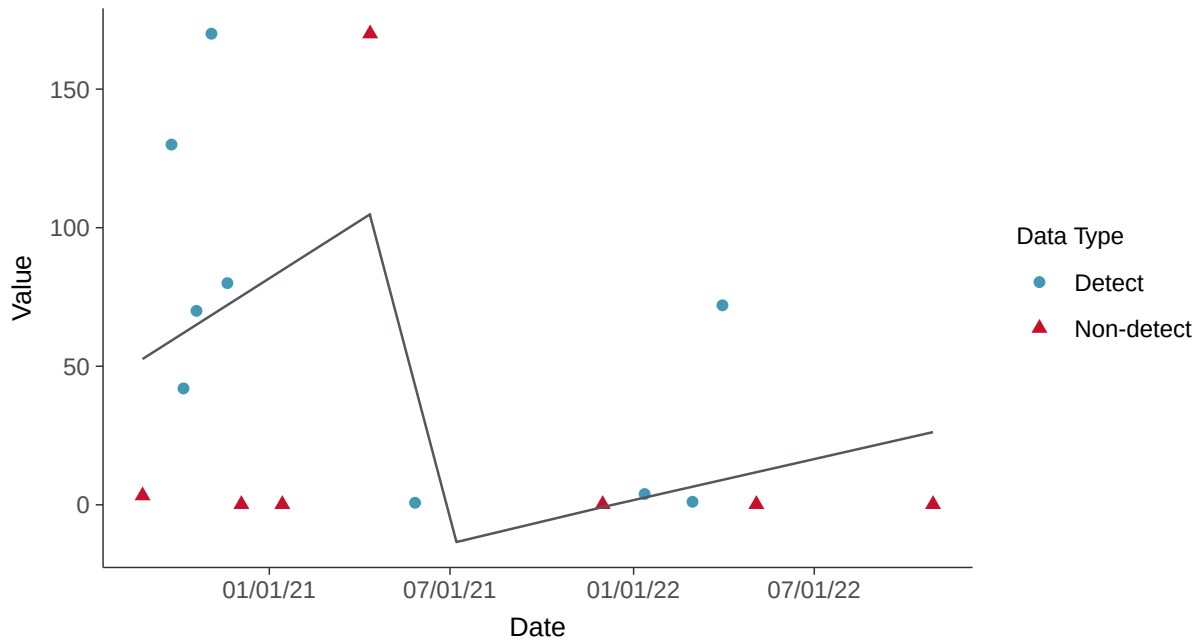
Gamma Q-Q plot using ROS Imputed Estimates

Fluoride (App IV), W-7 (mg/l)



Trend Regression: Piecewise Linear-Linear-Linear

Fluoride (App IV), W-7 (mg/l)



Scatter Plot
Lead, W-7 (mg/l)

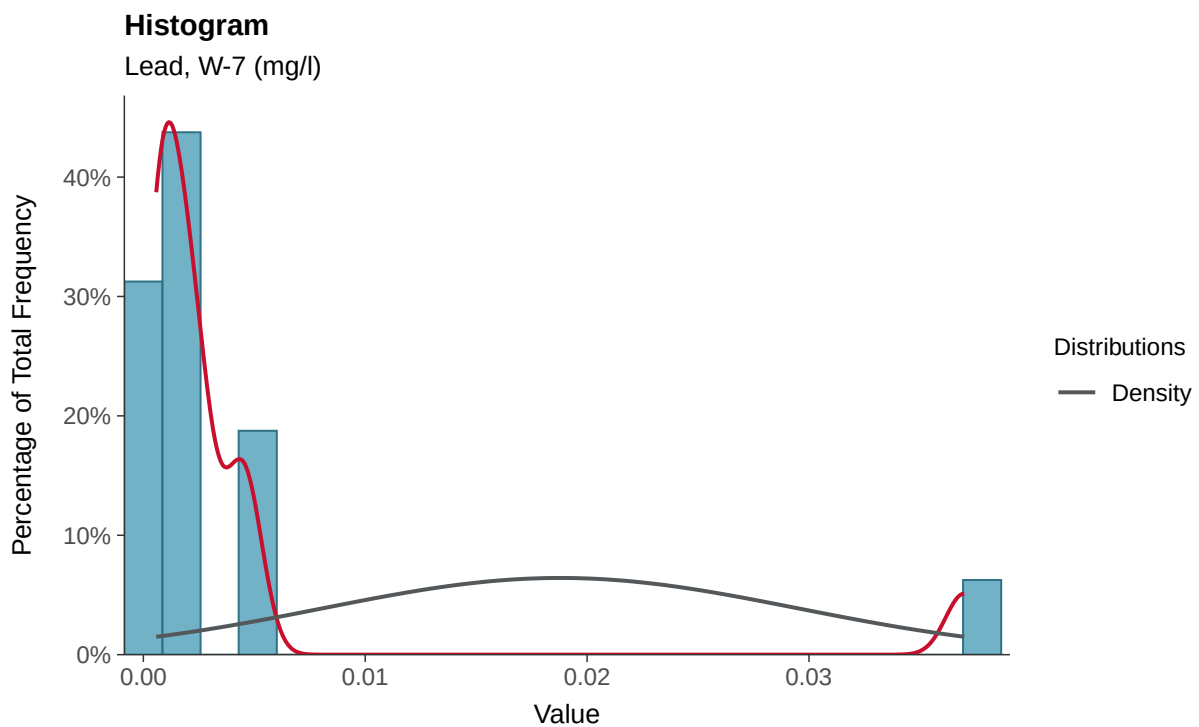
Value

Date

Data Type

- Detect
- Non-detect

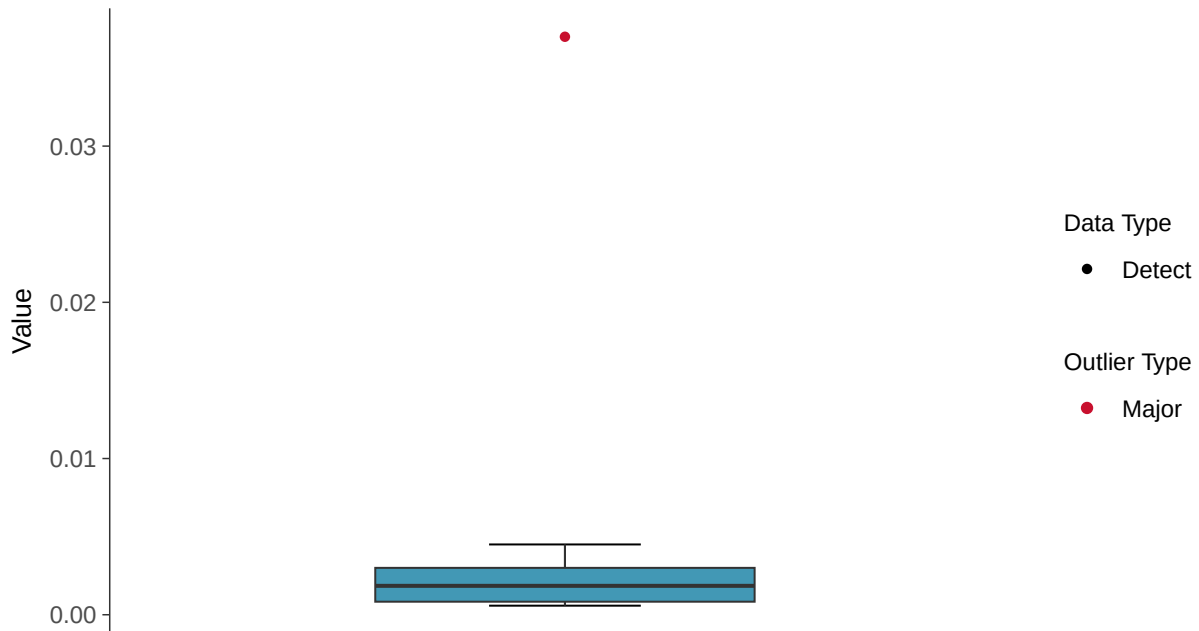
Date	Value (mg/l)	Data Type
2020-03-01	0.0025	Detect
2020-03-15	0.0022	Detect
2020-04-01	0.0008	Detect
2020-04-15	0.0005	Detect
2020-05-01	0.0025	Non-detect
2020-05-15	0.0048	Non-detect
2020-06-01	0.0048	Non-detect
2020-07-01	0.0048	Non-detect
2020-08-01	0.038	Detect
2020-09-01	0.0008	Detect
2021-01-01	0.0008	Detect
2021-03-01	0.0018	Non-detect
2021-05-01	0.0025	Non-detect
2021-07-01	0.0012	Detect
2021-09-01	0.0005	Detect



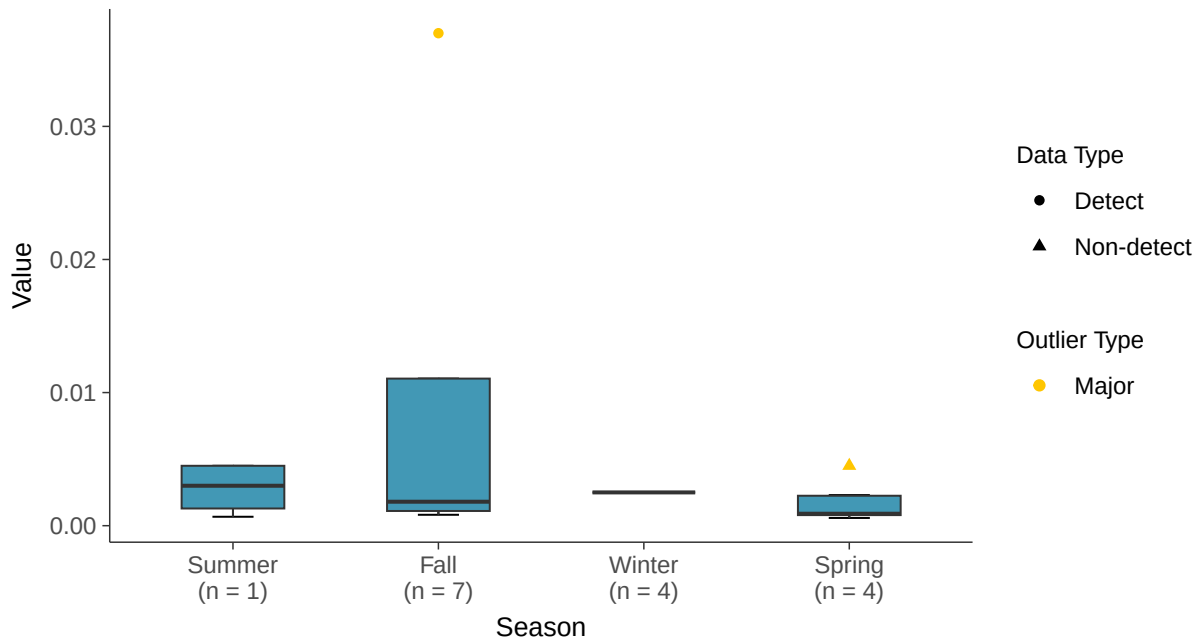
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Lead, W-7 (mg/l)

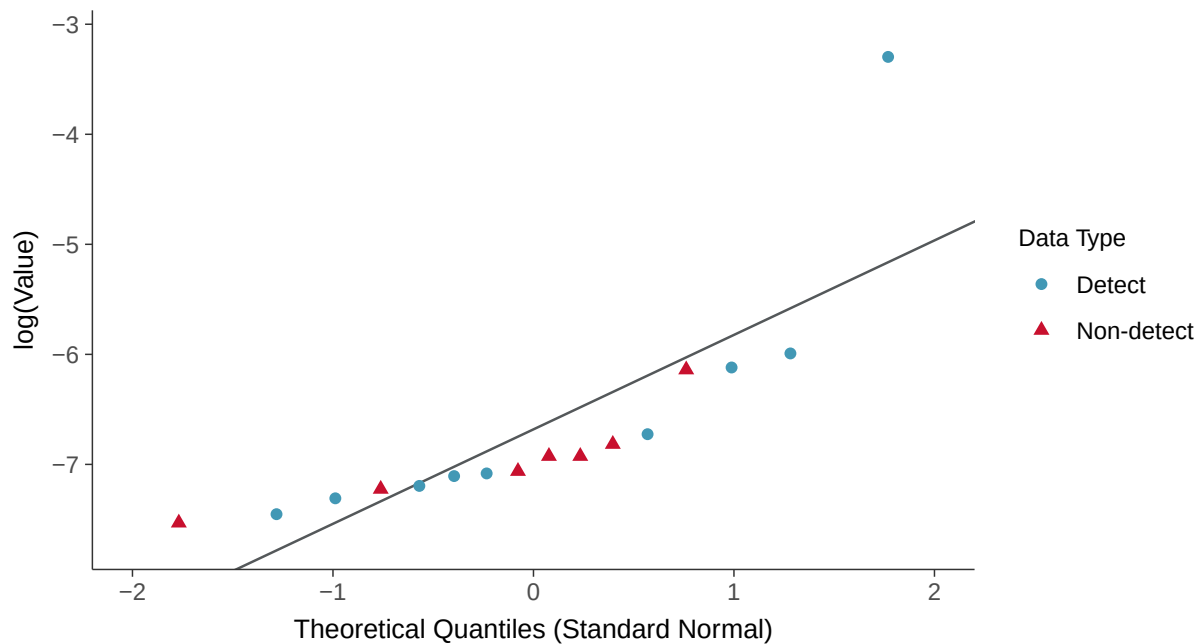
**Boxplot by Season**

Lead, W-7 (mg/l)



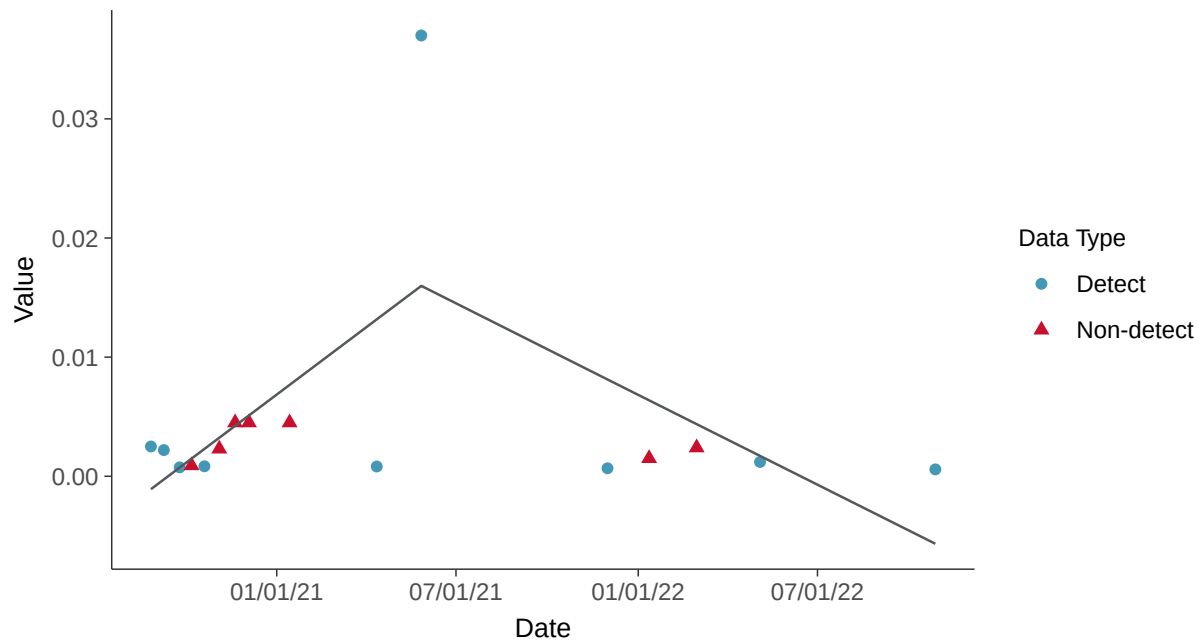
Lognormal Q-Q plot using ROS Imputed Estimates

Lead, W-7 (mg/l)



Trend Regression: Piecewise Linear-Linear

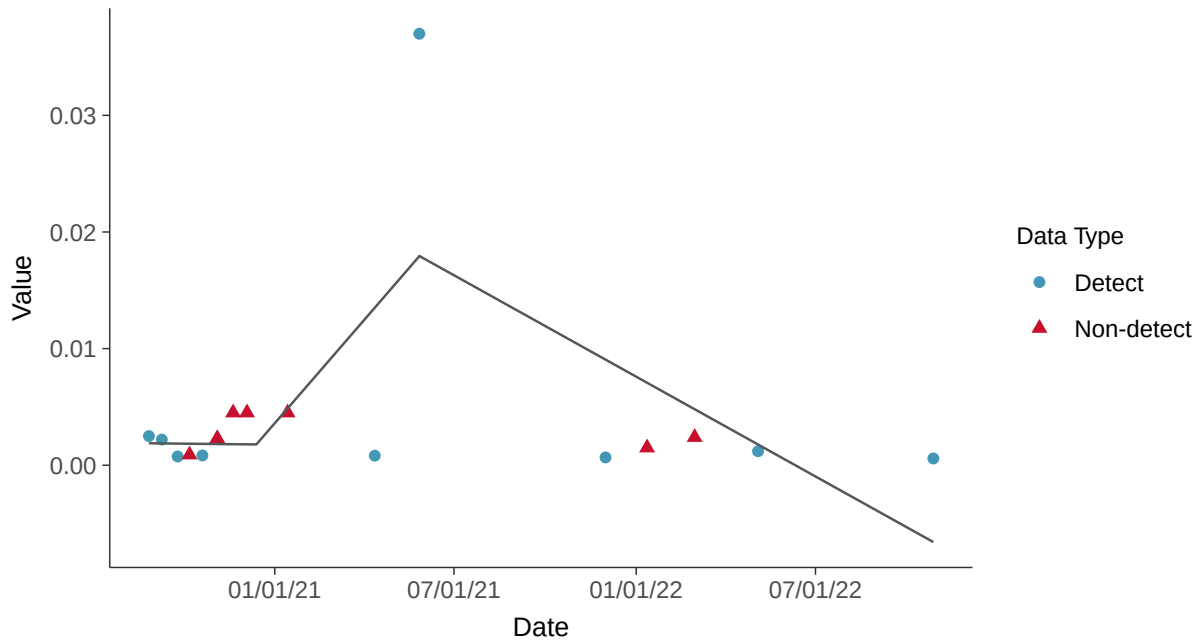
Lead, W-7 (mg/l)



Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Trend Regression: Piecewise Linear-Linear-Linear

Lead, W-7 (mg/l)

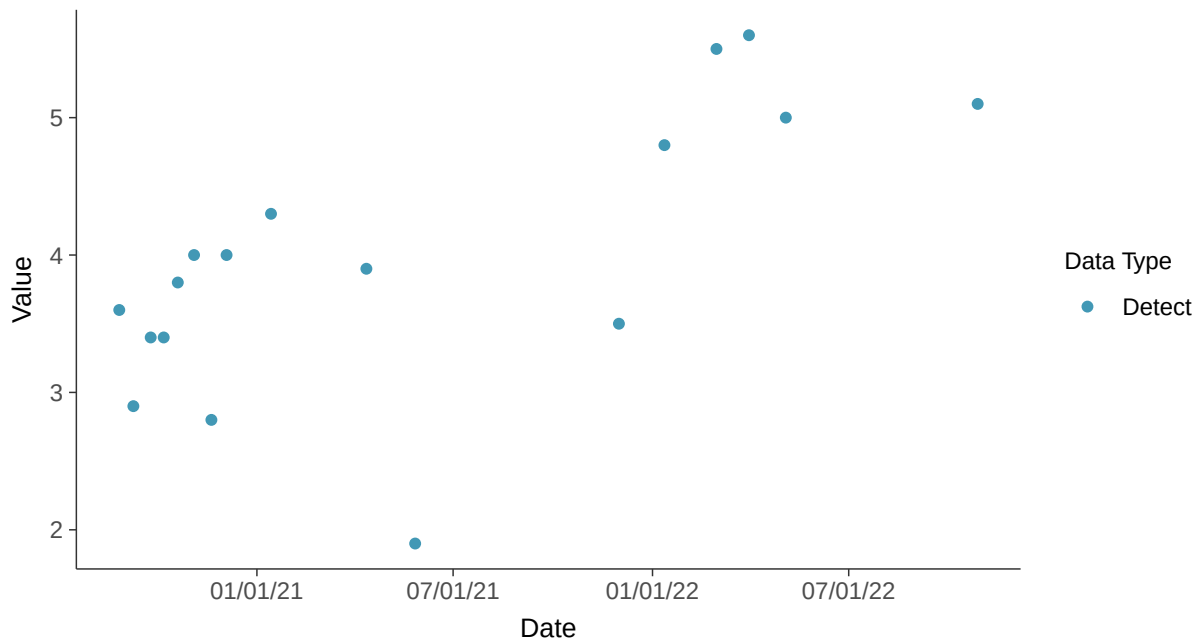


Appendix IV: Lithium, W-7

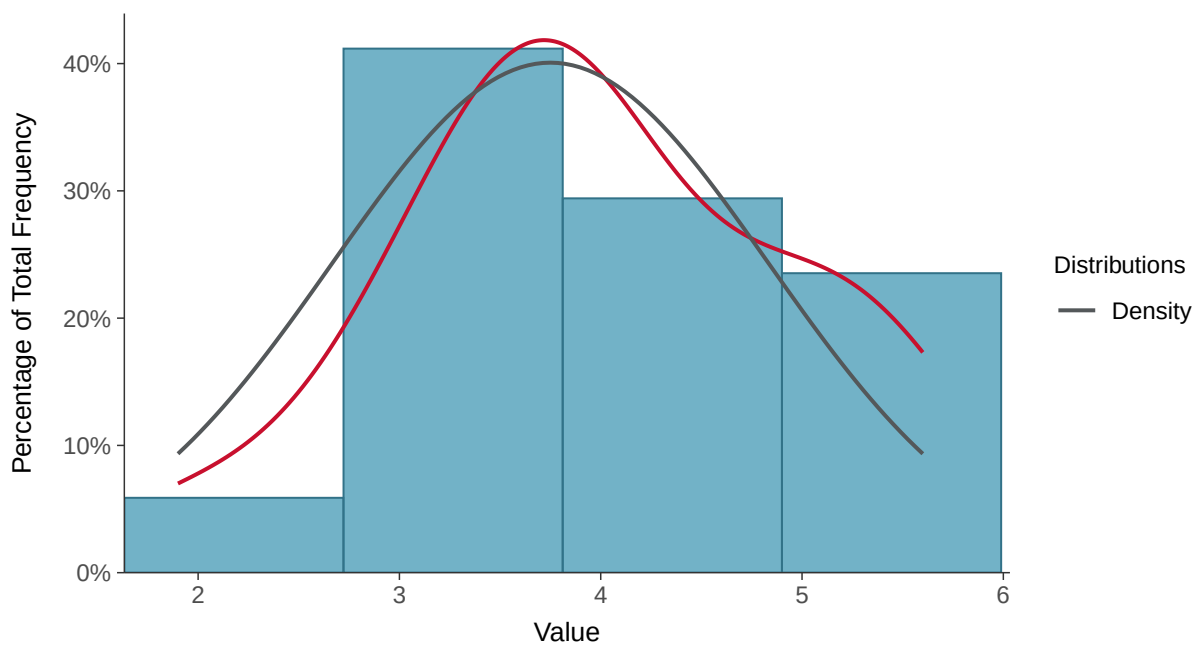
ID: 9_2_114

Scatter Plot

Lithium, W-7 (mg/l)

**Histogram**

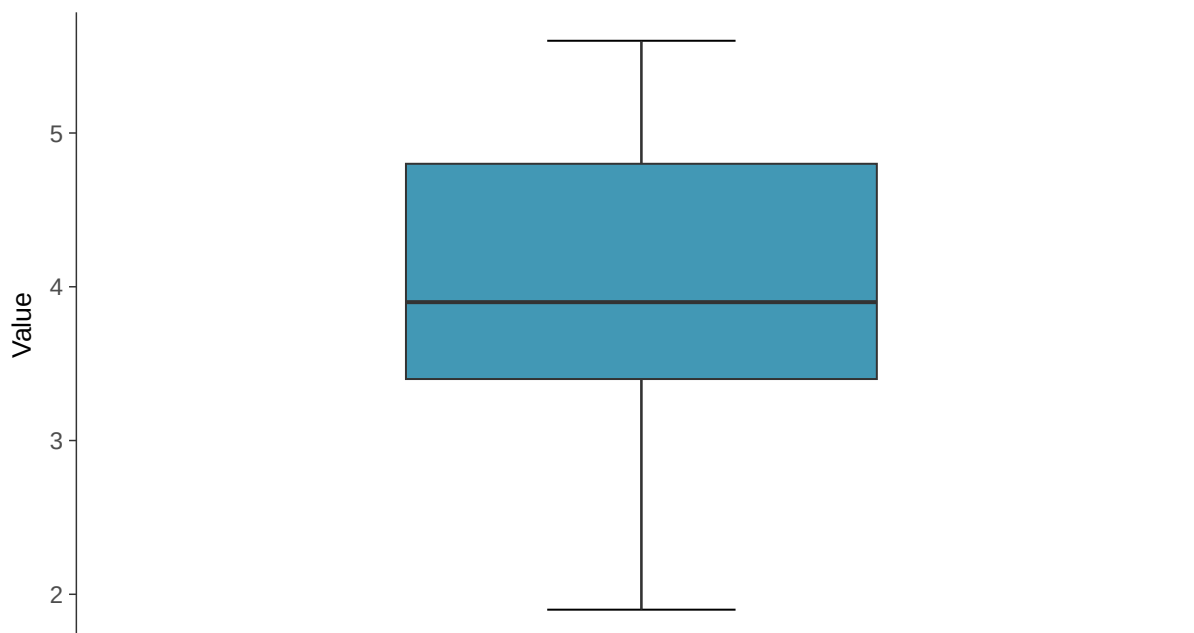
Lithium, W-7 (mg/l)





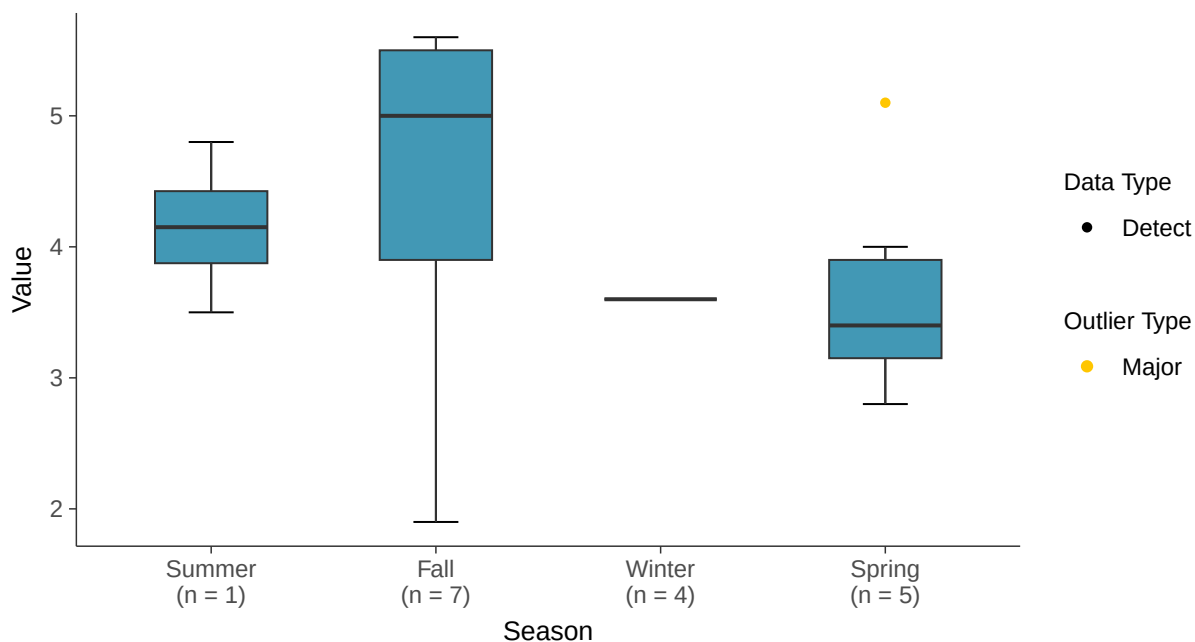
Boxplot

Lithium, W-7 (mg/l)



Boxplot by Season

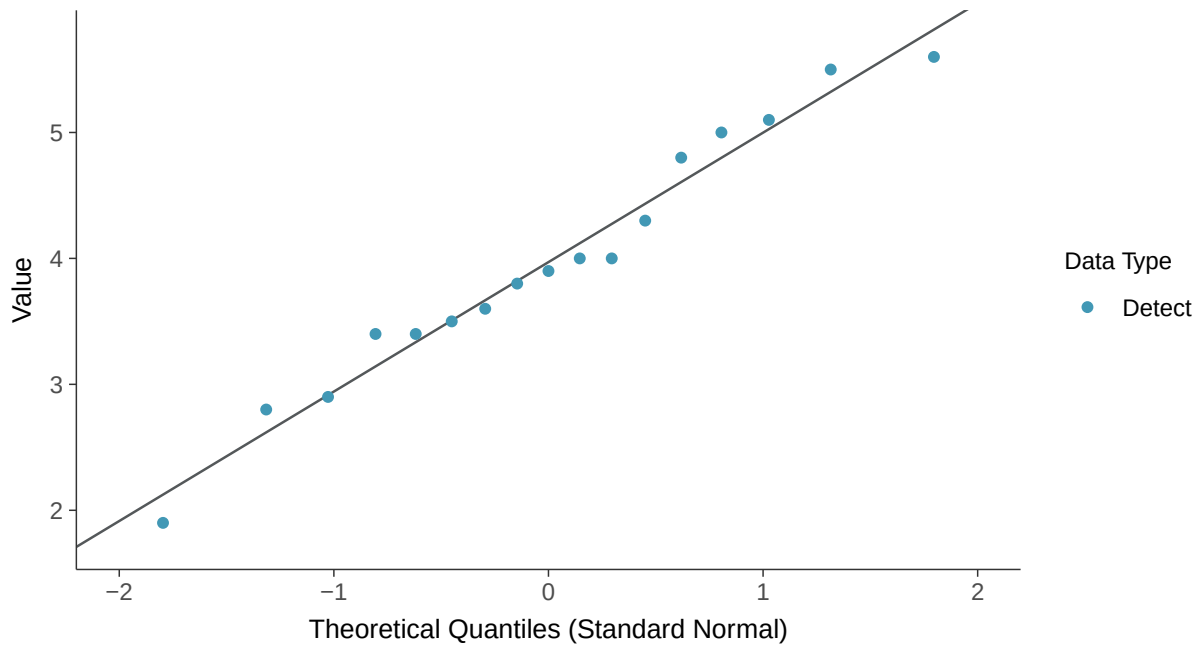
Lithium, W-7 (mg/l)





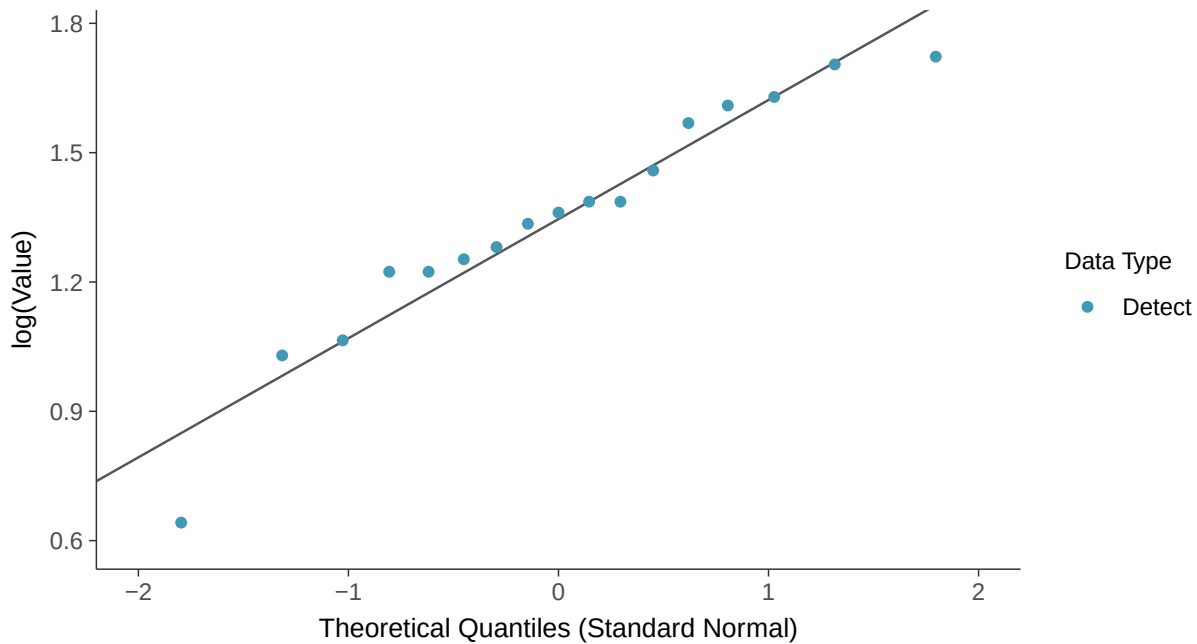
Normal Q-Q plot

Lithium, W-7 (mg/l)



Lognormal Q-Q plot

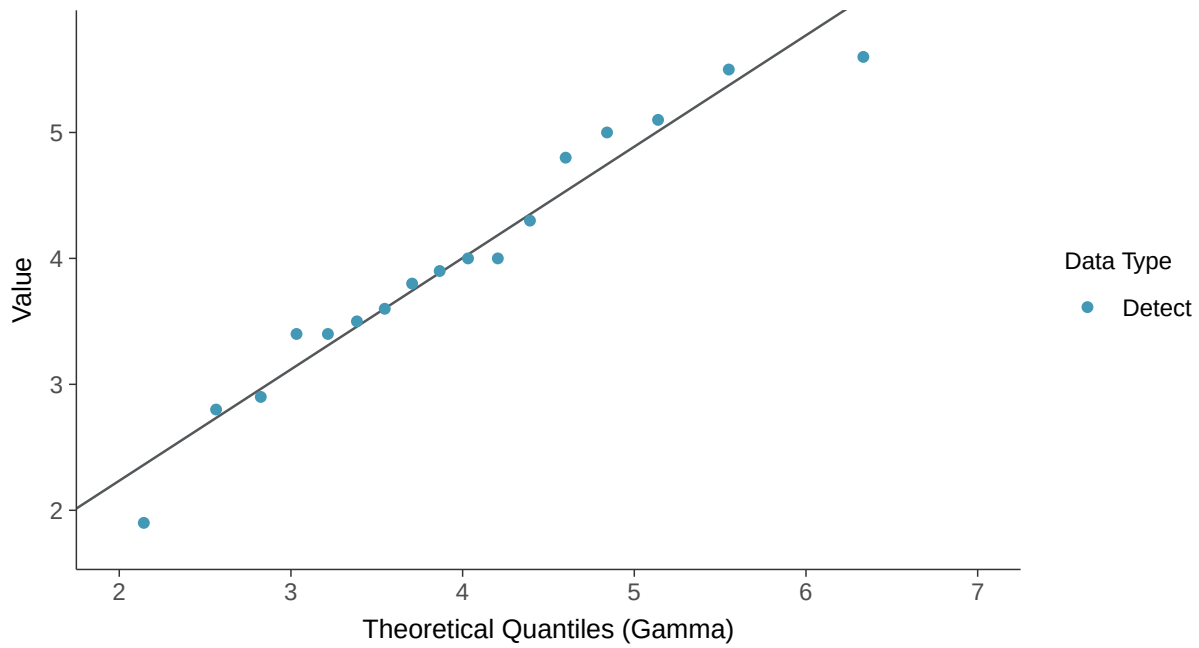
Lithium, W-7 (mg/l)





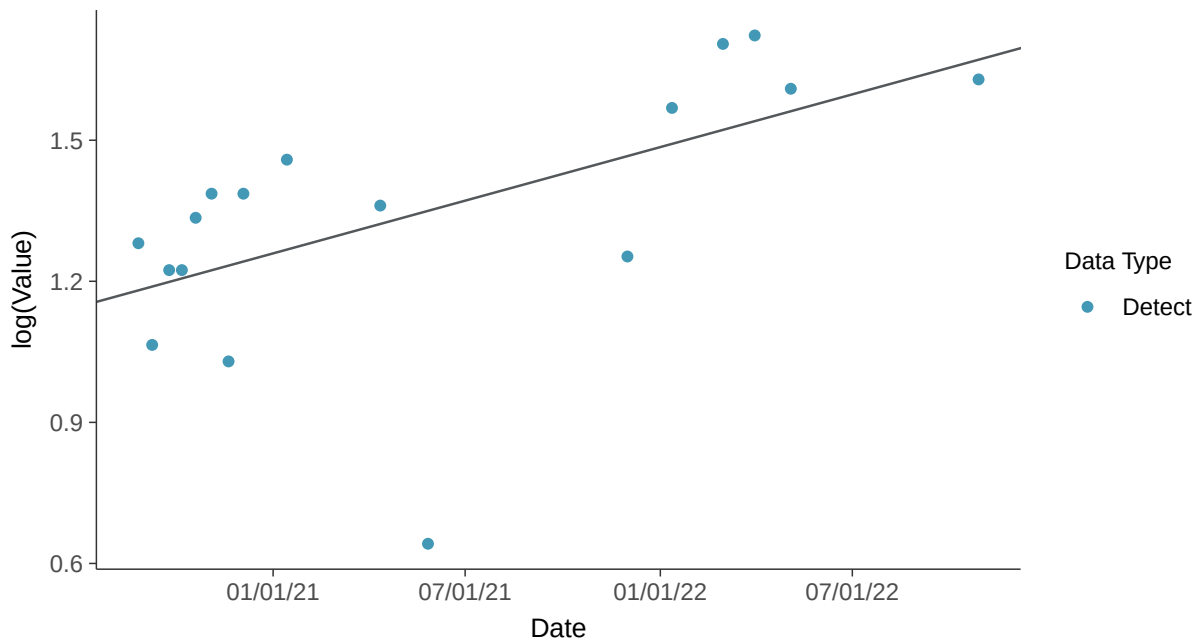
Gamma Q-Q plot

Lithium, W-7 (mg/l)



Trend Regression: Lognormal MLE

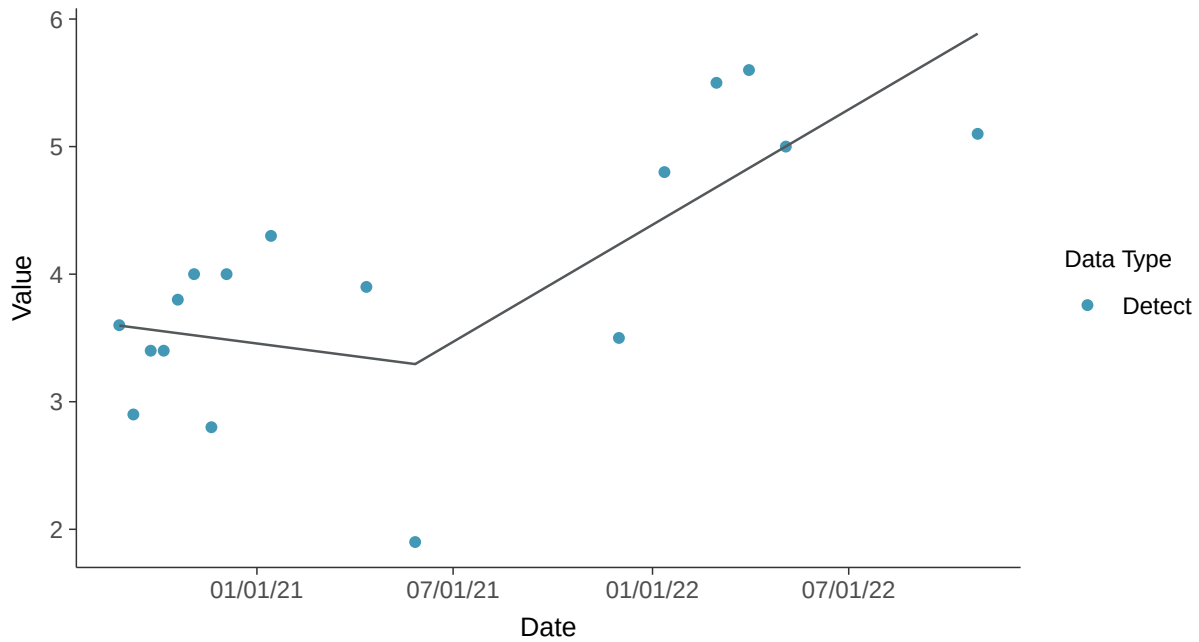
Lithium, W-7 (mg/l)





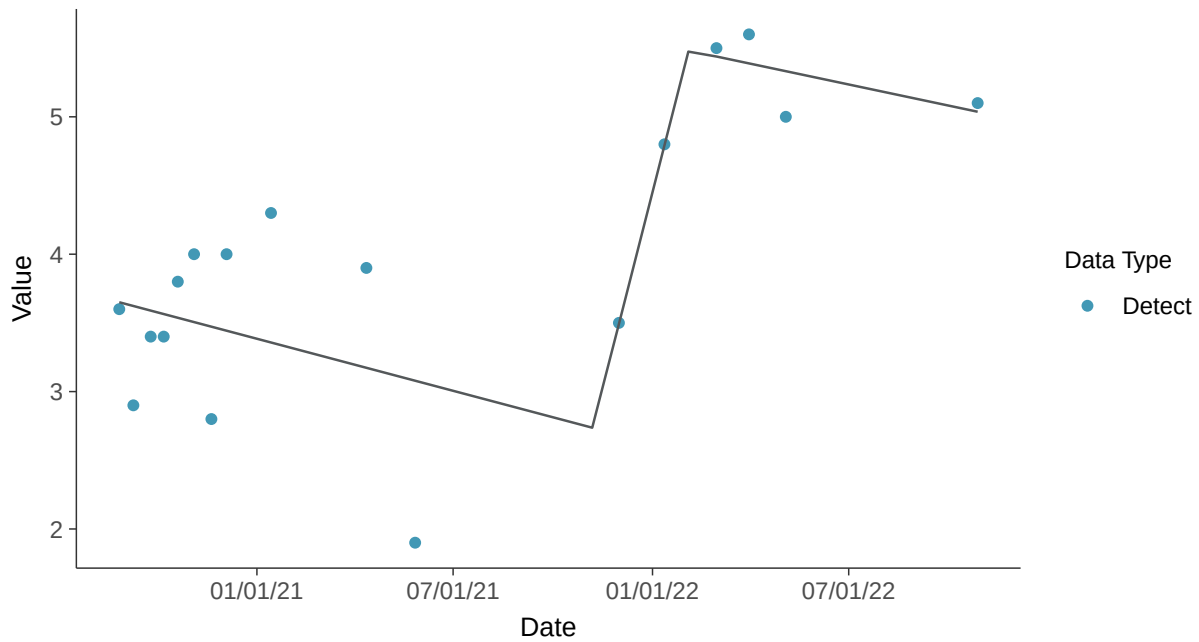
Trend Regression: Piecewise Linear-Linear

Lithium, W-7 (mg/l)



Trend Regression: Piecewise Linear-Linear-Linear

Lithium, W-7 (mg/l)



Scatter Plot
Mercury, W-7 (mg/l)

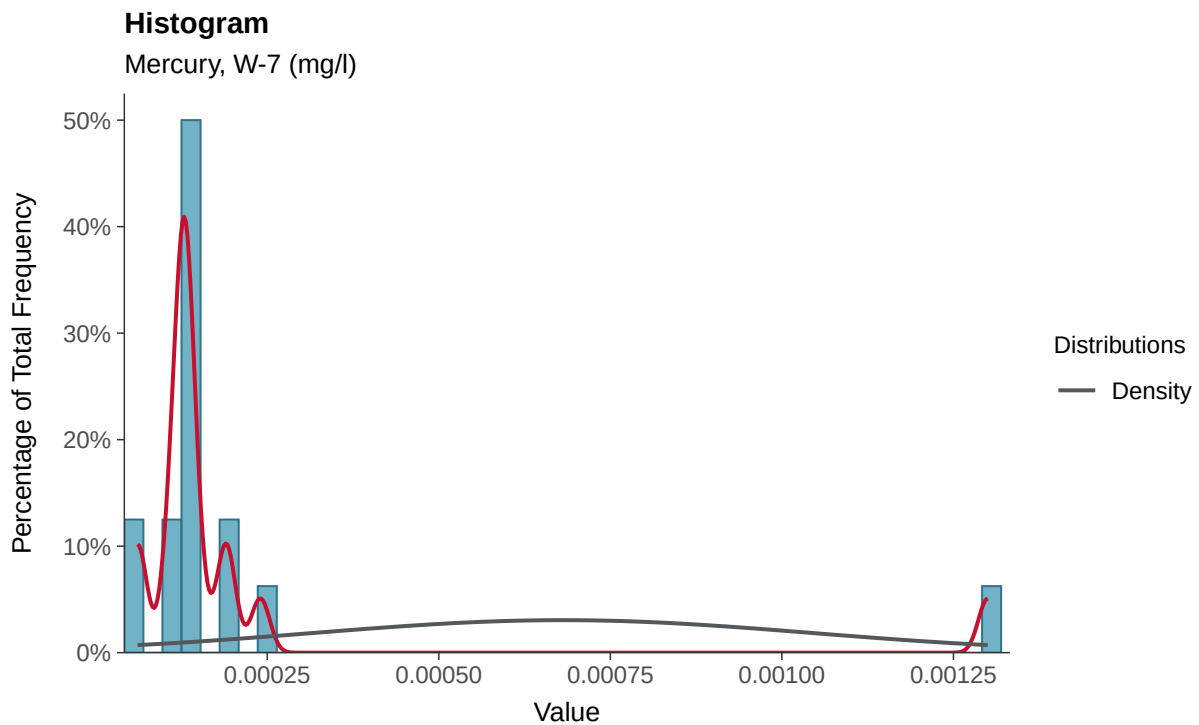
Value

Date

Data Type

- Detect
- Non-detect

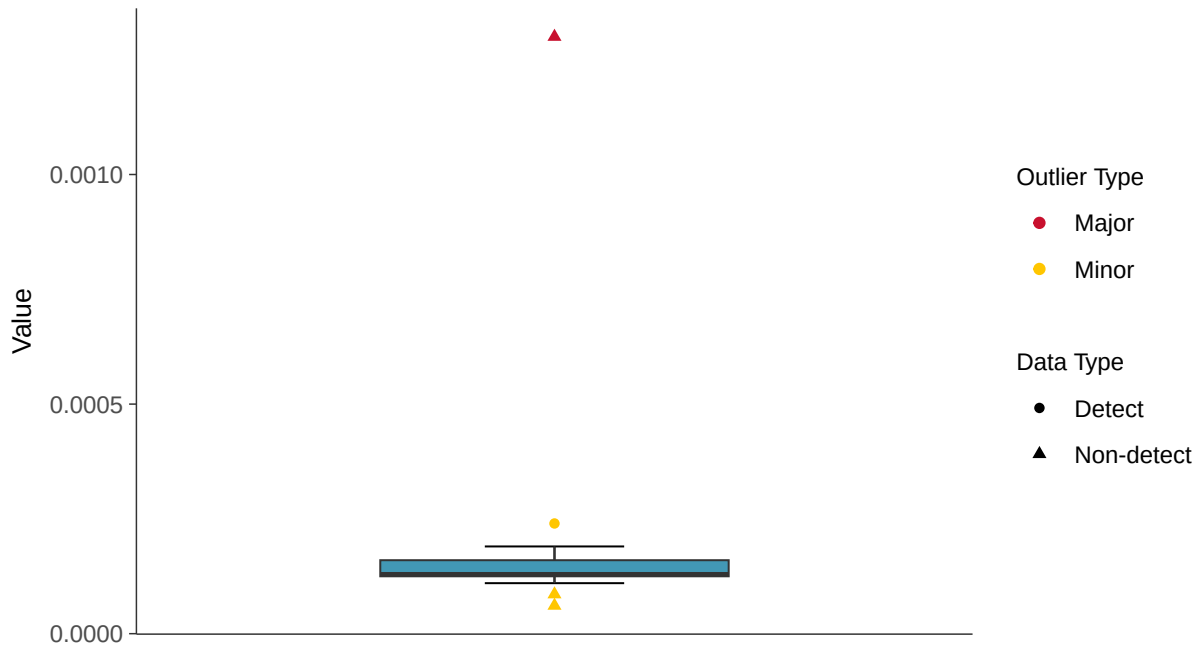
Date	Value (mg/l)	Data Type
2021-01-05	0.00018	Detect
2021-01-10	0.00012	Detect
2021-01-15	0.00018	Detect
2021-01-20	0.00012	Detect
2021-01-25	0.00012	Detect
2021-01-30	0.00012	Detect
2021-02-05	0.00012	Detect
2021-02-10	0.00012	Detect
2021-02-15	0.00012	Detect
2021-02-20	0.00012	Detect
2021-02-25	0.00012	Detect
2021-03-01	0.00012	Detect
2021-03-05	0.00012	Detect
2021-03-10	0.00012	Detect
2021-03-15	0.00012	Detect
2021-03-20	0.00012	Detect
2021-03-25	0.00012	Detect
2021-04-01	0.00012	Detect
2021-04-05	0.00012	Detect
2021-04-10	0.00012	Detect
2021-04-15	0.00012	Detect
2021-04-20	0.00012	Detect
2021-04-25	0.00012	Detect
2021-05-01	0.00012	Detect
2021-05-05	0.00012	Detect
2021-05-10	0.00012	Detect
2021-05-15	0.00012	Detect
2021-05-20	0.00012	Detect
2021-05-25	0.00012	Detect
2021-06-01	0.00012	Detect
2021-06-05	0.00012	Detect
2021-06-10	0.00012	Detect
2021-06-15	0.00012	Detect
2021-06-20	0.00012	Detect
2021-06-25	0.00012	Detect
2021-07-01	0.00012	Detect
2021-07-05	0.00012	Detect
2021-07-10	0.00012	Detect
2021-07-15	0.00012	Detect
2021-07-20	0.00012	Detect
2021-07-25	0.00012	Detect
2021-08-01	0.00012	Detect
2021-08-05	0.00012	Detect
2021-08-10	0.00012	Detect
2021-08-15	0.00012	Detect
2021-08-20	0.00012	Detect
2021-08-25	0.00012	Detect
2021-09-01	0.00012	Detect
2021-09-05	0.00012	Detect
2021-09-10	0.00012	Detect
2021-09-15	0.00012	Detect
2021-09-20	0.00012	Detect
2021-09-25	0.00012	Detect
2021-10-01	0.00012	Detect
2021-10-05	0.00012	Detect
2021-10-10	0.00012	Detect
2021-10-15	0.00012	Detect
2021-10-20	0.00012	Detect
2021-10-25	0.00012	Detect
2021-11-01	0.00012	Detect
2021-11-05	0.00012	Detect
2021-11-10	0.00012	Detect
2021-11-15	0.00012	Detect
2021-11-20	0.00012	Detect
2021-11-25	0.00012	Detect
2021-12-01	0.00012	Detect
2021-12-05	0.00012	Detect
2021-12-10	0.00012	Detect
2021-12-15	0.00012	Detect
2021-12-20	0.00012	Detect
2021-12-25	0.00012	Detect
2022-01-01	0.00012	Detect
2021-01-20	0.0015	Non-detect
2021-04-10	0.00012	Non-detect
2021-07-10	0.00012	Non-detect
2021-09-10	0.00012	Non-detect
2021-11-10	0.00012	Non-detect
2022-01-10	0.00012	Non-detect



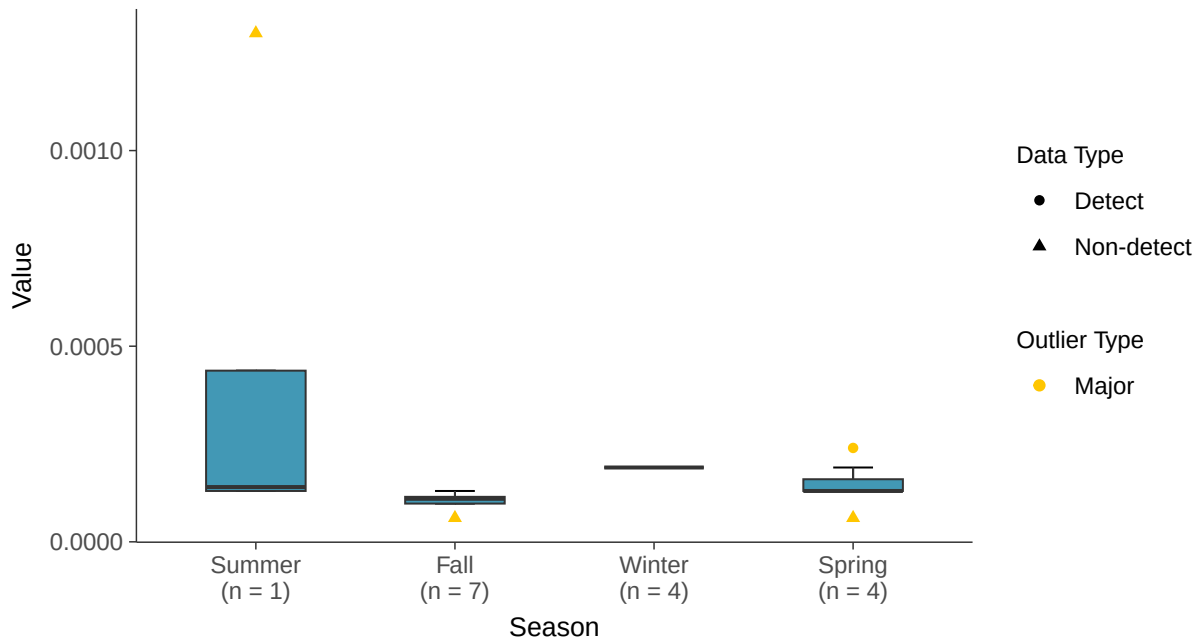
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

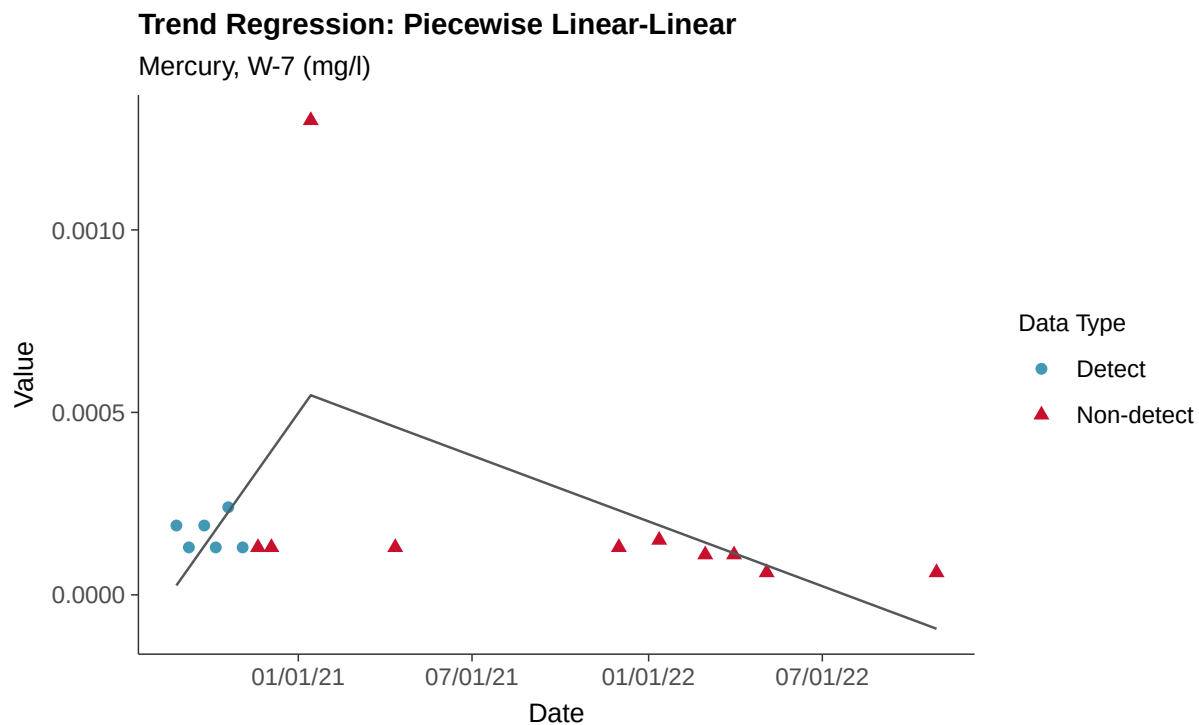
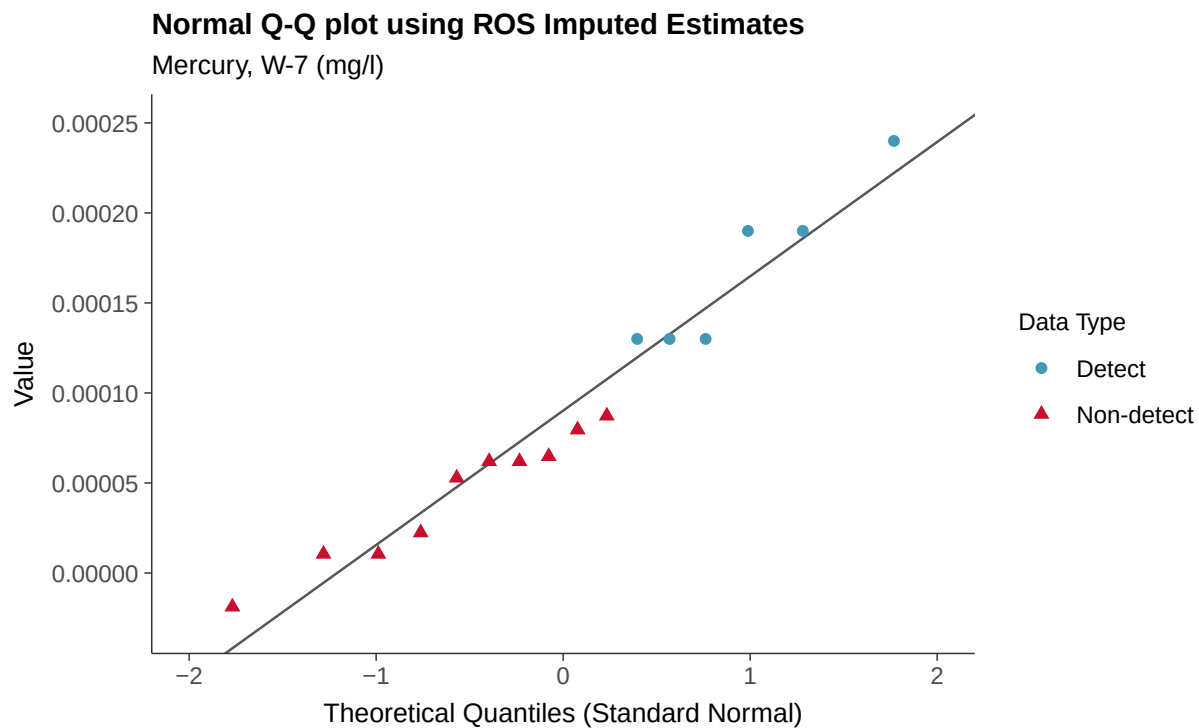
Boxplot

Mercury, W-7 (mg/l)

**Boxplot by Season**

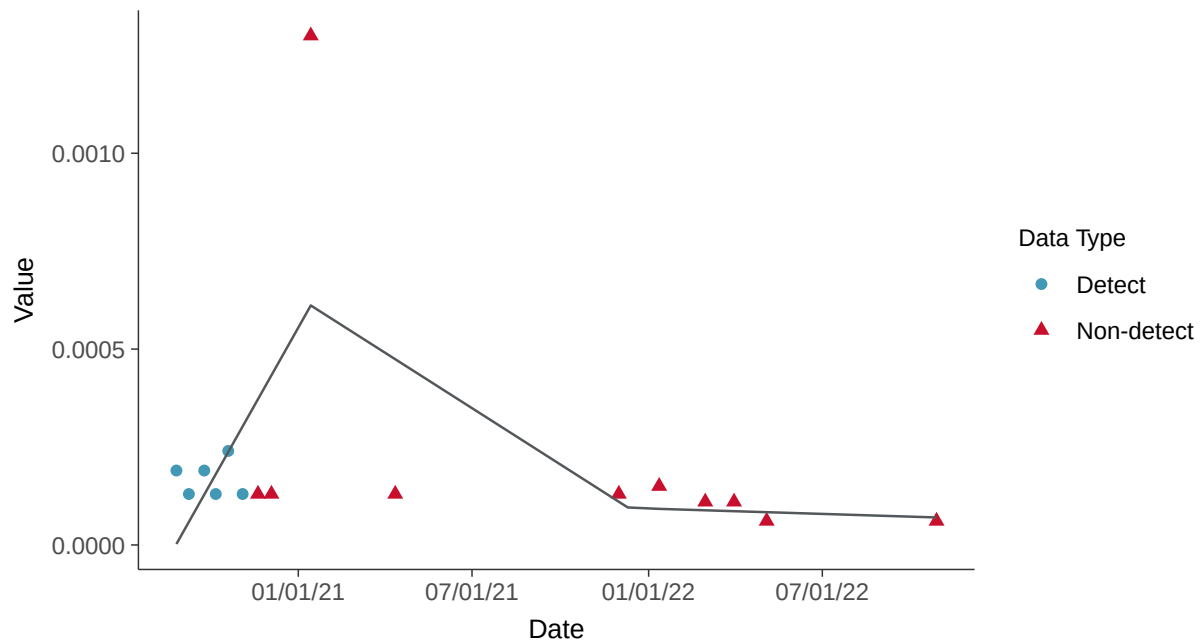
Mercury, W-7 (mg/l)





Trend Regression: Piecewise Linear-Linear-Linear

Mercury, W-7 (mg/l)

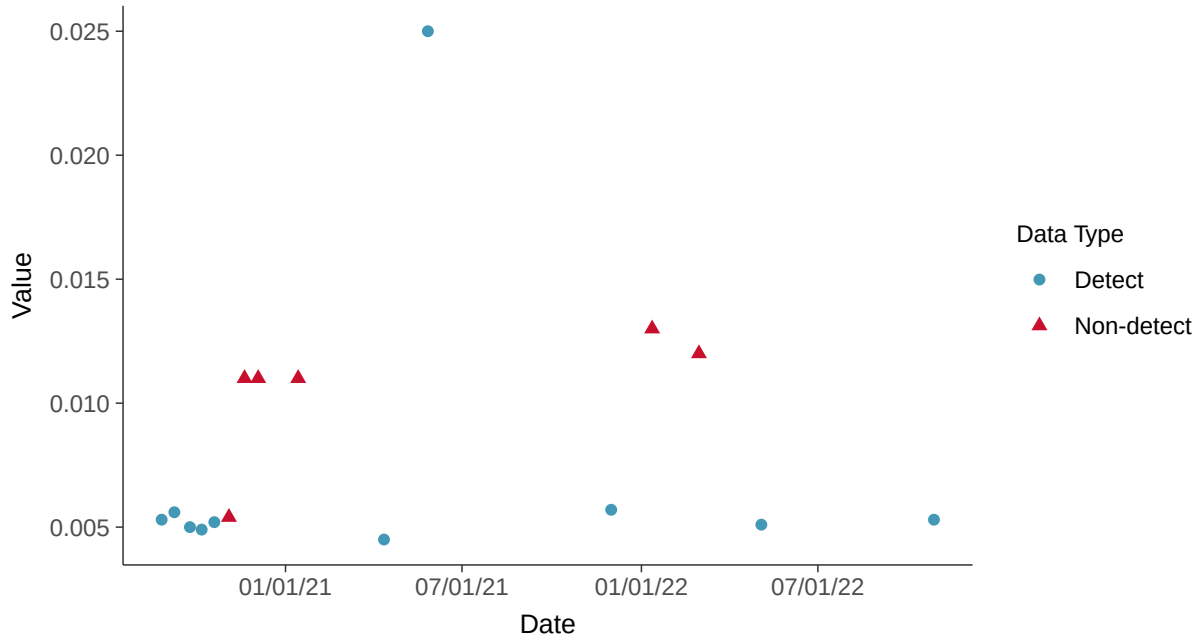


Appendix IV: Molybdenum, W-7

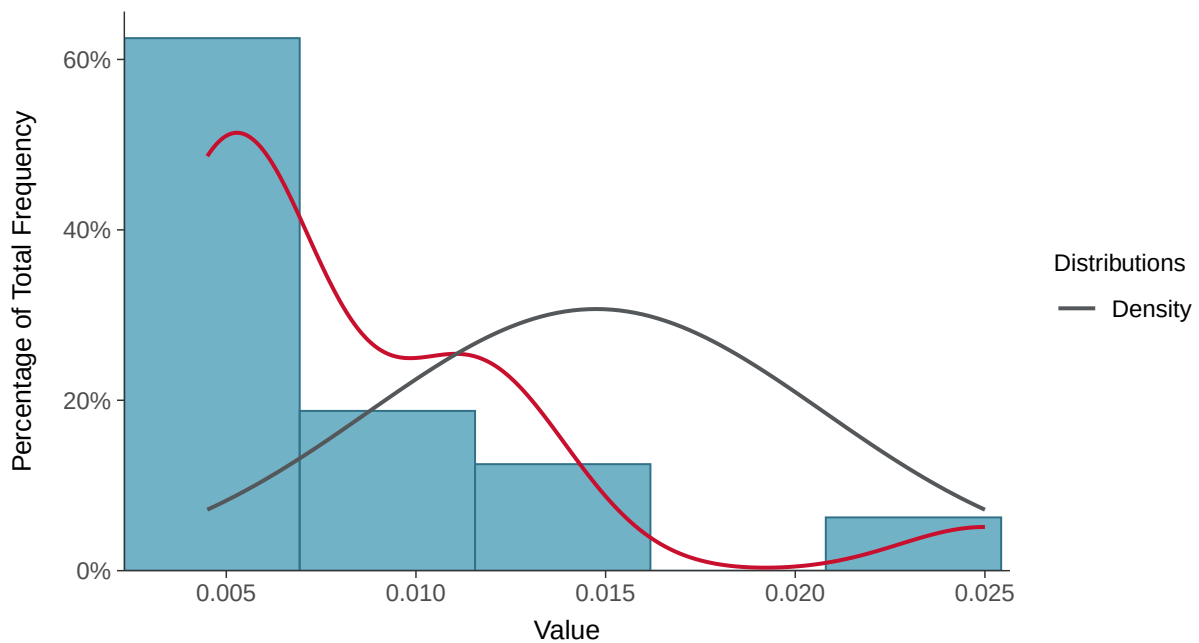
ID: 9_2_116

Scatter Plot

Molybdenum, W-7 (mg/l)

**Histogram**

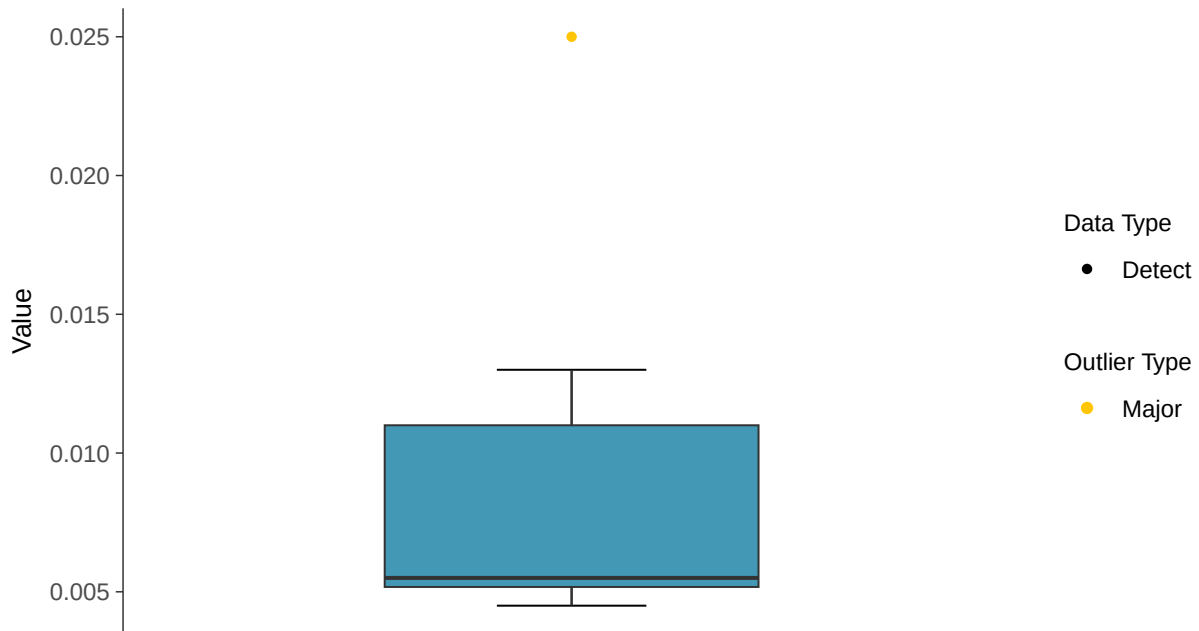
Molybdenum, W-7 (mg/l)



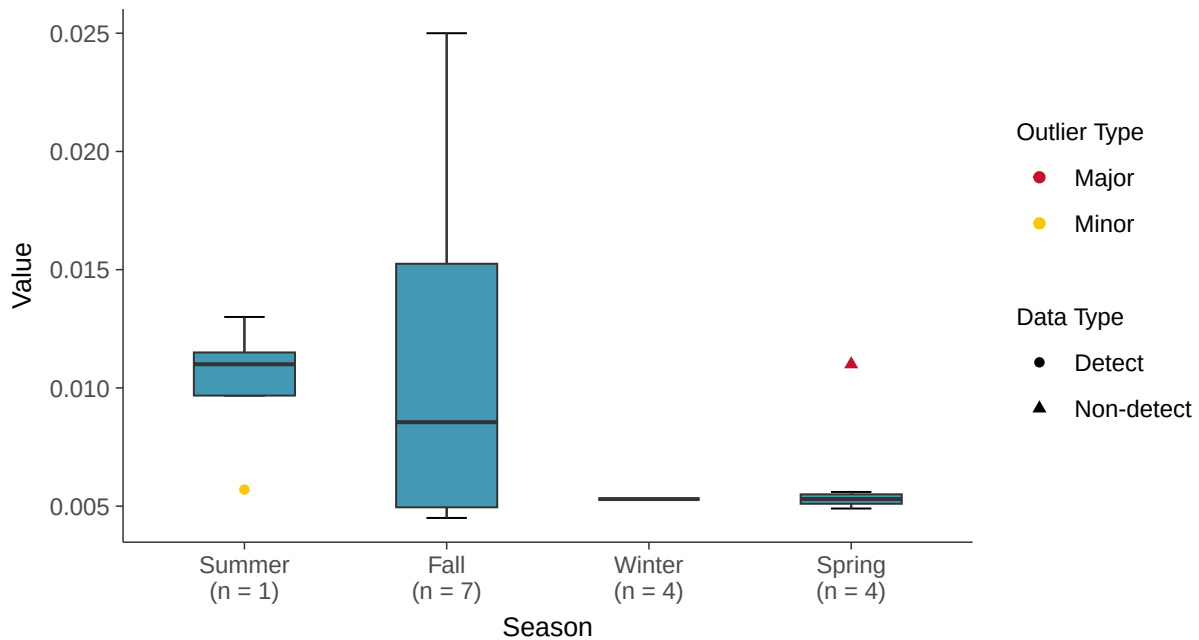
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

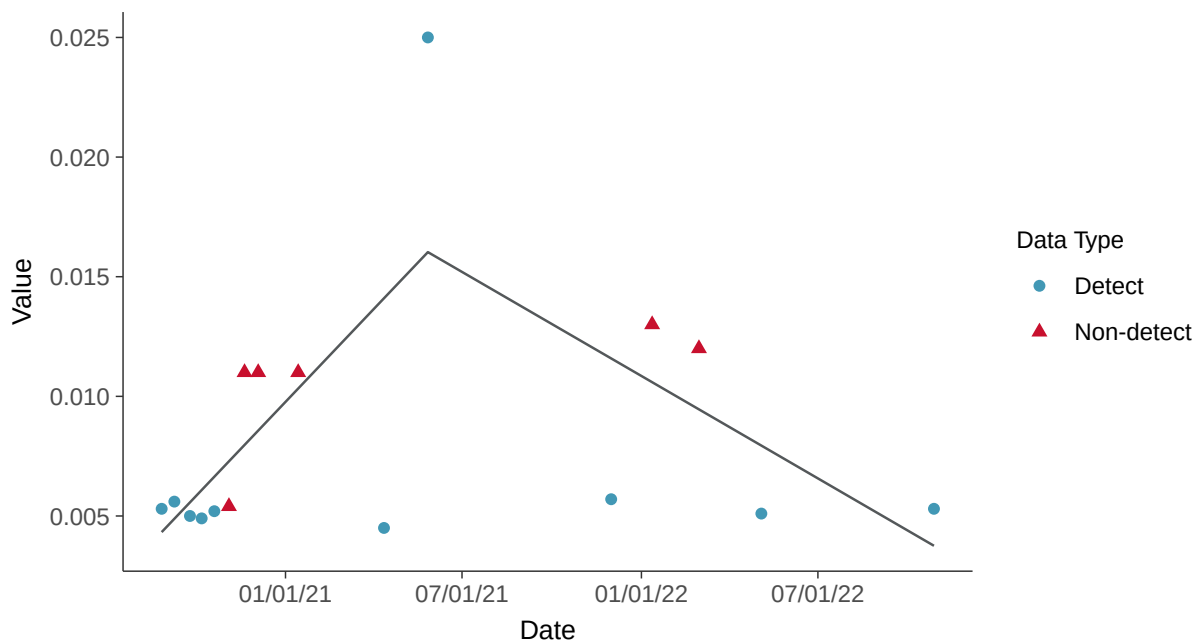
Boxplot

Molybdenum, W-7 (mg/l)

**Boxplot by Season**

Molybdenum, W-7 (mg/l)



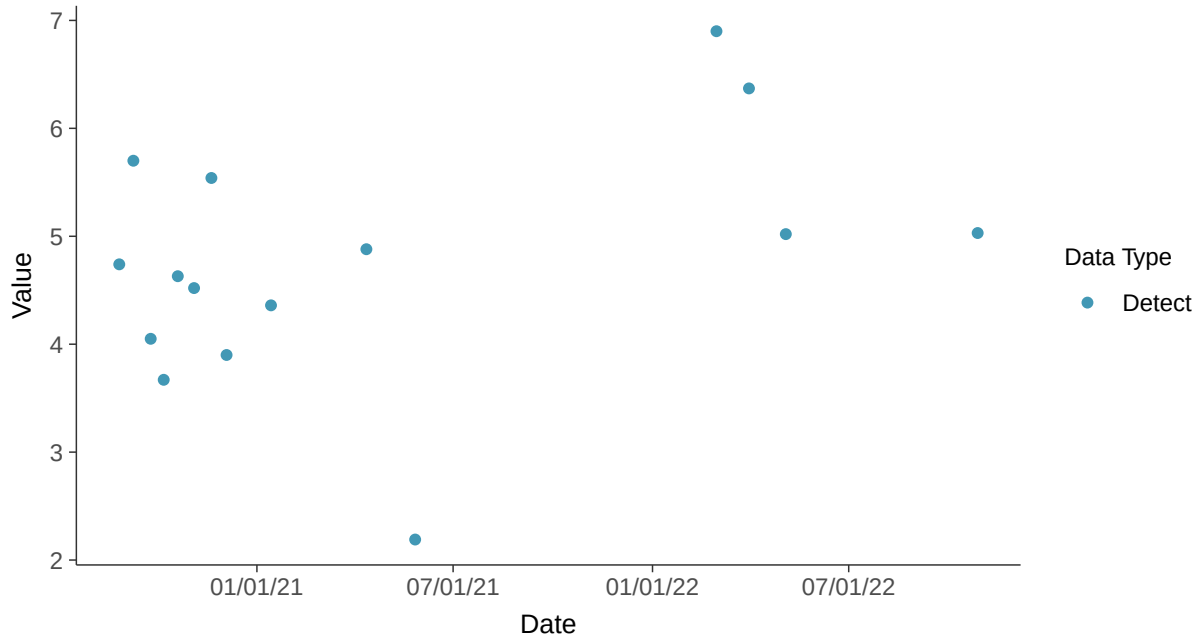


Appendix IV: Radium-226+228, W-7

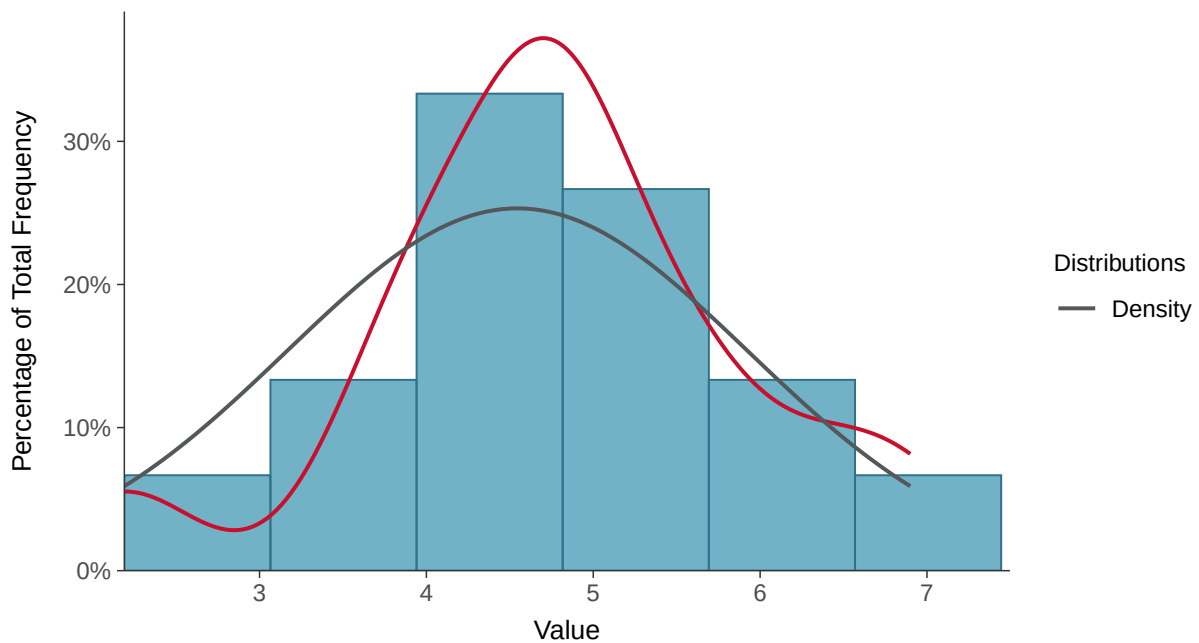
ID: 9_2_120

Scatter Plot

Radium-226+228, W-7 (pci/l)

**Histogram**

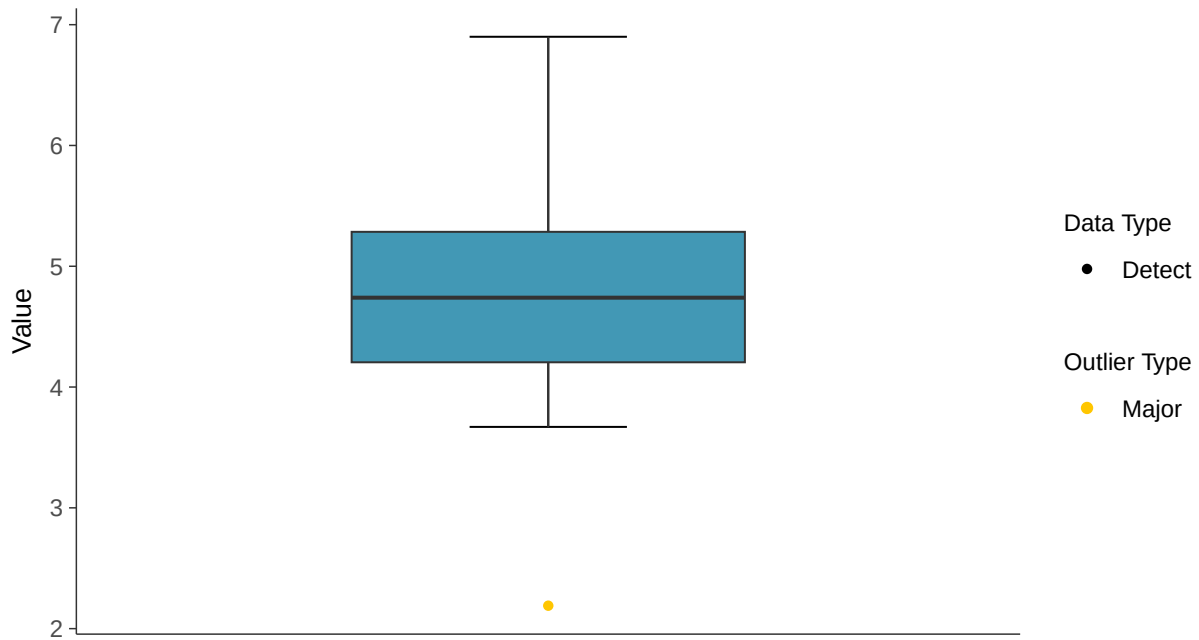
Radium-226+228, W-7 (pci/l)



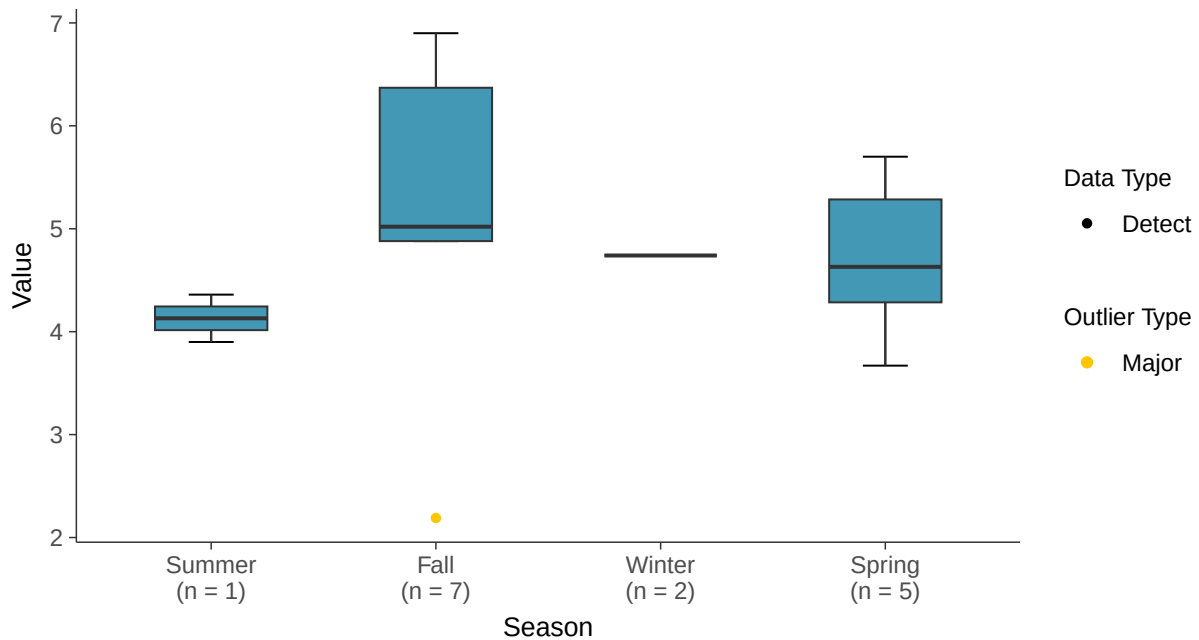
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Radium-226+228, W-7 (pci/l)

**Boxplot by Season**

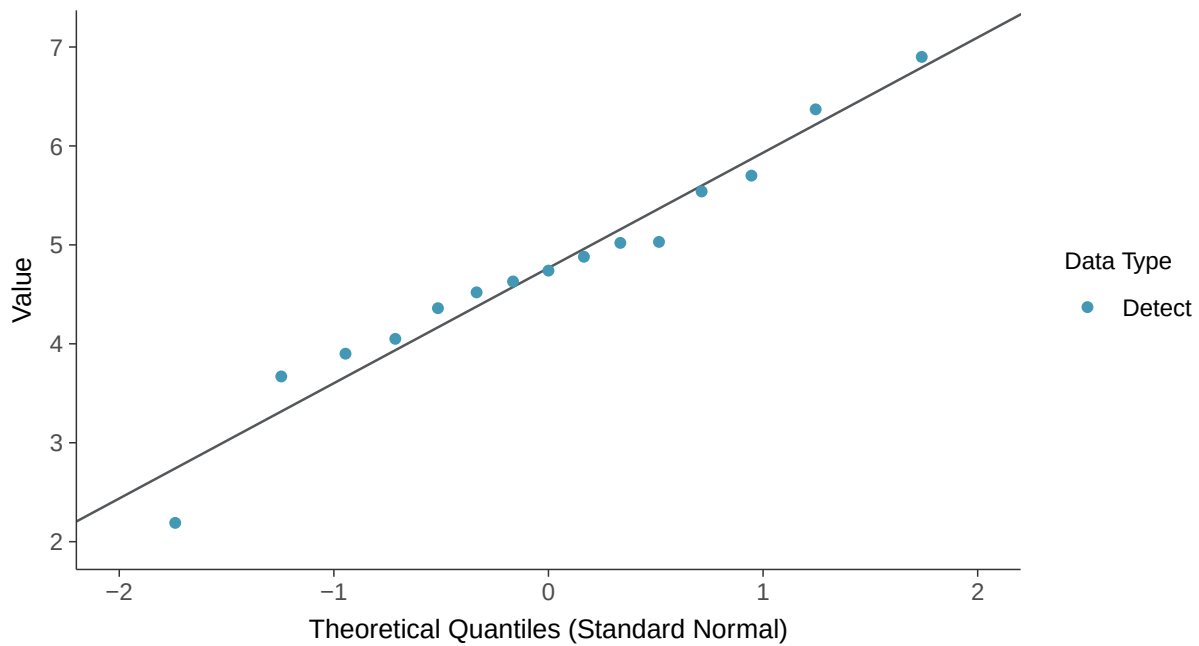
Radium-226+228, W-7 (pci/l)



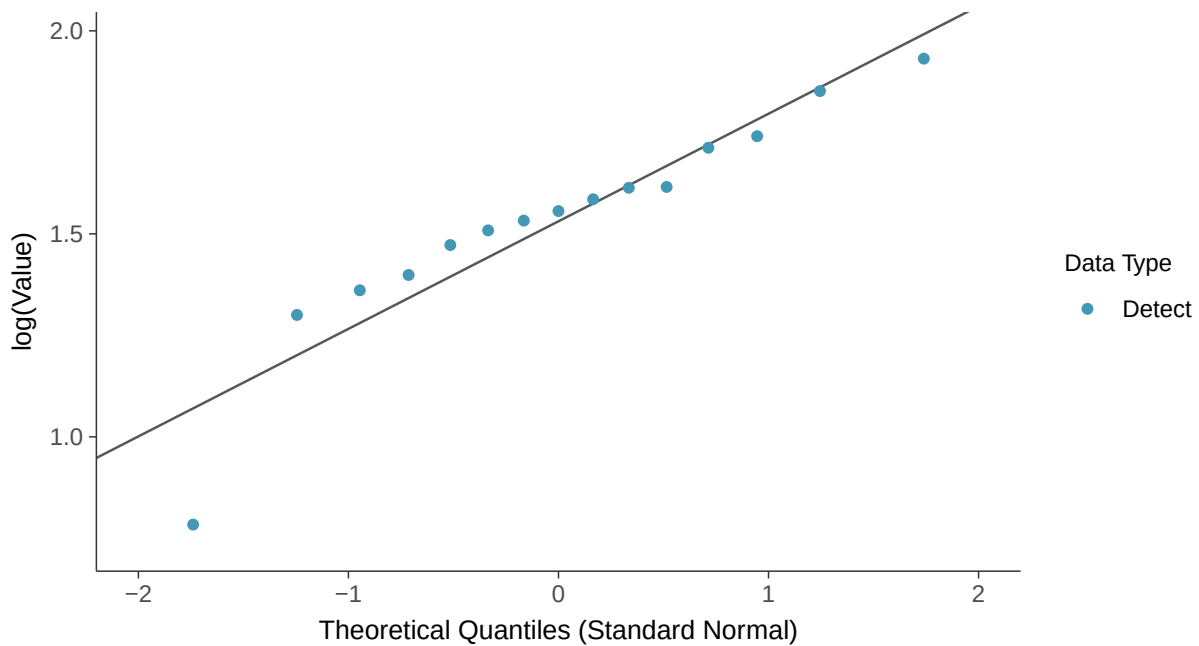
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Normal Q-Q plot

Radium-226+228, W-7 (pci/l)

**Lognormal Q-Q plot**

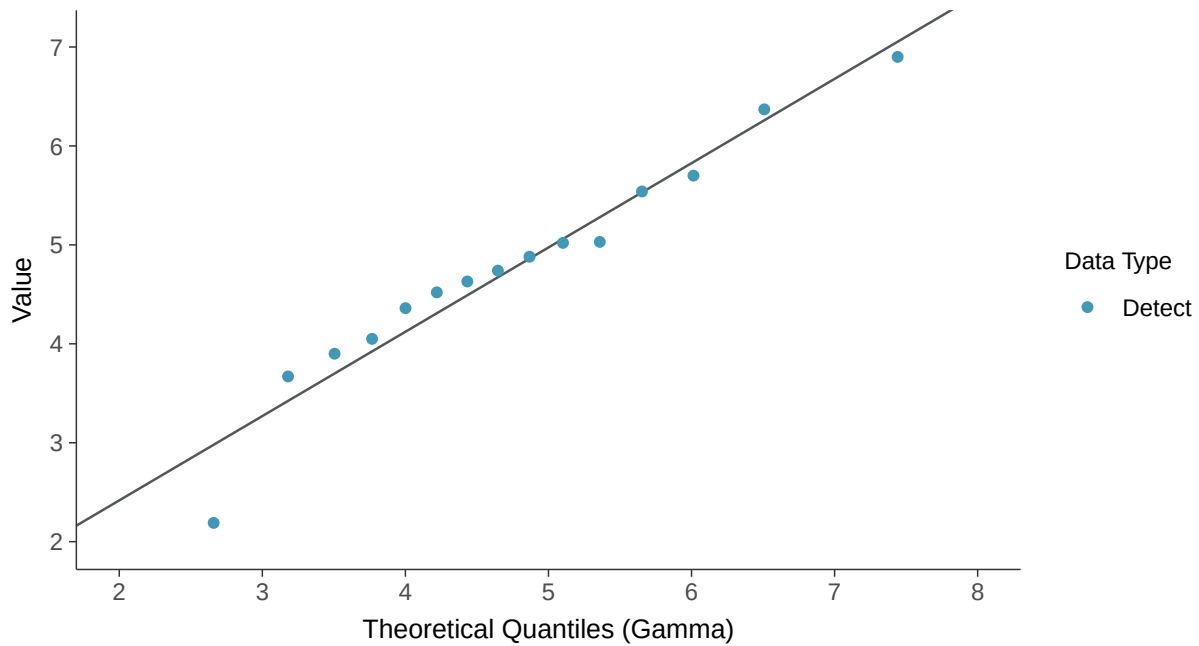
Radium-226+228, W-7 (pci/l)



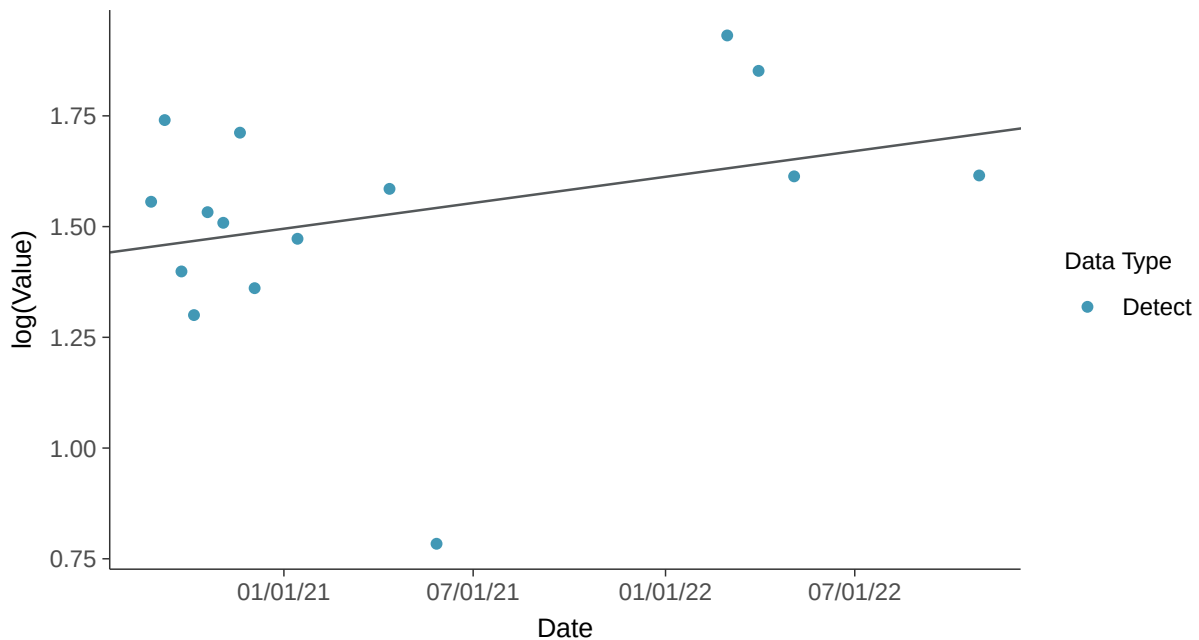
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Gamma Q-Q plot

Radium-226+228, W-7 (pci/l)

**Trend Regression: Lognormal MLE**

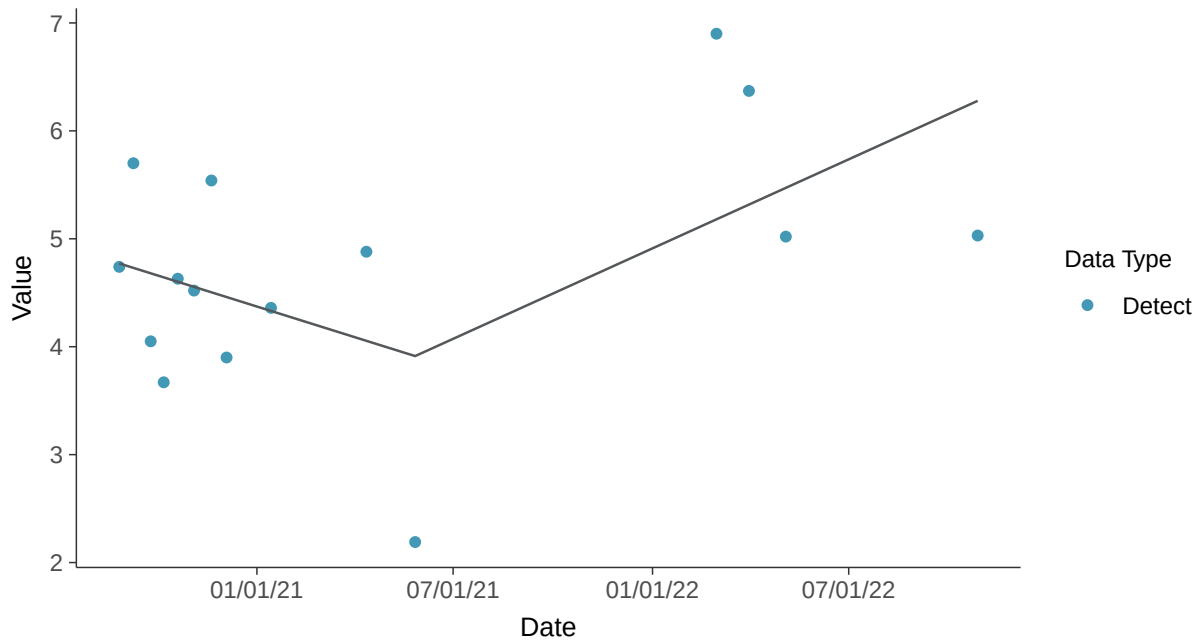
Radium-226+228, W-7 (pci/l)



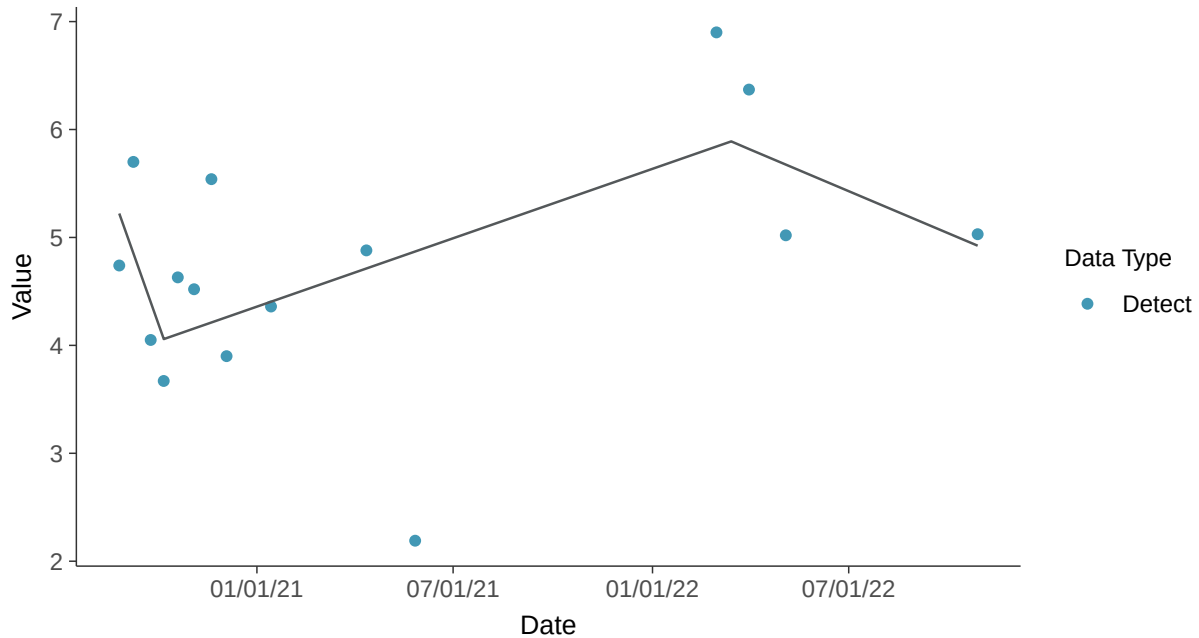
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Trend Regression: Piecewise Linear-Linear

Radium-226+228, W-7 (pci/l)

**Trend Regression: Piecewise Linear-Linear-Linear**

Radium-226+228, W-7 (pci/l)

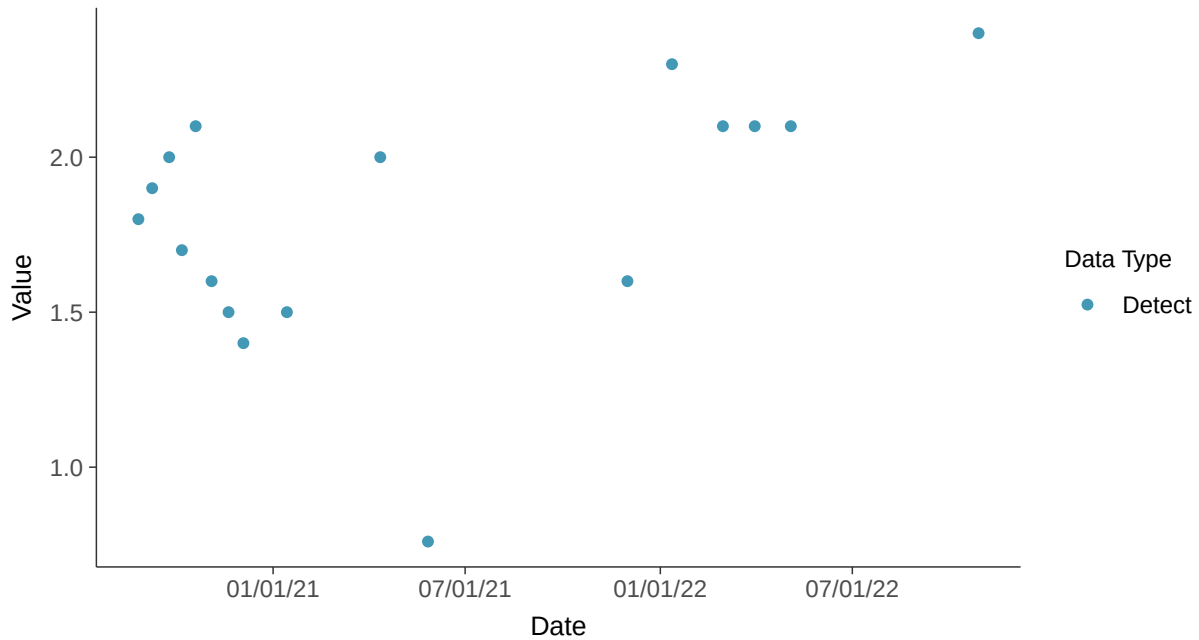


Appendix IV: Selenium, W-7

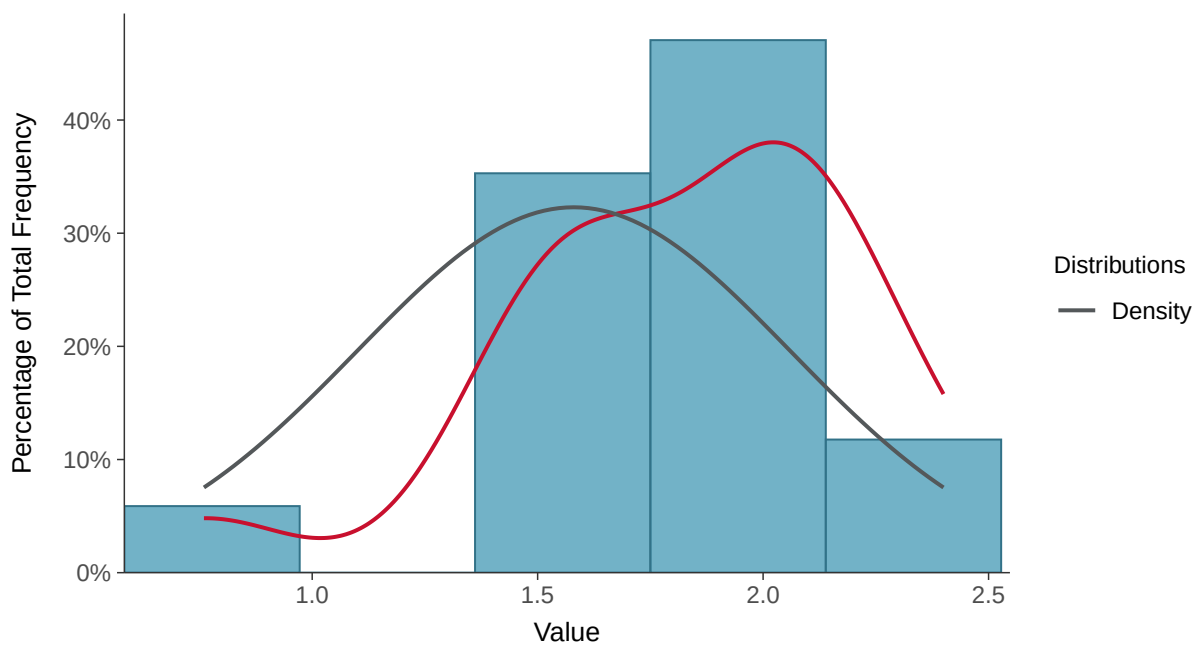
ID: 9_2_122

Scatter Plot

Selenium, W-7 (mg/l)

**Histogram**

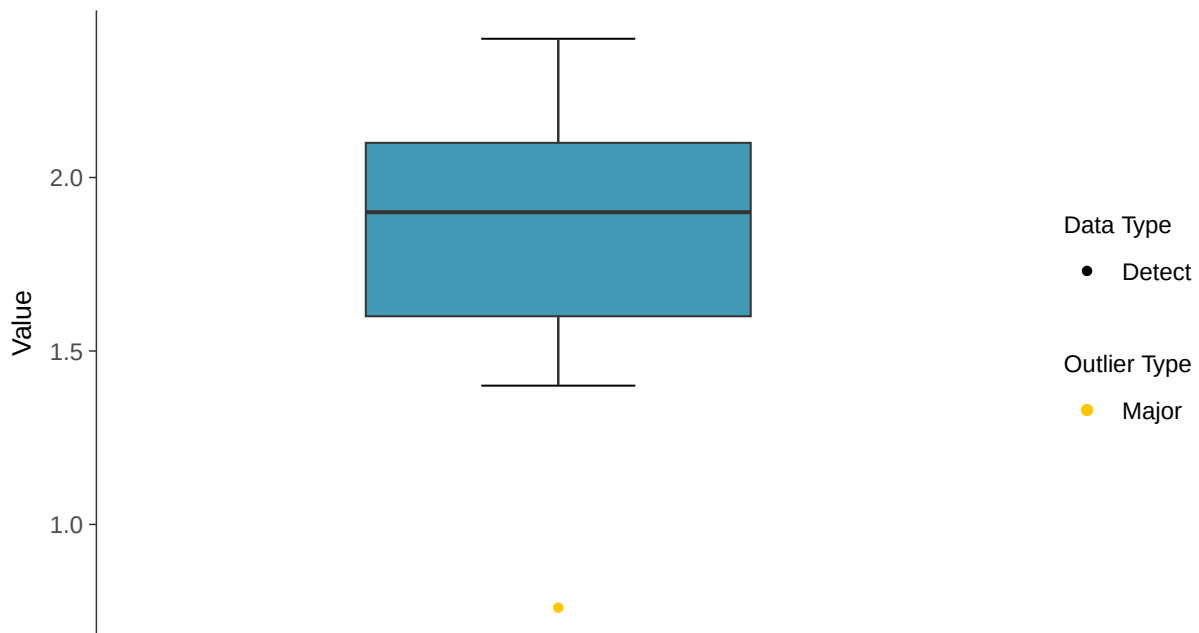
Selenium, W-7 (mg/l)



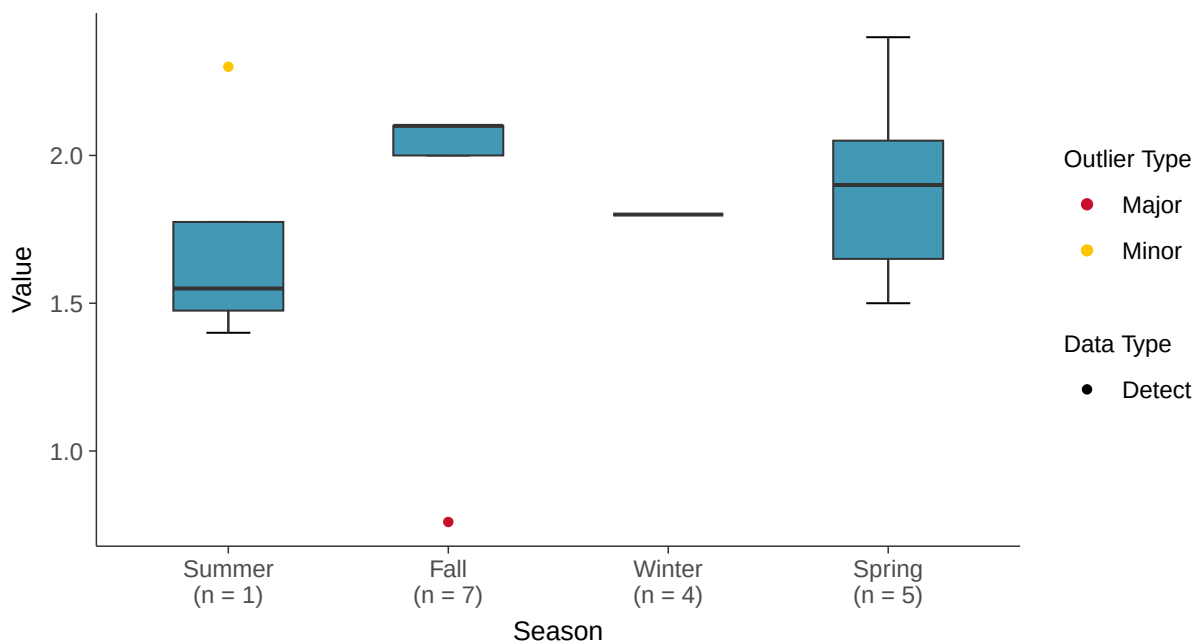
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

Boxplot

Selenium, W-7 (mg/l)

**Boxplot by Season**

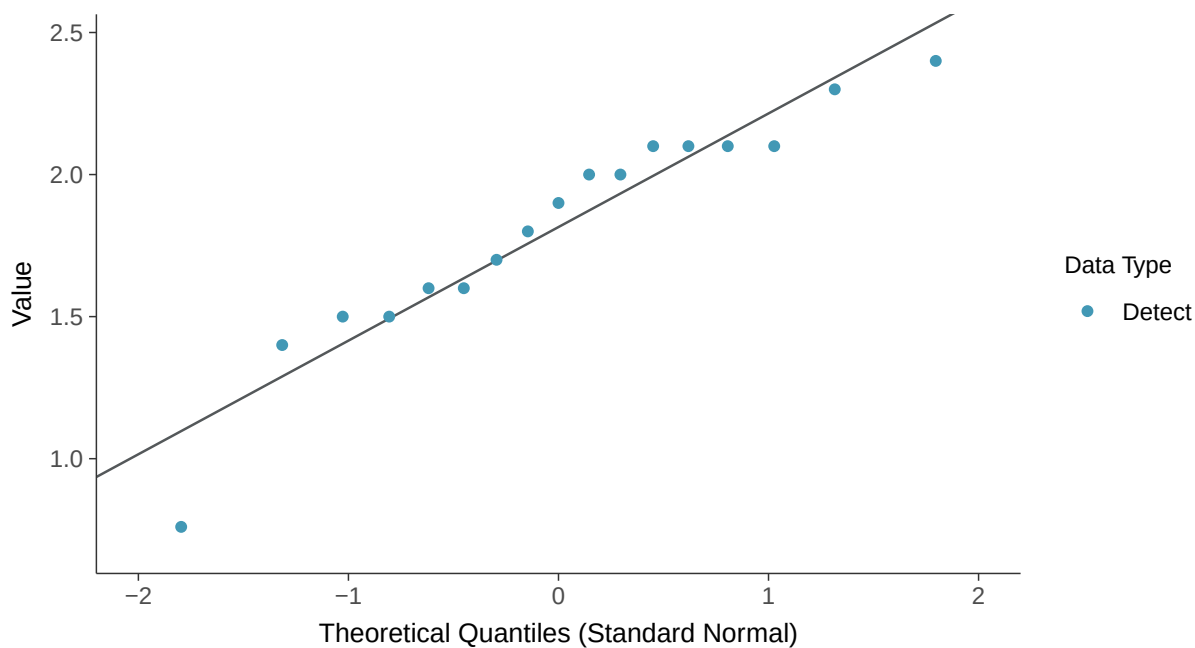
Selenium, W-7 (mg/l)





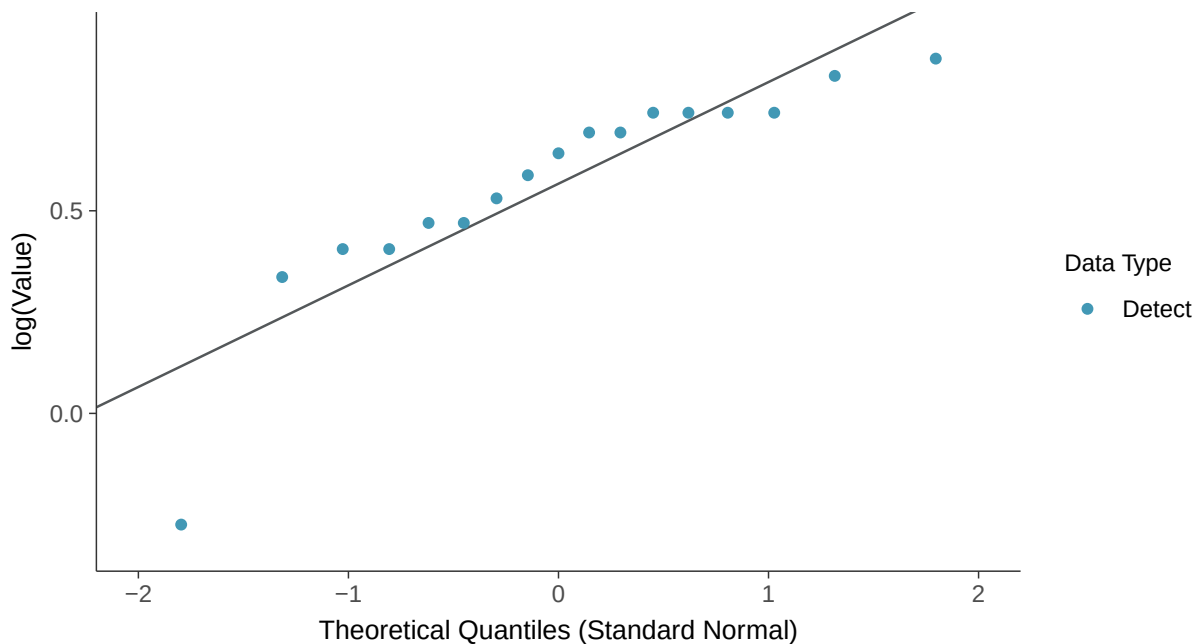
Normal Q-Q plot

Selenium, W-7 (mg/l)



Lognormal Q-Q plot

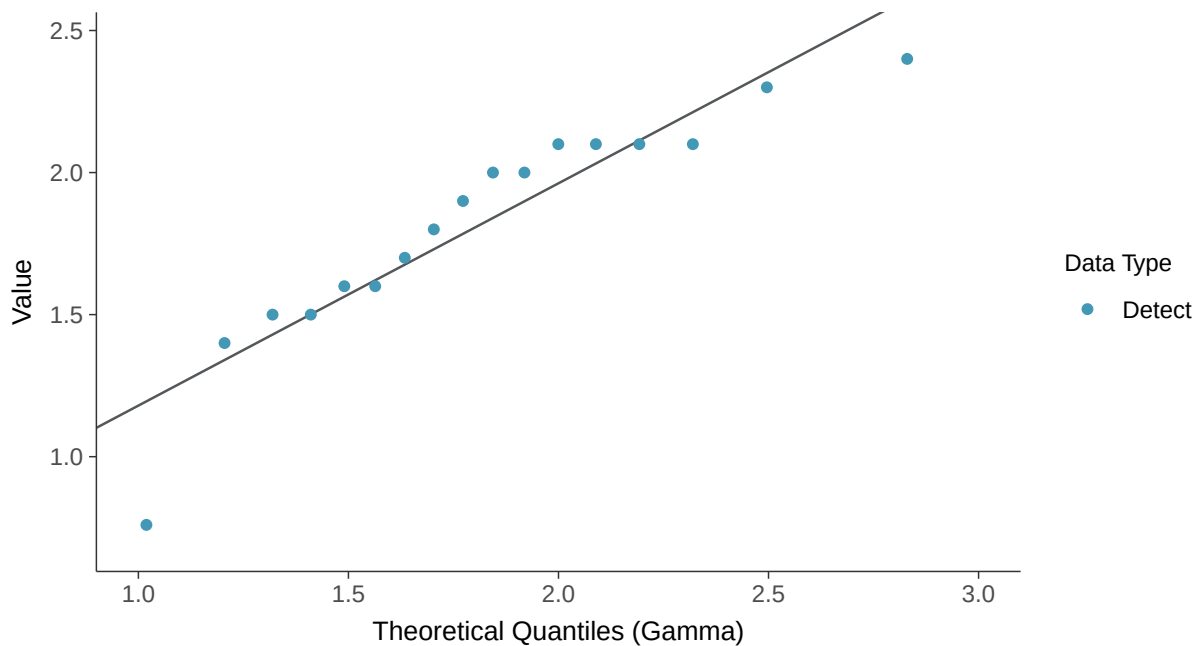
Selenium, W-7 (mg/l)





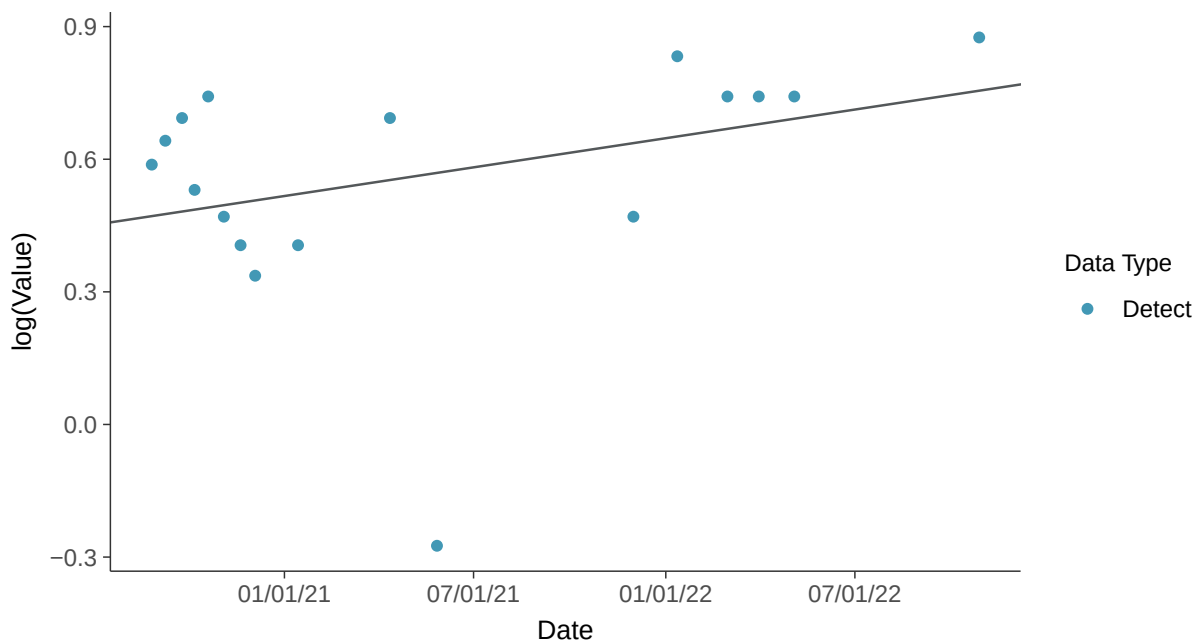
Gamma Q-Q plot

Selenium, W-7 (mg/l)



Trend Regression: Lognormal MLE

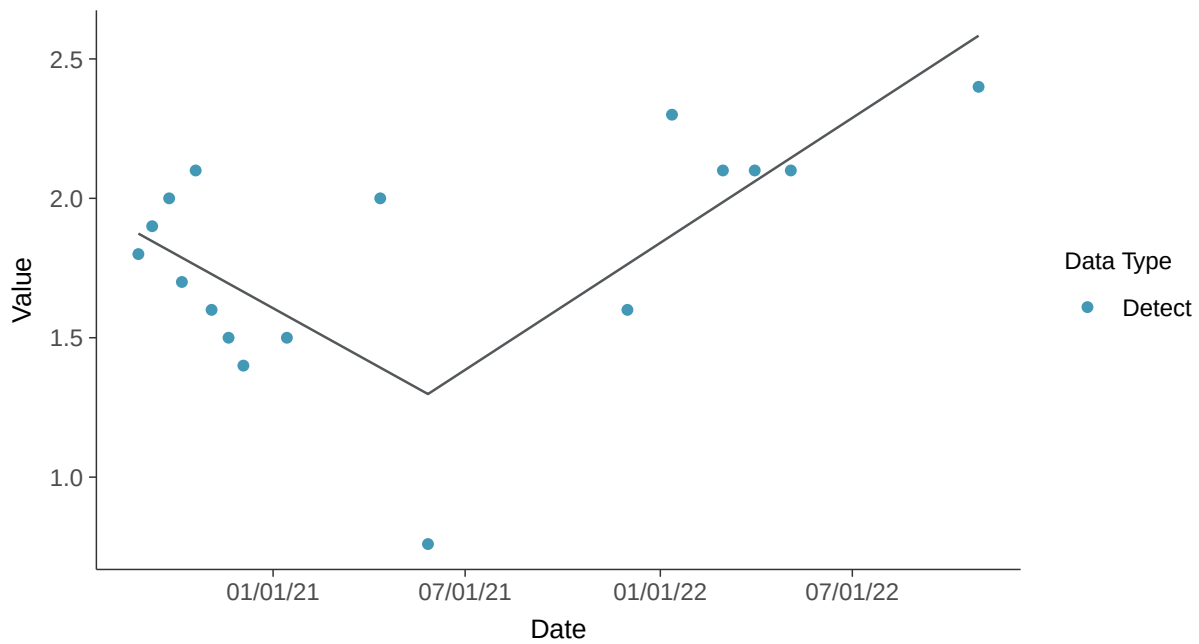
Selenium, W-7 (mg/l)





Trend Regression: Piecewise Linear-Linear

Selenium, W-7 (mg/l)

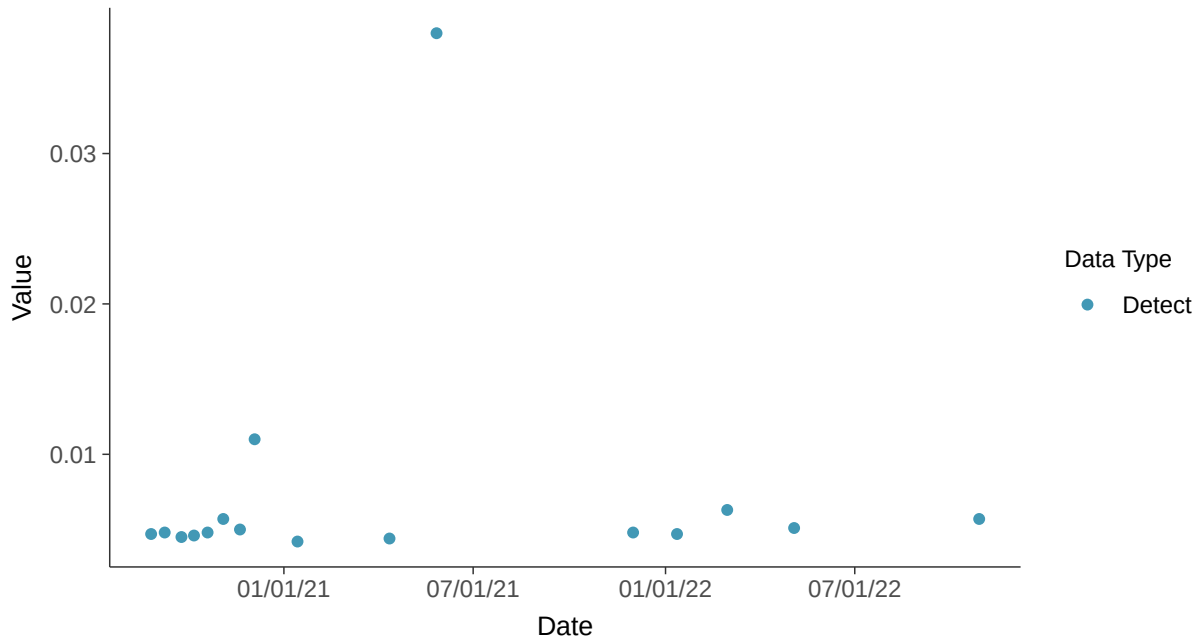


Appendix IV: Thallium, W-7

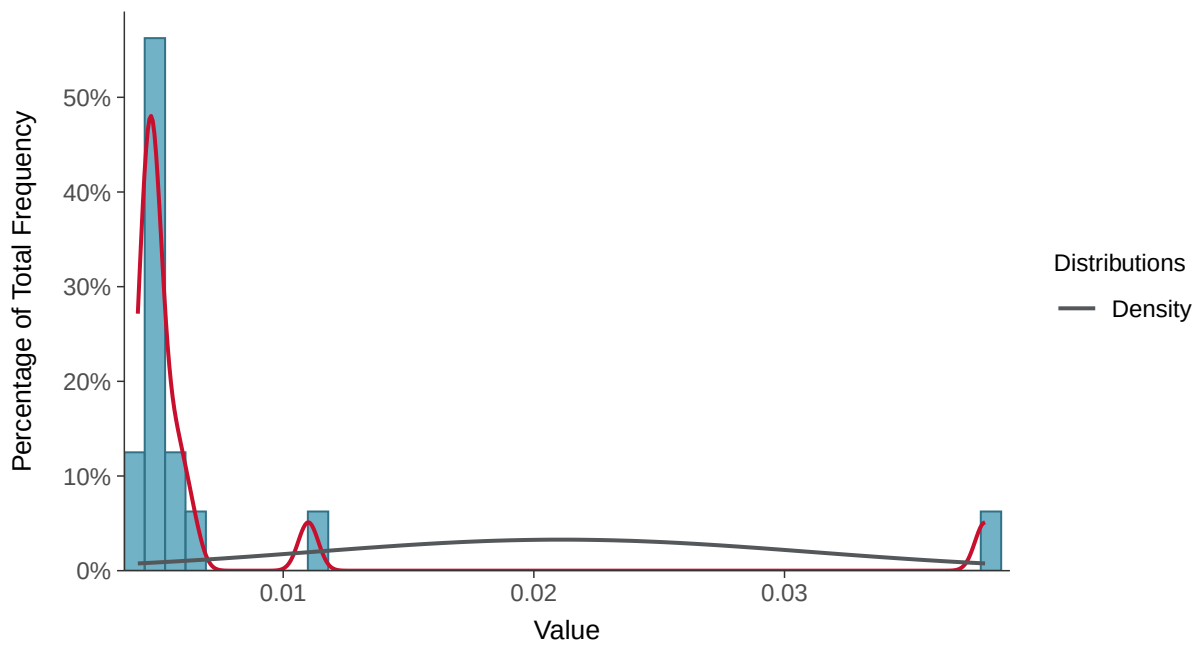
ID: 9_2_126

Scatter Plot

Thallium, W-7 (mg/l)

**Histogram**

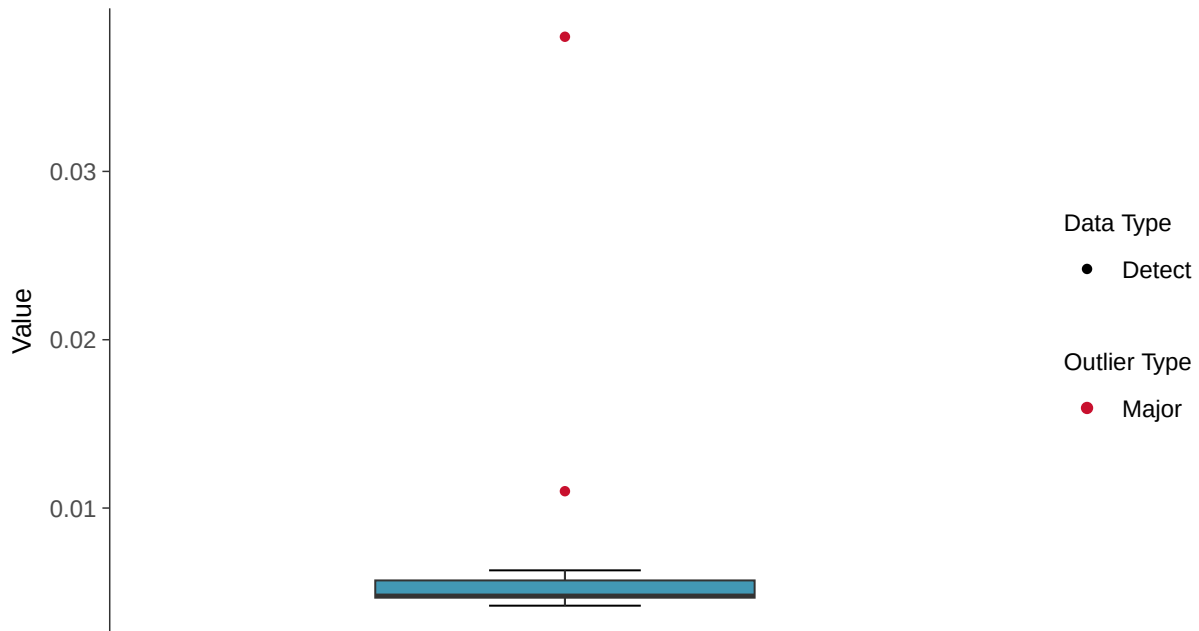
Thallium, W-7 (mg/l)



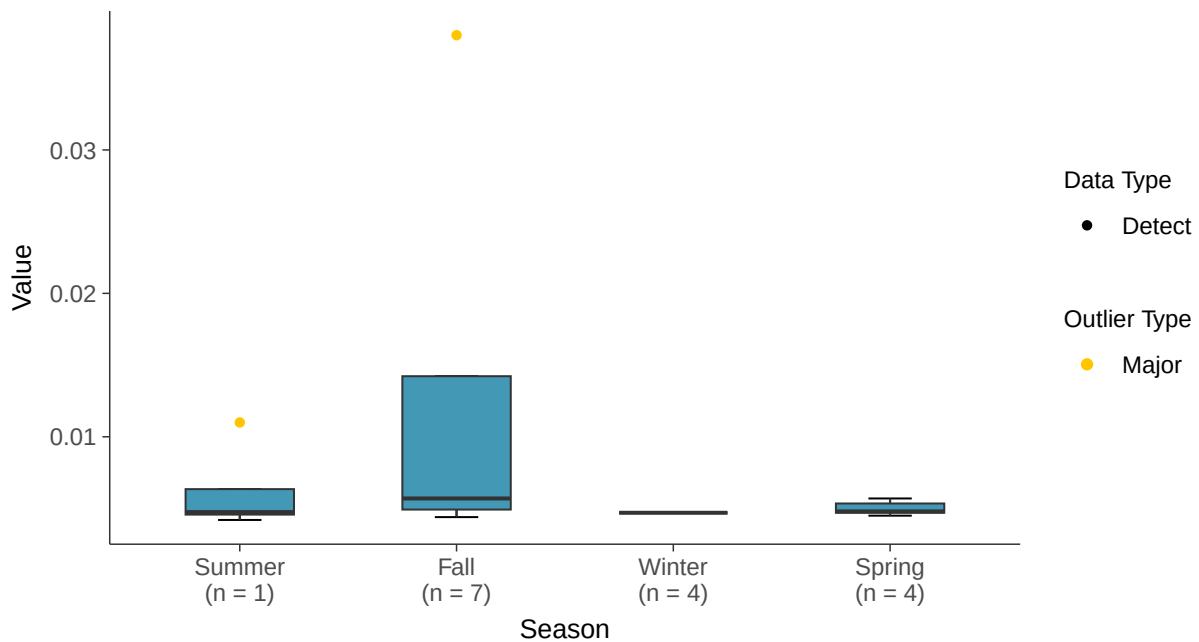
Downgradient Wells W-1, W-7, W-9, W-11, W-12, W-14, W-16, W-3B, W-5B, W-6B1, W-6B (as W-6B1) as of 2022-11

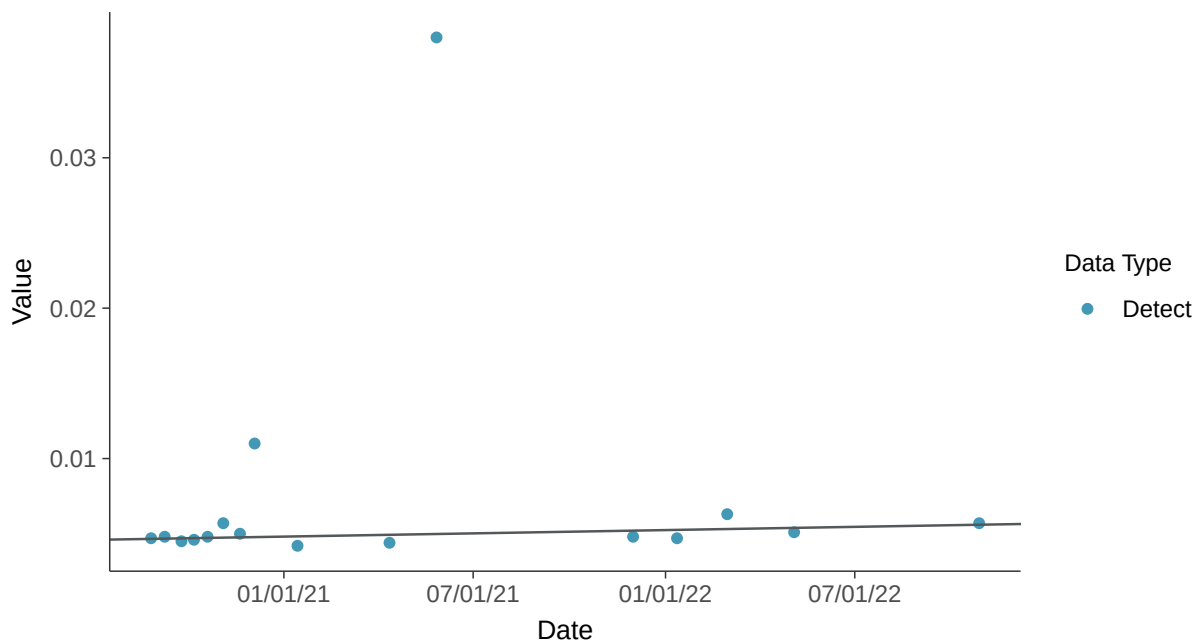
Boxplot

Thallium, W-7 (mg/l)

**Boxplot by Season**

Thallium, W-7 (mg/l)

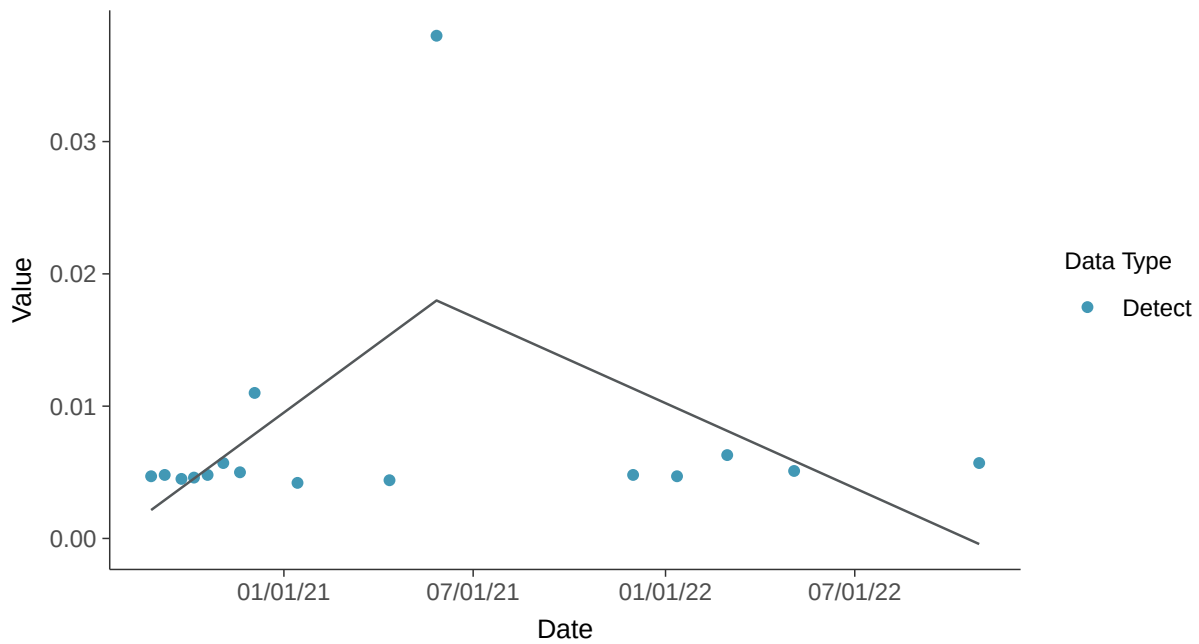






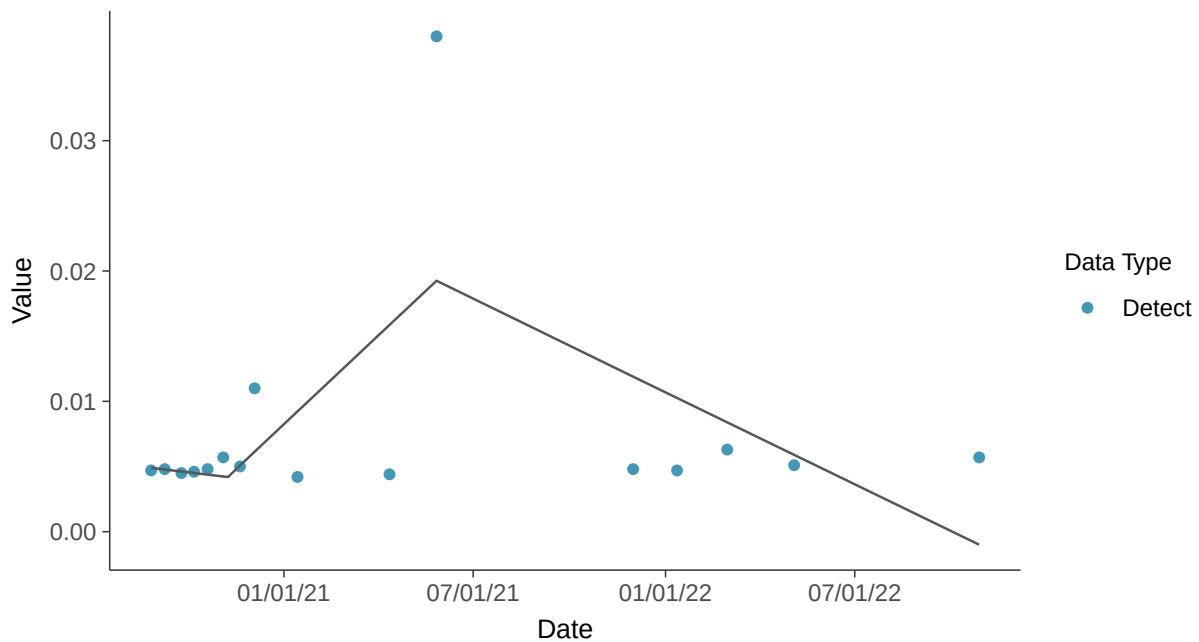
Trend Regression: Piecewise Linear-Linear

Thallium, W-7 (mg/l)



Trend Regression: Piecewise Linear-Linear-Linear

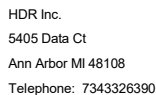
Thallium, W-7 (mg/l)



Appendix E

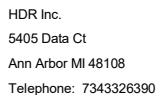
Field and Boring Logs

Boring and Well Completion Logs



NOTES

(Continued Next Page)



DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
35							
35	CC	100				SHALE, highly weathered, yellowish brown to very dark grayish brown, weak, clayey, fractured with iron staining and evaporite deposits, moist to wet (Weathered Shale) <i>(continued)</i>	10-20 Silica Sand 0.010-in Slotted Screen Coated Bentonite Pellets
40	NX	100			41.0	SHALE, slightly weathered to moderately weathered, very dark grayish brown, strong with weak clayey zones, fractured with iron staining and evaporite deposits, wet along fractures and some bedding planes (weathered shale)	
45	NX	100			43.0	SHALE, unweathered, dark gray, strong, unfractured, low moist on fresh breaks (Shale)	
					49.0		

Bottom of borehole at 49.0 feet.



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5405 Data Ct
Ann Arbor MI 48108
Telephone: 7343326390

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PAGE 1 OF 1

CLIENT Xcel Energy

PROJECT NAME Comanche Station

PROJECT NUMBER 10279361

PROJECT LOCATION Pueblo, CO

DATE STARTED 03/01/22 00:00 COMPLETED 03/01/22 00:00

WELL LOCATION 559073.81 N 2267630.1 E

DRILLING CONTRACTOR Dakota Drilling

GROUND ELEVATION 4791.27 ft HOLE DIAMETER 8

DRILLING METHOD HSA/NX/AR

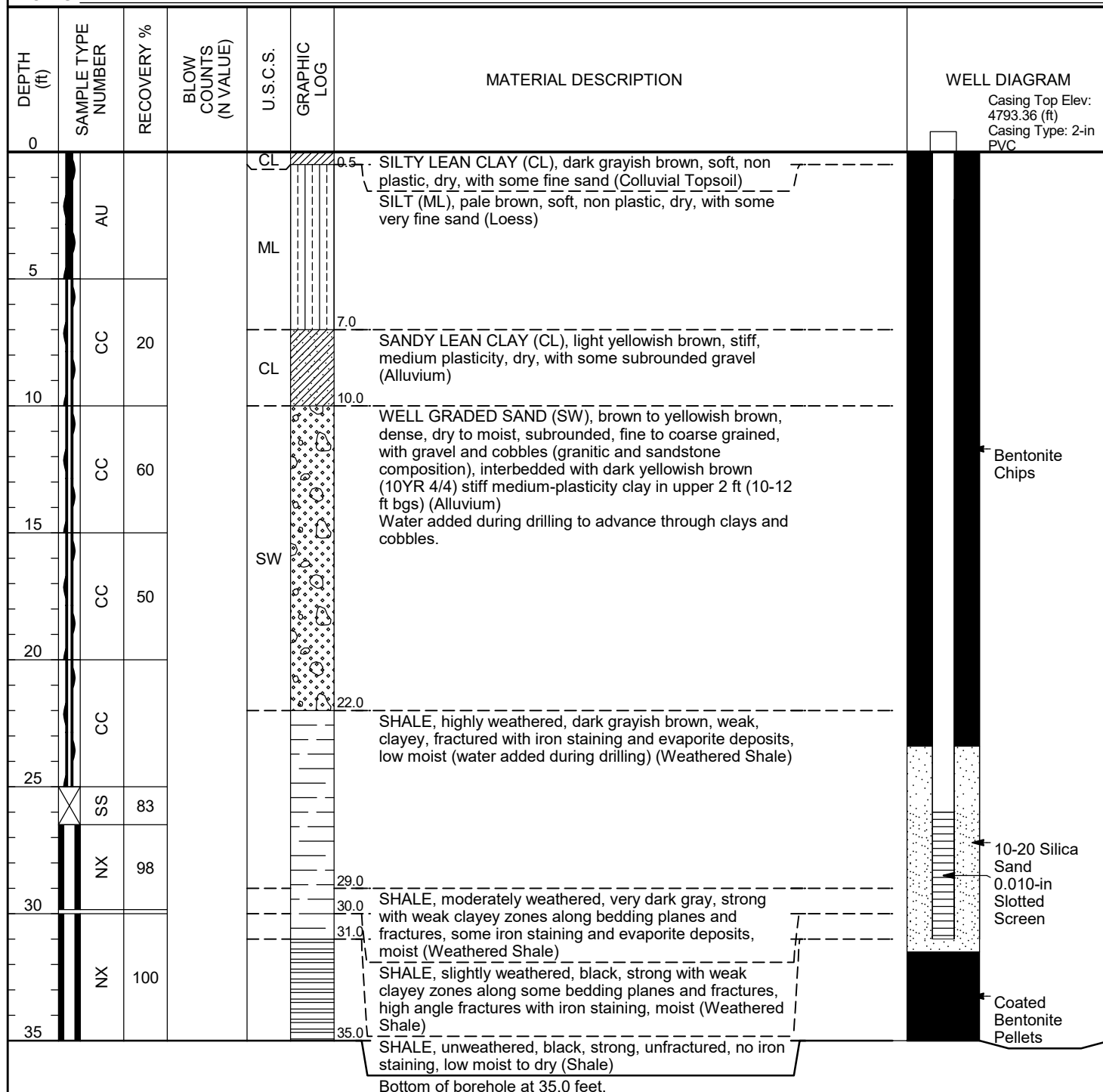
GROUND WATER LEVELS:

LOGGED BY E. Munoz

CHECKED BY _____

AFTER DRILLING --- Dry

NOTES





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Ann Arbor MI 48108
Telephone: 7343326390

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PAGE 1 OF 2

CLIENT Xcel Energy PROJECT NAME Comanche Station
PROJECT NUMBER 10279361 PROJECT LOCATION Pueblo, CO
DATE STARTED 03/02/22 00:00 COMPLETED 03/02/22 00:00 WELL LOCATION 559096.52 N 2268686.4 E
DRILLING CONTRACTOR Dakota Drilling GROUND ELEVATION 4786.57 ft HOLE DIAMETER 8
DRILLING METHOD HSA/NX/AR GROUND WATER LEVELS:
LOGGED BY E. Munoz CHECKED BY _____ ▼ AFTER DRILLING 34.74 ft / Elev 4751.83 ft

NOTES

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM Casing Top Elev: 4788.9 (ft) Casing Type: 2-in PVC
0							
	AU			CL		0.5 . SILTY LEAN CLAY (CL), dark grayish brown, soft, non plastic, dry, rootlets present (Colluvial Topsoil)	
5				ML		SILT (ML), pale brown, soft, non plastic, dry, some very fine sand (Loess)	
	CC	33				6.5 WELL GRADED SAND WITH GRAVEL (SW), brown, loose, dry, subrounded, with some cobbles (Alluvium)	
10	CC	30		SW			
15	CC	13					
	AU					18.5 SHALE, highly weathered, dark yellowish brown, weak, clayey, fractured with iron staining and evaporite deposits, dry to low moist (Weathered Shale)	
20	SS	100					
	NX	8				22.0 SHALE, highly weathered, dark yellowish brown to very dark gray, weak, clayey, fractured with iron staining and evaporite deposits, moist to hight moist (Weathered Shale)	
25	NX	80					
30	NX	50					
35							Bentonite Chips

(Continued Next Page)



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Telephone: 7343326390

CLIENT Xcel Energy

PROJECT NAME Comanche Station

PROJECT NUMBER 10279361

PROJECT LOCATION Pueblo, CO

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
35							
	NX	73				SHALE, highly weathered, dark yellowish brown to very dark gray, weak, clayey, fractured with iron staining and evaporite deposits, moist to hight moist (Weathered Shale) (<i>continued</i>)	
40							
	NX	100				SHALE, highly weathered, very dark gray, weak, clayey, fractured with iron staining and evaporite deposits, wet (Weathered Shale)	10-20 Silica Sand 0.010-in Slotted Screen
45							
	NX	100				SHALE, unweathered, black, strong, high-angle fractures with iron staining, moist on fresh breaks but wet along some bedding planes and fractures (Shale)	
50							
	NX	100				SHALE, unweathered, dark gray, strong, unfractured, no iron staining, low moist (Shale)	Coated Bentonite Pellets
55							
	NX	100					
60							

Bottom of borehole at 60.0 feet.



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PZ-1

PAGE 1 OF 2

CLIENT Xcel EnergyPROJECT NAME Comanche StationPROJECT NUMBER 10279361PROJECT LOCATION Pueblo, CODATE STARTED 08/08/22 00:00 COMPLETED 08/09/22 00:00

WELL LOCATION _____

DRILLING CONTRACTOR Dakota Drilling

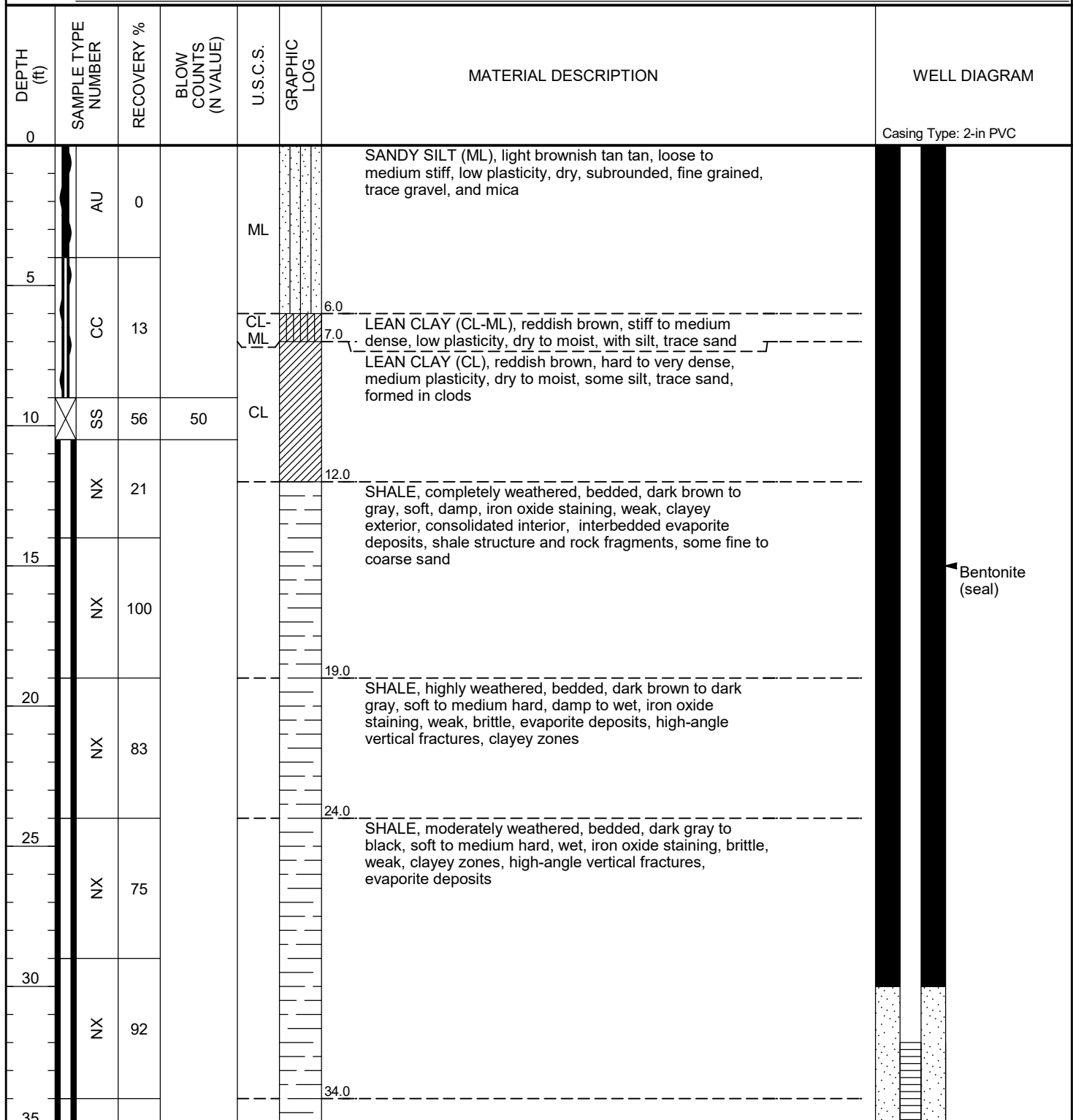
GROUND ELEVATION _____

HOLE DIAMETER 8DRILLING METHOD HSA/NX/AR

GROUND WATER LEVELS:

LOGGED BY D. Ray

CHECKED BY _____

AFTER DRILLING ---NOTES Piezometer

(Continued Next Page)



HDR

CLIENT Xcel EnergyPROJECT NAME Comanche StationPROJECT NUMBER 10279361PROJECT LOCATION Pueblo, CO

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
35							
	NX	75				SHALE, slightly weathered, interbedded, dark grayish black, medium hard to hard, wet, medium strong, weak/brittle along some bedding planes, less oxidation staining, evaporites, large clay nodule @ ~34 ft (continued)	Filter pack (sand) Screen interval (0.010")
40	NX	75					
						44.0	
						45.0 SHALE, unweathered, dark grayish black, hard, dry to damp, no staining, strong, no fractures, trace evaporites (competent bedrock) Bottom of borehole at 44.0 feet.	Borehole collapse during air rotary



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PAGE 1 OF 2

CLIENT Xcel EnergyPROJECT NAME Comanche StationPROJECT NUMBER 10279361PROJECT LOCATION Pueblo, CODATE STARTED 08/09/22 00:00 COMPLETED 08/10/22 00:00

WELL LOCATION _____

DRILLING CONTRACTOR Dakota Drilling

GROUND ELEVATION _____

HOLE DIAMETER 8DRILLING METHOD HSA/NX/AR

GROUND WATER LEVELS: _____

LOGGED BY D. Ray

CHECKED BY _____

AFTER DRILLING ---NOTES Screen set in weathered shale

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0							Casing Type: 2-in PVC
	AU	0		ML		SANDY SILT (ML), light tannish brown, loose to medium stiff, low plasticity, dry, trace gravel, some clay, some evaporites	
5	SS	75	10-11-9-5 (20)	CL-ML		CLAYEY SILT (CL-ML), brownish tan, stiff to medium dense, low plasticity, dry to moist, trace sand, and gravel, some evaporites	
	AU	0		CL		LEAN CLAY (CL), yellowish brown, loose to medium stiff, low plasticity, dry to moist, formed in clods	
10	SS	100	4-6-8-23 (14)	SW-SM		WELL GRADED SAND WITH SILT (SW-SM), grayish brown, medium dense, non plastic, dry to moist, evaporites and shale fragments	
15	AU	0		GP-GC		POORLY GRADED GRAVEL WITH CLAY (GP-GC), pale gray to light gray, medium dense, non plastic, dry to moist, some fine to coarse sand	
				CH		SANDY FAT CLAY (CH), light brownish tan, medium stiff to medium dense, high plasticity, moist, some gravel	
20	SS	75	20-30-50 (80)	CL		LEAN CLAY (CL), dark brownish gray, very stiff to medium dense, low plasticity, moist, some silt, and sand, with gravel, iron oxide staining, evaporites, relict shale structures (residuum)	
	NX	17				SHALE, highly weathered, dark gray to black, soft to medium hard, wet, iron oxide staining, weak to medium strong, evaporite veins from ~26-28 ft, large clay nodule @ ~26 ft	
25	NX	67					
30	AU	0					
	NX	100				SHALE, slightly weathered, dark gray to black, medium hard to hard, damp to wet, medium strong to strong, brittle along some bedding planes, some evaporite deposits, trace oxidation staining, vertical fracture @ ~34 ft	
35							

Bentonite
(seal)Filter pack
(sand)
Screen
interval
(0.010")

(Continued Next Page)

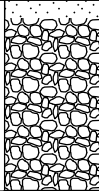


HDR

W-17

PAGE 2 OF 2

CLIENT Xcel EnergyPROJECT NAME Comanche StationPROJECT NUMBER 10279361PROJECT LOCATION Pueblo, CO

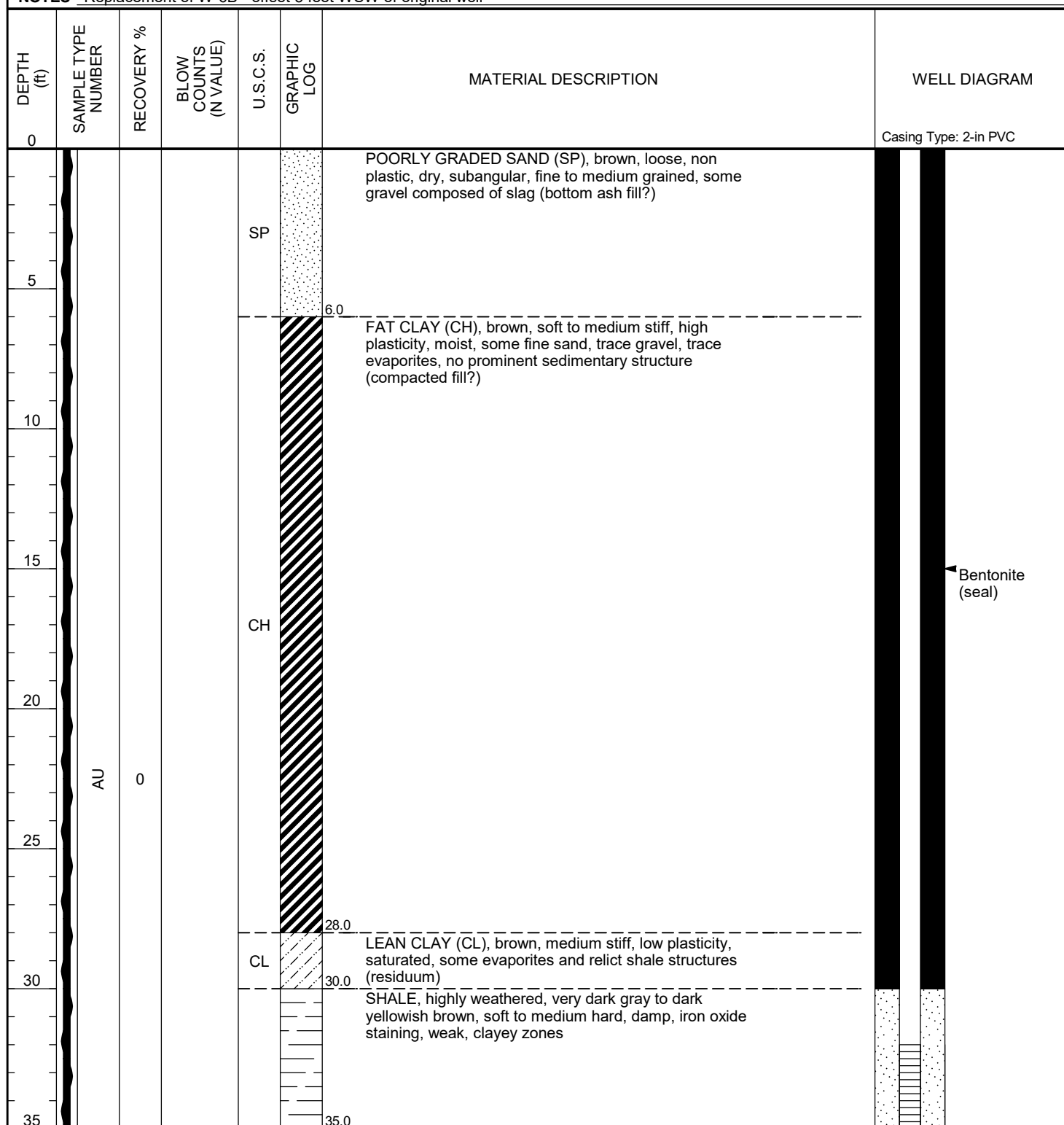
DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
35							
	NX	100				SHALE, unweathered, dark gray to black, hard, dry to damp, no staining, no fractures, trace evaporites (competent bedrock) (continued)	
40						40.0	Borehole collapse during air rotary

Bottom of borehole at 40.0 feet.



HDR

CLIENT Xcel Energy PROJECT NAME Comanche Station
PROJECT NUMBER 10279361 PROJECT LOCATION Pueblo, CO
DATE STARTED 08/05/22 00:00 COMPLETED 08/08/22 00:00 WELL LOCATION _____
DRILLING CONTRACTOR Dakota Drilling GROUND ELEVATION _____ HOLE DIAMETER 8
DRILLING METHOD HSA GROUND WATER LEVELS: _____
LOGGED BY D. Ray CHECKED BY _____ AFTER DRILLING ---
NOTES Replacement of W-6B - offset 5 feet WSW of original well



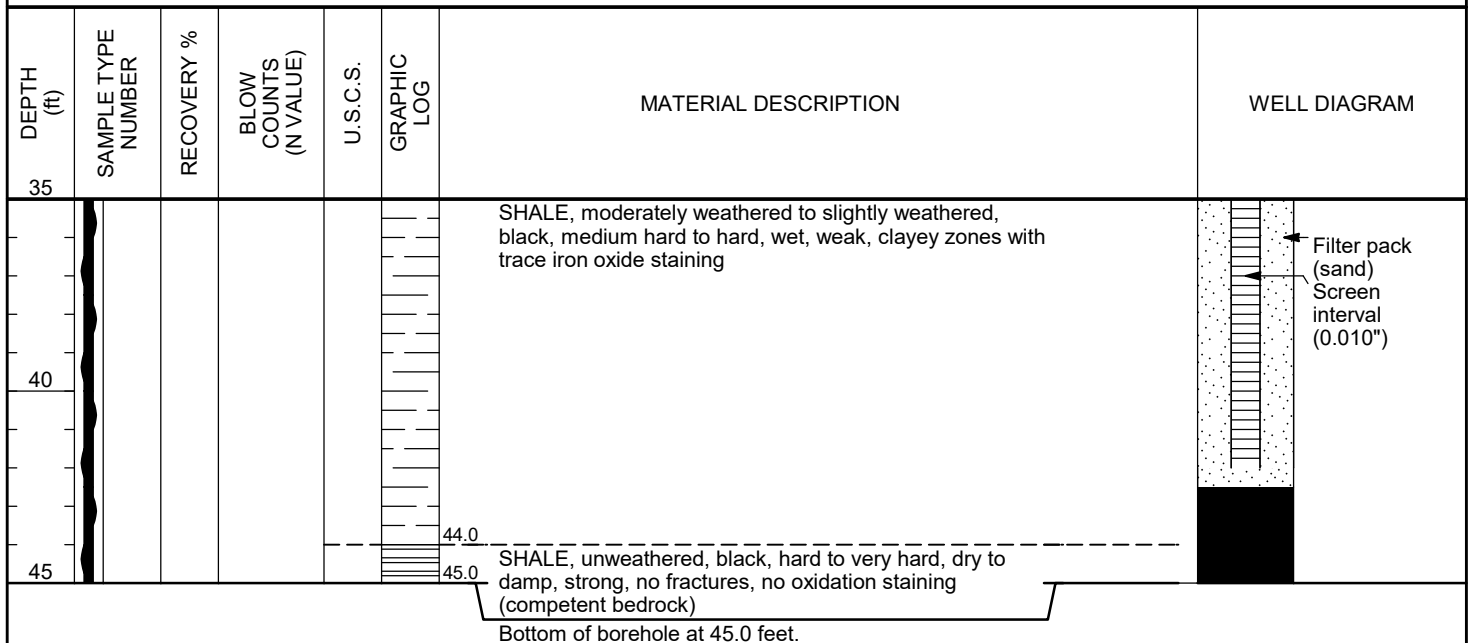
(Continued Next Page)



HDR

W-6B1

PAGE 2 OF 2

CLIENT Xcel EnergyPROJECT NAME Comanche StationPROJECT NUMBER 10279361PROJECT LOCATION Pueblo, CO



HDR

MW-8

PAGE 1 OF 2

CLIENT Xcel EnergyPROJECT NAME Comanche StationPROJECT NUMBER 10279361PROJECT LOCATION Pueblo, CODATE STARTED 11/07/22 00:00 COMPLETED 11/07/22 00:00

WELL LOCATION _____

DRILLING CONTRACTOR Dakota Drilling

GROUND ELEVATION _____

HOLE DIAMETER 8DRILLING METHOD HSA/NX/AR

GROUND WATER LEVELS: _____

LOGGED BY D. Ray

CHECKED BY _____

AFTER DRILLING ---

NOTES

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0							Casing Type: 2-in PVC
	AU	0		ML	1.0	SANDY SILT WITH GRAVEL (ML), black, loose to soft, non plastic, dry, subangular, fine to coarse grained, with organics, non-cohesive	
5				ML		CLAYEY SILT WITH GRAVEL (ML), light olive brown, loose to medium stiff, low plasticity, dry to moist, and fine to coarse sand, gravel composed of clay fines (clods), cohesiveness increases w/ depth	
	CC	83		CL-ML	6.0	SILTY LEAN CLAY (CL-ML), olive brown mottled with dark grayish brown, medium stiff to medium dense, low plasticity, dry to moist, laminated, trace gravel with rock fragments, iron oxide staining, evaporites	
10				CL	9.0	LEAN CLAY (CL), light olive brown to dark olive brown, stiff to dense, low plasticity, moist, blocky, some silt, some shale fragments, abundant evaporite deposits @ ~16-18 ft	
15	CC	83		CL			Bentonite (seal)
	CC	100		CL	18.0	LEAN CLAY (CL), olive brown to dark yellowish brown, very stiff to very dense, low plasticity, moist, blocky, with rock fragments, less evaporites (residuum)	
20				CL	20.0	CLAYEY SHALE, completely weathered, olive brown to very dark grayish brown, very soft to soft, damp, iron oxide staining, evaporite vein deposits, very stiff/dense clayey exterior (plastic), more structured interior (shale fragments)	
25	NX	83			25.0	SHALE, highly weathered, bedded, dark grayish black, soft to medium hard, damp, iron oxide staining, weak to medium strong, fractures, evaporite deposits, soft clayey zones and brittle areas	
30					30.0	SHALE, moderately weathered, bedded, olive brown to very dark grayish brown, medium hard, wet, iron oxide staining, weak to medium strong, evaporite deposits, some soft clayey zones and brittle areas	
35	NX	100			35.0		Filter pack (sand) Screen interval (0.010")

(Continued Next Page)



HDR

MW-8

PAGE 2 OF 2

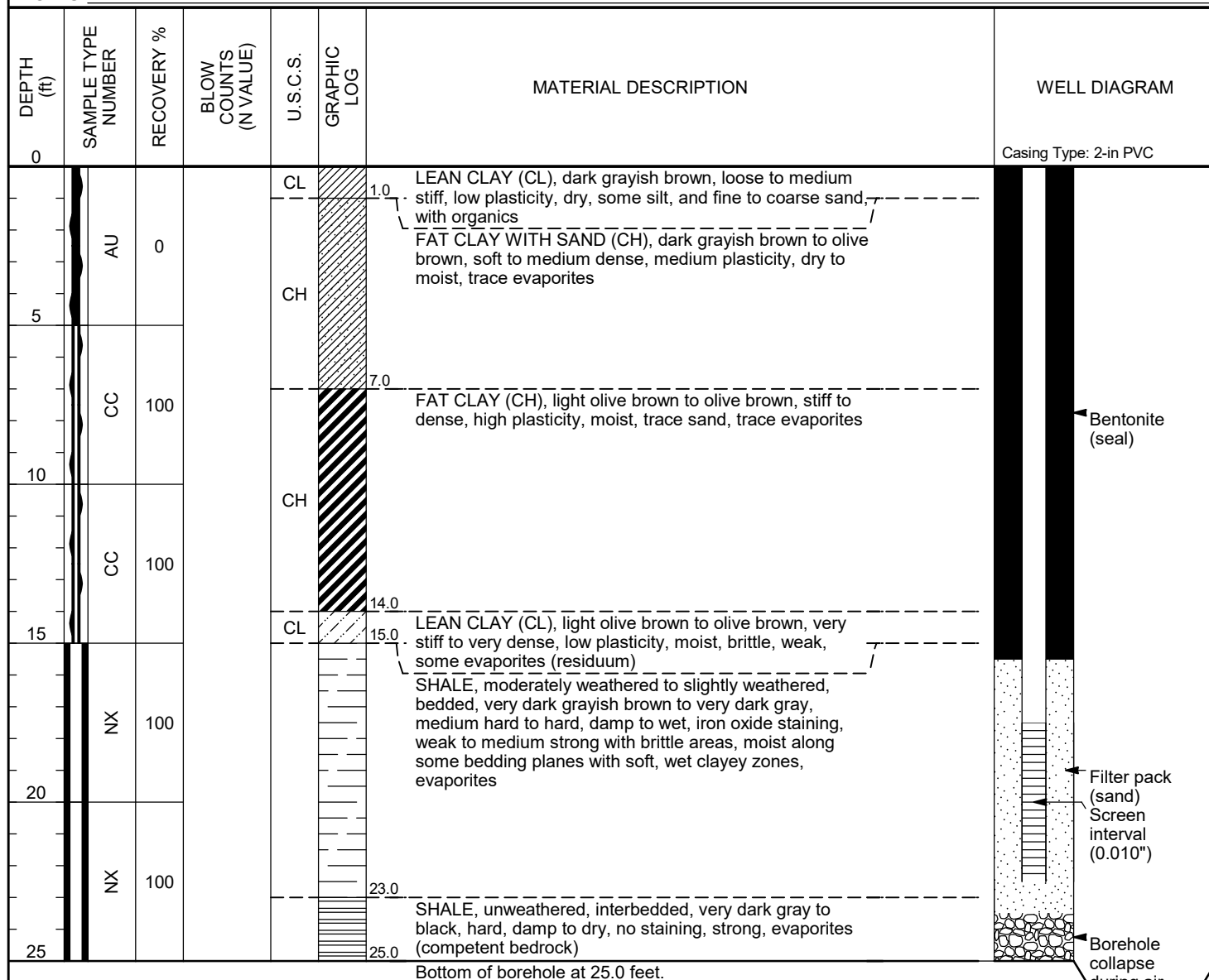
CLIENT Xcel EnergyPROJECT NAME Comanche StationPROJECT NUMBER 10279361PROJECT LOCATION Pueblo, CO

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
35							
	NX	100				SHALE, slightly weathered, bedded, black, hard, wet, iron oxide staining, medium strong to strong, some weak clayey areas and evaporite deposits	
						38.0	
						SHALE, unweathered, bedded, black, very hard, damp, no staining, strong, no fractures, trace evaporite veins (competent bedrock)	
40						40.0	
Bottom of borehole at 40.0 feet.							Borehole collapse during air rotary



HDR

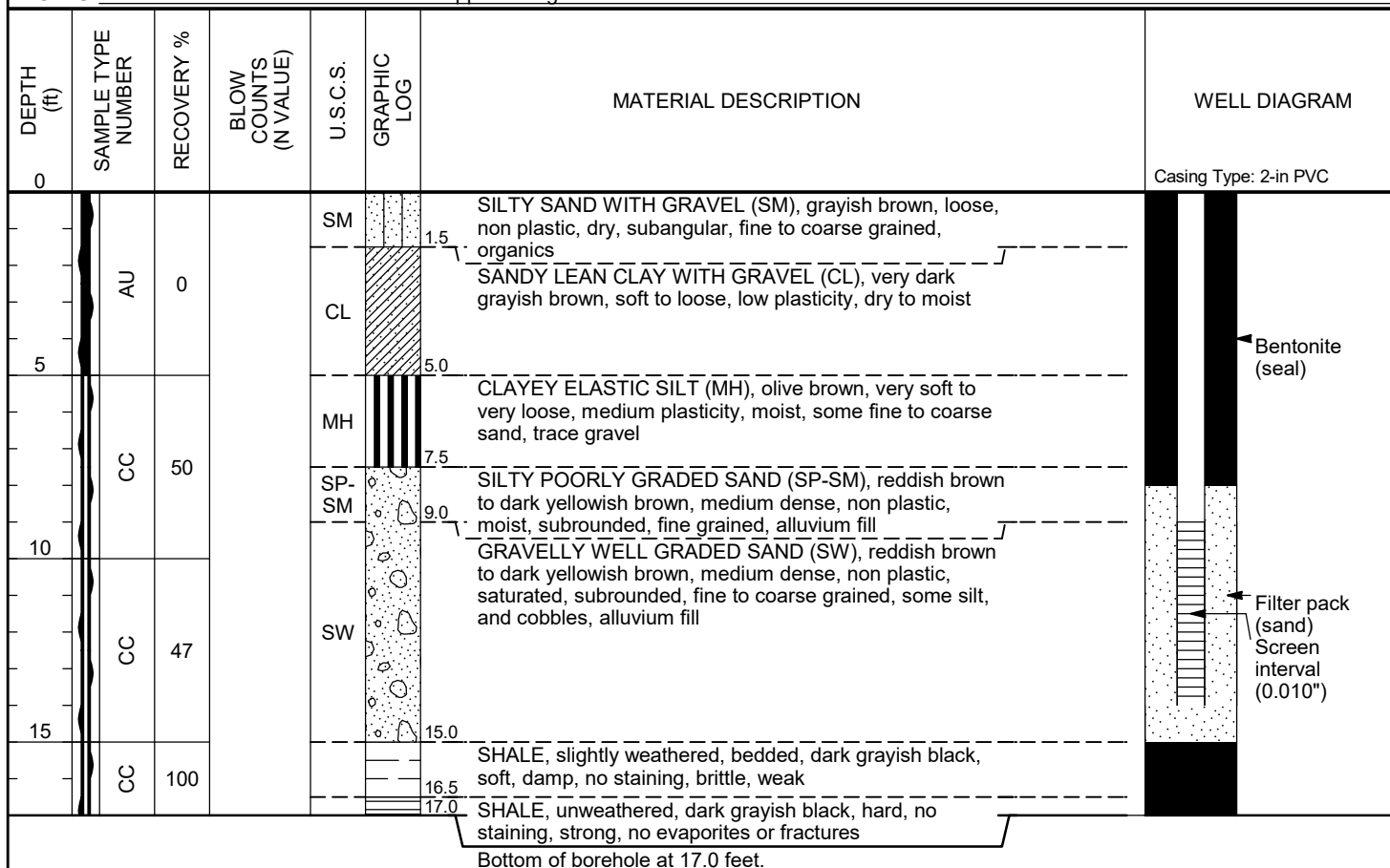
CLIENT Xcel Energy PROJECT NAME Comanche Station
PROJECT NUMBER 10279361 PROJECT LOCATION Pueblo, CO
DATE STARTED 11/08/22 00:00 COMPLETED 11/08/22 00:00 WELL LOCATION _____
DRILLING CONTRACTOR Dakota Drilling GROUND ELEVATION _____ HOLE DIAMETER 8
DRILLING METHOD HSA/NX/AR GROUND WATER LEVELS: _____
LOGGED BY D. Ray CHECKED BY _____ AFTER DRILLING ---

NOTES Screen set in weathered shale



HDR

CLIENT Xcel Energy PROJECT NAME Comanche Station
PROJECT NUMBER 10279361 PROJECT LOCATION Pueblo, CO
DATE STARTED 12/12/22 00:00 COMPLETED 12/13/22 00:00 WELL LOCATION _____
DRILLING CONTRACTOR Dakota Drilling GROUND ELEVATION _____ HOLE DIAMETER 8
DRILLING METHOD HSA/AR GROUND WATER LEVELS: _____
LOGGED BY D. Ray CHECKED BY _____ AFTER DRILLING ---
NOTES Screen set it wet alluvium to monitor uppermost groundwater



Slug Testing Field Sheets

Slug Test Record

Well ID: MW-7
 Site: Xcel Concrete
 Date: October 22
 Personnel: E. Munoz



Well Information

Well ID	Static Water Level (ft btoc)	Total Depth (Measured) (ft btoc)	Water Column Height (ft)	Casing Diameter (in)
MW-7	20.28	39.00	18.72	2"

Transducer

Make	Model	Serial Number	Depth (ft btoc)
Level Trans In-Situ	Level Trans 30 psi	564270	37

Slug

Diameter	Length	Volume	Description/Notes
1.5"	32.5"	0.249 gal	Solid plastic

Test Record

	Start Time	Stop Time	File Name
Slug In (Falling Head)	1310	1316	MW-7-FH1
Slug Out (Rising Head)	1347	1351	MW-7-RH1
Slug In (Falling Head)	1353	1356	MW-7-FH2
Slug Out (Rising Head)	1357	1402	MW-7-RH2
Slug In (Falling Head)			
Slug Out (Rising Head)			

Comments:

Very noisy data, field check of FH1 could visually
 curve match. Took replicates to address noise / get
 better average estimate.

Slug Test Record

Well ID: W-2C
 Site: Xcel Concrete
 Date: October 22
 Personnel: F. J. Torres



Well Information

Well ID	Static Water Level (ft btoc)	Total Depth (Measured) (ft btoc)	Water Column Height (ft)	Casing Diameter (in)
W-2C	27.97	37.10	9.18	2

Transducer

Make	Model	Serial Number	Depth (ft btoc)
La-Sirna	Level Troll 700	564270	35.5

Slug

Diameter	Length	Volume	Description/Notes
1.5	32.5	6.249 gal	Solid plastic

Test Record

	Start Time	Stop Time	File Name
Slug In (Falling Head)	1511	1525	W-2C_FH1
Slug Out (Rising Head)	1541	1553	W-2C_RH1
Slug In (Falling Head)	1612	1622	W-2C_FH2
Slug Out (Rising Head)	1642	1653	W-2C_RH2
Slug In (Falling Head)			
Slug Out (Rising Head)			

Comments:

Which w/ storm system moving in, may affect pressure readings

Slug Test Record

Well ID: W-3B
 Site: Yael Connerine
 Date: 07 Nov 22
 Personnel: F. Munoz



Well Information

Well ID	Static Water Level (ft btoc)	Total Depth (Measured) (ft btoc)	Water Column Height (ft)	Casing Diameter (in)
W-3B	16.59	47.50	30.91	2

Transducer

Make	Model	Serial Number	Depth (ft btoc)
In Situ	Level Trans 700	564 270	44

Slug

Diameter	Length	Volume	Description/Notes
1.5"	32.5"	0.249 gal	Solid Plastic

Test Record

	Start Time	Stop Time	File Name
Slug In (Falling Head)	1148	1200	W-3B-FH1
Slug Out (Rising Head)	1223	1245	W-3B-RH1
Slug In (Falling Head)	1252	1313	W-3B-FH2
Slug Out (Rising Head)	1328	1348	W-3B-RH2
Slug In (Falling Head)			
Slug Out (Rising Head)			

Comments:

Slug Test Record

Well ID: W-6B
 Site: Xcel Converse
 Date: 8/16/12
 Personnel: Falvino



Well Information

Well ID	Static Water Level (ft btoc)	Total Depth (Measured) (ft btoc)	Water Column Height (ft)	Casing Diameter (in)
W-6B	14.91	44.47	29.56	2

Transducer

Make	Model	Serial Number	Depth (ft btoc)
In Situ	Level Trans 700	564270	42

Slug

Diameter	Length	Volume	Description/Notes
1.5"	32.5"	0.249 gal	Solid Plastic

Test Record

	Start Time	Stop Time	File Name
Slug In (Falling Head)	1458	1519	W-6B_FH1
Slug Out (Rising Head)	1539	1604	W-6B_RH1
Slug In (Falling Head)	1613	1636	W-6B_FH2
Slug Out (Rising Head)	1642	1653	W-6B_RH2
Slug In (Falling Head)			
Slug Out (Rising Head)			

Comments:

Slug Test Record

Well ID: W-14
 Site: Carrancho
 Date: 14 Apr 22
 Personnel: E. Munoz



Well Information

Well ID	Static Water Level (ft btoc)	Total Depth (Measured) (ft btoc)	Water Column Height (ft)	Casing Diameter (in)
W-14	38.41	46.61	8.20	2"

Transducer

Make	Model	Serial Number	Depth (ft btoc)
In Situ	Level Trans 700	564442	45

Slug

Diameter	Length	Volume	Description/Notes
1.25"	2.74'	0.175	Solid plastic $H_p^* = 1.072'$

Test Record

	Start Time	Stop Time	File Name
Slug In (Falling Head)	1351	1408	W-14-FH1
Slug Out (Rising Head)	1412	1423	W-14-RH1
Slug In (Falling Head)	1433	1448	W-14-FH2
Slug Out (Rising Head)	1456	1512	W-14-RH2
Slug In (Falling Head)			
Slug Out (Rising Head)			

Comments:

Slug Test Record

Well ID: W-15
 Site: Cowiche
 Date: 15 April 22
 Personnel: E. Union



Well Information

Well ID	Static Water Level (ft btoc)	Total Depth (Measured) (ft btoc)	Water Column Height (ft)	Casing Diameter (in)
<u>W-15</u>	<u>DRY</u>	<u>33.95</u>	<u>Ø</u>	<u>2"</u>

Transducer

Make	Model	Serial Number	Depth (ft btoc)

Slug

Diameter	Length	Volume	Description/Notes

Test Record

	Start Time	Stop Time	File Name
Slug In (Falling Head)			
Slug Out (Rising Head)			
Slug In (Falling Head)			
Slug Out (Rising Head)			
Slug In (Falling Head)			
Slug Out (Rising Head)			

Comments:

Well dry, no test performed.

Slug Test Record

Well ID: W-16
 Site: Cascadia
 Date: 15 Apr 22
 Personnel: F. Almer



Well Information

Well ID	Static Water Level (ft btoc)	Total Depth (Measured) (ft btoc)	Water Column Height (ft)	Casing Diameter (in)
W-16	37.26	49.06	11.80	2

Transducer

Make	Model	Serial Number	Depth (ft btoc)
In Situ	level 100	56442	48

Slug

Diameter	Length	Volume	Description/Notes
1.25	2.74	0.175	Solid plastic; $H_0^* = 1.072'$

Test Record

	Start Time	Stop Time	File Name
Slug In (Falling Head)	0924	0935	W-16-FH1
Slug Out (Rising Head)	0942	0954	W-16-RH1
Slug In (Falling Head)	0959	1010	W-16-FH2
Slug Out (Rising Head)	1018	1028	W-16-RH2
Slug In (Falling Head)			
Slug Out (Rising Head)			

Comments:

Well Development Field Sheets

Well Development

SITE NAME Xcel Comanche
WELL NUMBER W-14
JOB NUMBER 10279361
OWNER Xcel
DATE 3/7/22

	TIME	CONDUCTIVITY (μ S/cm)	pH	TEMP. (°C)	TURBIDITY (NTU)	WATER VOLUME REMOVED	WL
Bailer	1207	18738	7.27	14.1	>1000	0 gal	
	1220	19377	7.26	13.8	>1000	2 gal	39.40
	1240	20971	7.32	12.4	>1000	5	39.64
	1256	21945	7.11	13.0	>1000	7	39.46
Sub V pump ↓	1436	23408	7.03	15.3	626	10	39.988
	1445	23726	7.01	15.4	>1100	15	42.35
	1457	23619	7.00	15.5	328	20	40.90
	1510	23645	6.99	15.5	16.7	25	40.65
	1524	23644	6.99	15.5	54.3	30	41.00
	1532	23624	6.99	15.4	58.3	35	41.40
	1545	23804	6.99	15.5	525	40	42.62

NOTES: Static WL = 38.52 TD = 46.25

No inverter for Geosub. Went to 3 stores to purchase inverter for pump. Return to site @ 1430. Reached turb 3/8/22 @ 1347

Large drop in WL @ 55 gal (1620) → Spike in Turbidity

Screen
W14/15-5'
W16-10'

TIME	CONDUCTIVITY ($\mu\text{S/cm}$)	pH	TEMP. ($^{\circ}\text{C}$)	TURBIDITY (NTU)	WATER VOLUME REMOVED
1556	23765	7.00	15.4	111	45
1611	23701	7.00	15.5	12.8	50
1620	24142	6.99	15.5	254	55
1253	21113	7.00	15.4	378	56
1304	20945	7.00	15.6	132	60
1323	21090	6.98	15.7	11.7	65
1334	21088	6.99	15.7	3.53	67.5
1339	21116	6.99	15.7	0.55	70.
1344	21101	6.99	15.7	1.40	72

WL

42.15

41.60

745

39.23

40.50

40.08

40.13

40.15

40.18

Well Development

SITE NAME Xcel Comanche
WELL NUMBER W-15
JOB NUMBER 10279361
OWNER Xcel
DATE 3/8/22

TIME	CONDUCTIVITY (μ S/cm)	pH	TEMP. (°C)	TURBIDITY (NTU)	WATER VOLUME REMOVED

NOTES: Well dry >TD-39.92

Well Development

SITE NAME Xcel Comanche
 WELL NUMBER W-16
 JOB NUMBER 10279361
 OWNER Xcel
 DATE 3/8/22

TIME	CONDUCTIVITY (μ S/cm)	pH	TEMP. (°C)	TURBIDITY (NTU)	WATER VOLUME REMOVED	WL
0920	13150	7.00	12.5	>1100	0.5	37.43
1002	13996	6.83	15.0	>1100	5	37.88
1009	13946	6.79	15.5	814	7.5	37.96
1023	14014	6.78	15.5	612	12.5	38.18
1036	14013	6.77	15.7	831	17.5	38.20
1047	14073	6.76	15.8	288	22.5	38.24
1117	14140	6.76	15.7	89.6	27.5	38.07
1132	14055	6.75	15.7	4.95	32.5	38.11
1137	14130	6.75	15.7	3.73	35.0	38.12
1142	14104	6.75	15.7	6.85	37.5	

NOTES:

Purge Water collected in buckets. Disposed @ W-14 off-site
 @ 1100 to 1210. Reached <10 NTU @ 1145

Well Development

SITE NAME	Xcel Comanche
WELL NUMBER	W-17
JOB NUMBER	
OWNER	Xcel
DATE	10/28/22

Static WL $\rightarrow$ 25.77 bgs
TD $\rightarrow$ 35' bgs + SU = 37.87

TIME	CONDUCTIVITY (μ S/cm)	pH	TEMP. ($^{\circ}$ C)	TURBIDITY (NTU)	WATER VOLUME REMOVED
8:45	8375	6.97	12.7	477	3.0 gal
9:00	8426	6.98	12.7	512	4.25 gal
9:08	7825	6.89	14.3	71100	3.50
9:26	7567	6.90	14.2	71100	4.25
17:26	8228	6.61	16.8	25.5	+ 1 bailer (0.10 g)
17:36	7946	6.70	14.7	859	+ 1.5 g
17:47	7824	6.73	14.0	840	+ 3.0 g
9:30	8008	6.89	14.2	837	+ 3.5 g
9:42	8240	6.95	14.1	785	+ 1.25 g
15:35	8244	6.66	17.3	520	+ 2 g
15:45	8124	6.84	16.3	549	+ 1.5 g

Bailer 10/28

$\rightarrow$ Dry 10/29

Surge block + FV

Bailer

$\rightarrow$ Dry

$\rightarrow$ Bailer, before Surge

$\rightarrow$ Bailer + Surge

$\rightarrow$ Bailer + Surge

$\rightarrow$ Bailer + Surge

$\rightarrow$ Dry

$\rightarrow$ Surge block

$\rightarrow$ Bailer

$\rightarrow$ Dry

NOTES:

Well Development

SITE NAME	
WELL NUMBER	11-17
JOB NUMBER	
OWNER	
DATE	

11/1/22 @ 7:00

SWL → 25.78

Pump on 7:28

2500 ml/min

31.0

- Reduce Flow

300 ml/min

@ 7:35

32.0

33.70

37.07

15:21 → 25.48

- 200 ml/min ↓

28.80

34.00

37.06

26.42

SWL 25.67

@ 8:05

Pump on 8:36

190 ml/min

27.05

TIME	CONDUCTIVITY (μS/cm)	pH	TEMP. (°C)	TURBIDITY (NTU)	WATER VOLUME REMOVED
7:33	7809	6.78	11.3	81.0	+ 2g
7:40	7956	6.79	8.0	107	+ 0.4
7:55	7837	6.79	11.6	59.4	+ 1g
8:05	7994	6.82	8.8	21.6	+ 0.6g
15:40	7860	6.66	19.7	43.2	+ 1.0g
16:00	7916	6.57	19.5	40.1	+ 1.5g
16:09	8120	6.50	19.5	37.6	+ 0.75g
9:00	7855	6.60	14.4	21.1	()g + 740 mL
9:10	7848	6.60	14.4	0.02	+ 1.9L

Geosols

Dry

Dry

Bladder

NOTES: _____

Well Development

SITE NAME	Xcel Comanche
WELL NUMBER	W-18 (Cullen)
JOB NUMBER	10217175
OWNER	F. Ray
DATE	12/20/22

TIME	CONDUCTIVITY ($\mu\text{S}/\text{cm}$)	pH	TEMP. ($^{\circ}\text{C}$)	TURBIDITY (NTU)	WATER VOLUME REMOVED (gal)	Water Level (ft, b.toc)
1050	START	pump				
1055	Restart Pump	(YSE flow cell leaking)			2.5	8.50
1100	11037	7.19	13.4	002	6.5	13.79
1105	10961	7.17	13.3	804	9.5	14.04
1110	10943	7.14	13.3	283	12.0	6 top
1115	10933	7.13	13.3	142	14.5	↓
1120	10935	7.11	13.2	116	17.0	
1125	10940	7.11	13.3	79.0	19.0	
1130	10946	7.10	13.2	49.3	22.0	
1135	10957	7.10	13.3	47.1	24.5	
1140	10961	7.10	13.3	35.2	26.5	
1145	10966	7.09	13.3	37.9	28.0	
1150	10972	7.09	13.3	46.3	31.5	
1155	10975	7.09	13.3	34.0	34.0	
1200	10978	7.09	13.3	31.2	36.5	
1205	11017	7.09	13.3	31.3	39.0	(38.5)
1210	11013	7.09	13.3	25.3	40.0	
1215	11012	7.09	13.3	30.6	41.5	
1220	11018	7.09	13.3	21.9	43.0	
—	STOP PUMP	to dump purge water				
1245	Restart Pump					10.50
1250	11053	7.09	13.4	935	45.5	12.83

NOTES: Had to leave to dump purge water - good recharge;
high turbidity on restart.

43
gal

(gal)

DTW
6 top
↓

TIME	CONDUCTIVITY (μ S/cm)	pH	TEMP. (°C)	TURBIDITY (NTU)	WATER VOLUME REMOVED
1255	11045	7.10	13.4	106	49.0
1300	11033	7.09	13.3	74.5	51.5
1305	11035	7.08	13.3	68.2	53.5
1310	11038	7.08	13.3	53.7	55.5
1315	11037	7.08	13.3	30.3	58.0
1320	11042	7.08	13.3	27.5	60.5
1325	11062	7.08	13.3	27.9	62.0
1330	11056	7.08	13.3	28.3	64.5
1335	11062	7.08	13.3	31.9	67.0
1340	11061	7.07	13.3	19.6	69.0
1345	11057	7.07	13.3	29.4	71.5
1350	11062	7.07	13.3	21.8	74.0
1355	11065	7.07	13.3	15.1	76.0
1400	11064	7.07	13.3	16.3	78.0
1405	11068	7.07	13.3	15.8	80.0
1410	11071	7.07	13.3	25.5	82.5
—	STOP PUMP	—	Lower to clear out more fine sediment		

1/3/23

1410	START PUMP				80.5
1415	11018	7.18	12.4	666 (002)	83.0
1420	11056	7.16	12.3	793	6.0
1425	11040	7.15	12.3	499	10.0
1430	11015	7.15	12.2	991	15.0
1435	11035	7.14	12.2	472	19.0
1440	11028	7.14	12.2	293	22.0
1445	11029	7.13	12.2	86.7	26.0
1450	11036	7.13	12.2	77.1	29.5
1455	11038	7.13	12.2	65.6	33.0
1500	11028	7.13	12.2	31.2	37.5
1505	11021	7.13	12.2	28.2	41.5
1510	11023	7.13	12.2	23.8	43.5
1515	11033	7.12	12.2	30.1	47.0

10.55
10.73
10.80
11.78
11.53
12.20
12.03
12.10
12.26
11.95
11.98
12.03
12.09
12.15
11.82

1520	11070	7.13	12.2	30.4	50.0
1525	11062	7.12	12.2	42.7	53.5

1530 STOP - Dump purge water

1555 Rest art

1600	11047	7.13	12.2	214	57.5	11.45
1605	11056	7.12	12.2	160	61.5	11.53
1610	11050	7.12	12.2	71.1	65.5	11.54
1615	11046	7.11	12.2	36.5	68.5	11.61

53.5 gal

- ①
- ②
- ③

Well Development

SITE NAME Xcel Comanche
WELL NUMBER W-6B (Replacement)
JOB NUMBER 10217175
OWNER F. Davis Ray
DATE 8/18/22

TIME	CONDUCTIVITY (μ S/cm)	pH	TEMP. (°C)	TURBIDITY (NTU)	WATER VOLUME REMOVED (gal)	Depth to Water (ft, bto)
0945	START	PUMP				
0950	40,565	6.86	16.40	00R	1.00	17.30
0955	40,697	6.84	18.59	00R	1.50	17.55
1000	40,962	6.84	18.47	00R	2.00	17.34
1005	41,500	6.80	18.94	00R	2.50	18.80
1010	41,775	6.73	18.22	00R	3.00	18.14
1015	41,732	6.67	18.36	00R	3.50	18.01
1020	43,313	6.59	18.77	00R	4.00	18.62
1025	43,035	6.53	18.12	00R	4.75	18.91
1030	43,068	6.50	18.02	00R	5.25	18.97
1035	43,113	6.46	18.12	00R	5.75	19.08
1040	43,463	6.41	18.14	00R	6.25	19.79
1045	43,337	6.39	18.04	00R	6.75	19.67
1050	43,224	6.38	17.79	639	7.50	19.65
1055	43,158	6.37	18.06	654	8.25	19.68
1100	45,523	6.35	18.02	641	8.75	19.94
1105	45,459	6.35	17.91	596	9.50	19.98
1110	45,201	6.35	17.89	536	10.25	19.99
1115	45,040	6.35	17.81	483	11.00	20.04
1120	44,903	6.36	17.85	443	11.75	20.08
1125	44,747	6.36	18.07	402	12.50	20.15
1130	44,672	6.36	17.96	369	13.25	20.16

NOTES: New W-6B well installed approximately five (5)
feet WSW of original (damaged/abandoned)

Well Development

SITE NAME Xcel Comanche

WELL NUMBER MW-8

JOB NUMBER 10279361

OWNER F. Ray

DATE 12/6/22

TIME	CONDUCTIVITY ($\mu\text{S}/\text{cm}$)	pH	TEMP. ($^{\circ}\text{C}$)	TURBIDITY (NTU)	WATER VOLUME REMOVED (gal)	Water Level (ft, blue)
1015	START BAIL					
1020	Switch to pump	(no fine sediment observed in water)				
1040	START PUMP					
1045	26640	6.83	16.2	00R	3.0	32.97
1050	28415	6.80	16.3	(275)	4.0	32.96
1055	28266	6.78	16.3	951	5.0	33.02
1100	28159	6.77	16.3	865	6.5	33.00
1105	28161	6.78	16.4	581	7.5	33.01
1110	28232	6.78	16.4	246	8.5	33.03
1115	28088	6.77	16.3	199	9.5	33.05
1120	28093	6.77	16.4	215	10.5	33.04
1125	28030	6.76	16.4	80.2	11.5	33.11
1130	27965	6.78	16.5	178	13.0	33.12
1135	27871	6.80	16.5	389	14.0	33.10
1140	27956	6.76	16.5	903	15.0	33.07
1145	27769	6.82	16.5	297	16.0	33.08
1150	27801	6.78	16.5	181	16.75	33.06
1155	27799	6.75	16.6	92.6	17.5	33.05
1200	27472	6.73	16.5	570	19.0	33.85
1205	STOP PUMP	Dump purge water				
1225	Restart pump					
1230	28207	6.77	16.7	434	20.5	33.17

NOTES:

1235	27615	6.79	16.8	1060	21.5	33.22
1240	27461	6.77	16.7	595	22.75	33.29
1245	27398	6.76	16.7	174	24.5	33.34
1250	27419	6.77	16.7	92.2	25.5	33.37
1255	27357	6.78	16.7	47.9	27.5	33.53
1300	27373	6.77	16.6	72.9	29.0	33.59

Groundwater Sampling Field Data Sheets

01/14 55°F
Sunny

01/14 50°F
p. cloudy
Very
windy
20-30
mph

Water Sample Collection Field Data Sheet

Site Name: Gomanche Well ID: W-1
Sample I.D. (match bottle and COC form exactly): W-1
Date/Time Collected (match bottle and COC form exactly): 01-14-22 1200
Personnel: Kent

Sample Method: bladder (purge), bailer (sampling)

Water level meter, pump, and tubing decontaminated prior: Yes No

Sample QC: Duplicate Yes No Duplicate Sample ID:

Sample QC: Equipment Blank Yes No Equip Blank Sample ID:

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) 16'

Date: 10 JAN 2022 Depth to Water (ft, btoc) 11.07' TD = 18.20

Time Completed: 1500 Total Purge ~9 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)	Rate mL/min
1410	<u>Start pump</u>							<u>11.07</u>	
1415	<u>1000</u>	<u>7.35</u>	<u>30211</u>	<u>1.80</u>	<u>4.50</u>	<u>16.6</u>	<u>-77.1</u>		<u>50</u>
1420	<u>2000</u>	<u>7.38</u>	<u>30442</u>	<u>3.74</u>	<u>4.02</u>	<u>16.5</u>	<u>-77.2</u>	<u>12.49</u>	<u>200</u>
1425	<u>3000</u>	<u>7.38</u>	<u>30404</u>	<u>4.00</u>	<u>3.82</u>	<u>16.5</u>	<u>-77.1</u>	<u>12.82</u>	<u>200</u>
1430	<u>4000</u>	<u>7.37</u>	<u>30369</u>	<u>2.54</u>	<u>3.61</u>	<u>16.5</u>	<u>-77.0</u>	<u>13.42</u>	<u>200</u>
1435	<u>5000</u>	<u>7.37</u>	<u>30378</u>	<u>2.39</u>	<u>3.49</u>	<u>16.5</u>	<u>-77.1</u>	<u>14.00</u>	
1440	<u>6000</u>	<u>7.32</u>	<u>30348</u>	<u>1.68</u>	<u>3.29</u>	<u>16.6</u>	<u>-77.3</u>	<u>btp</u>	
1445	<u>7000</u>	<u>7.32</u>	<u>30401</u>	<u>0.45</u>	<u>3.10</u>	<u>16.5</u>	<u>-77.9</u>	<u>btp</u>	
1450	<u>8000</u>	<u>7.18</u>	<u>30465</u>	<u>0.32</u>	<u>2.59</u>	<u>16.9</u>	<u>-79.8</u>	<u>btp</u>	
1455	<u>8750</u>	<u>7.16</u>	<u>30571</u>	<u>0.71</u>	<u>2.60</u>	<u>16.6</u>	<u>-80.0</u>	<u>btp</u>	
1500									

Flow Rate 200

Pump controller setting

General Comments: FT/DT = 12/10

btp: below top of pump

1/14/2022 - returned to bail sample (~2.5L)

drop
pump to
near
bottom to
purge dry

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID.: W-2

Sample I.D.(match bottle and COC form exactly): _____

Date/Time Collected (match bottle and COC form exactly): _____

Personnel: Levi

Sample Method: _____

Water level meter, pump, and tubing decontaminated prior:	Yes	No
---	-----	----

Sample QC: Duplicate Yes No Duplicate Sample ID: _____

Sample QC: Equipment Blank Yes No Equip Blank Sample ID: _____

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) _____

Date: 01 JAN 2022 Depth to Water (ft, btoc) 15.60

Time Completed: _____ Total Purge _____ Units _____

Field Measurements: Fill In All Blanks[illegible]

Flow Rate		
-----------	--	--

Pump controller setting

General Comments:

55°F
Sunny

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID.: W-2A
 Sample I.D.(match bottle and COC form exactly): W-2A
 Date/Time Collected (match bottle and COC form exactly): 01-12-22 1415
 Personnel: Kent
 Sample Method: bladder
 Water level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ No
 Sample QC: Duplicate Yes ☒ No Duplicate Sample ID:
 Sample QC: Equipment Blank Yes ☒ No Equip Blank Sample ID:
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) 33'
 Date: 12 JAN 2022 Depth to Water (ft, btoc) 26.91 TD = 36.40
 Time Completed: 1445 Total Purge 7 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	✓ pH	✓ COND (mS/m)	TURB (NTU)	✓ DO (mg/L)	✓ TEMP (C°)	✓ ORP (mV)	Water Depth (ft, btoc)
1338	Start pump							26.91
1350	2000	6.52	39067	12.2	1.03	16.7	-124.7	27.75
1355	3000	6.52	39309	8.94	0.87	16.4	-126.6	28.44
1400	4000	6.52	39283	9.41	0.79	16.4	-127.1	28.55
1405	5000	6.53	39145	7.90	0.75	16.3	-126.2	28.71
1410	6000	6.53	39135	9.45	0.72	16.4	-126.8	28.94
1415	7000	6.51	39318	9.73	0.80	16.2	-124.3	29.10
1445	Stop pump							

Rate
ml/min
200
200
200
200

Flow Rate 200ml/min
 Pump controller setting FT/DT 15/10

General Comments:
orange - yellow water

68°F

Sunny

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID.: W-3
 Sample I.D. (match bottle and COC form exactly): W-3
 Date/Time Collected (match bottle and COC form exactly): 01-13-22 1455
 Personnel: Kent

Sample Method: bladder

Water level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ No

Sample QC: Duplicate ☒ Yes ☐ No

Duplicate Sample ID: W-3D @ 1455

Sample QC: Equipment Blank ☐ Yes ☒ No

Equip Blank Sample ID:

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) 28

Date: 13 JAN 2022

Depth to Water (ft, btoc) 14.4 (1/10/2022)

Time Completed: 1310

Total Purge 11 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	✓ pH	✓ COND (mS/m)	TURB (NTU)	✓ DO (mg/L)	✓ TEMP (C°)	✓ ORP (mV)	Water Depth (ft, btoc)	Rate mL/min
1333	Start	pump							300
1340	2000	7.66	2099	48.9	8.37	12.4	-177.4		300
1350	3500	7.64	2081	40.1	7.73	12.6	-173.3		200
1355	4500	7.62	2080	31.6	7.31	12.8	-171.8		200
1400	5500	7.61	2080	20.8	7.45	12.5	-170.4		
1405	6500	7.61	2081	14.1	7.26	12.7	-168.5		
1410	7500	7.61	2084	10.6	7.04	12.7	-168.0		
1415	8500	7.62	2093	8.84	4.14	12.4	-167.4		
1420	9500	7.62	2090	8.31	4.21	12.4	-167.4		
1425	10500	7.62	2091	5.64	4.13	12.4	-167.8		
1310	pump off								

Flow Rate

Pump controller setting FT/DI → 22/6

General Comments:

WL tape not
working
dtw is based on
1/10 WL sweep

68°F
Sunny

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID.: W-3B
Sample I.D. (match bottle and COC form exactly): W-3B
Date/Time Collected (match bottle and COC form exactly): 01-13-22 1645
Personnel: Kent

Sample Method: bladder

Water level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ No

Sample QC: Duplicate Yes ☒ No Duplicate Sample ID: _____

Sample QC: Equipment Blank Yes ☒ No Equip Blank Sample ID: _____

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) 44'

Date: 13 JAN 2022

Depth to Water (ft, btoc) 17.06 (from 01/10/22)

Time Completed: 1705

Total Purge 16 Units L

TD=47.60

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	✓ pH	✓ COND (mS/m)	TURB (NTU)	✓ DO (mg/L)	TEMP (C°)	✓ ORP (mV)	Water Depth (ft, btoc)	Rate mL/min
1520	start pump							17.06	200
1530	1000	6.64	44757	13.3	2.70	15.3	-171.6		200
1540	3000	6.60	48905	73.5	1.24	15.1	-193.4		200
1550	5000	6.59	43252	53.6	1.02	15.0	-195.9		
1600	7000	6.58	43101	38.6	1.07	14.8	-197.7		
1610	9000	6.57	43682	29.5	0.14	14.6	-198.1		
1620	11000	6.57	43608	19.7	0.13	14.6	-198.1		
1625	12000	6.57	43496	16.1	0.13	14.6	-198.1		
1630	13000	6.56	43372	11.9	0.12	14.6	-199.4		200
1635	14000	6.56	43769	10.0	0.12	14.4	-197.4		
1640	15000	6.56	43820	9.61	0.19	14.4	-196.5		
1645	16000	6.56	43795	9.83	0.21	14.3	-197.3		
1705	pump off								

Flow Rate 200 mL/min

Pump controller setting FT/DT → 23/12

General Comments:

orange-yellow water

- WL meter
not working
- Static based on
1/10 reading

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID.: W-4

Sample I.D.(match bottle and COC form exactly): _____

Date/Time Collected (match bottle and COC form exactly): _____

Personnel: Kent

Sample Method: bailer

Water level meter, pump, and tubing decontaminated prior: Yes No

Sample QC: Duplicate Yes ☒ No ☐ Duplicate Sample ID: _____

Sample QC: Equipment Blank Yes ☐ No ☒ Equip Blank Sample ID: _____

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) 27'

Date: 10 JAN 2022

Depth to Water (ft, btoc) 25.91 T_D = 27.63

Time Completed: 1540

Total Purge ~1.1 Units /

Field Measurements: Fill In All Blanks

[illegible]

Flow Rate Varied

Pump controller setting bailed

General Comments:

1/14/2022 Returned to well to
@ 1130 check for recharge, none

55°F
Sunny

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID: W-5

Sample I.D. (match bottle and COC form exactly): W-5

Date/Time Collected (match bottle and COC form exactly): 01-10-22 1635

Personnel: Kent

Sample Method: bladder

Water level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ No

Sample QC: Duplicate Yes ☐ No ☒ Duplicate Sample ID:

Sample QC: Equipment Blank Yes ☐ No ☒ Equip Blank Sample ID:

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) 25'

Date: 01-10-22

Depth to Water (ft, btoc) 10.19

TD = 27.80

Time Completed: 1710

Total Purge 9 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	+0.1 pH	60% COND (mS/m)	TURB (NTU)	10% DO (mg/L)	X TEMP (C°)	±10 ORP (mV)	Water Depth (ft, btoc)	Rate mL/min
1554	start pump							10.19	
1600	1500	7.18	32751	2.37	5.96	16.2	-94.2	10.58	200
1605	2500	7.19	32685	2.68	5.69	15.9	-95.1	10.80	200
1610	3500	7.19	32867	2.43	5.31	15.9	-95.7	11.01	200
1615	4500	7.19	32621	2.64	5.10	15.7	-95.1	11.20	
1620	5500	7.20	31930	4.28	4.93	15.6	-94.8	11.38	
1625	6500	7.20	30360	4.56	4.76	15.6	-97.4	11.53	200
1630	7500	7.21	29296	3.14	4.68	15.5	-98.5	11.78	
1635	8500	7.18	29764	4.36	4.75	15.5	-96.8	11.92	
1710	pump off								

Flow Rate 200

Pump controller setting FT/DT 15/6

General Comments:

pale-pale yellow-colored water

48°F

Summer

very / Windy
dusty 10-20 mph

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID: W-5B

Sample I.D. (match bottle and COC form exactly): W-5B

Date/Time Collected (match bottle and COC form exactly): 01-14-22 900

Personnel: Kent

Sample Method: bladder

Water level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ No

Sample QC: Duplicate Yes ☒ No ☐ Duplicate Sample ID: _____

Sample QC: Equipment Blank Yes ☒ No ☐ Equip Blank Sample ID: _____

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) 39'

Date: 01-14-2022

Depth to Water (ft, btoc) 11.32 TD = 48.35

Time Completed: 923

Total Purge 10 Units L

→ based on 01/10 static WL sweep

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	✓ pH	50% COND (mS/m)	✓ TURB (NTU)	✓ DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
0809	Start Pump							11.32
0820	2500	7.05	12742	6.68	0.60	16.0	-114.6	
0825	3500	7.07	9575	2.51	0.75	16.0	-129.4	
0830	4500	7.10	8340	2.02	0.64	16.1	-137.4	
0835	5500	7.12	7327	1.48	0.54	16.2	-144.1	
0840	6500	7.12	7292	2.09	0.52	16.6	-148.1	
0845	7500	7.13	7062	0.98	0.53	16.6	-151.2	
0850	8500	7.15	6375	1.93	0.43	15.5	-152.1	
0855	9500	7.15	6088	2.12	0.43	15.8	-154.4	
0900	10500	7.15	6878	2.18	0.42	15.7	-155.3	

Rate
mL/min
300
200

Flow Rate 200
Pump controller setting FT/DT → 25/7

General Comments: pale, yellow-colored water

WL meter does not work
constant beeping (short in tape)

(*) Very, very, windy during sampling;
dust flying from (N)

33°
Sunny

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID: W-6
 Sample I.D. (match bottle and COC form exactly): W-6
 Date/Time Collected (match bottle and COC form exactly): 01-11-22 940
 Personnel: Kent

Sample Method: bladder

Water level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ No

Sample QC: Duplicate Yes ☒ No ☐ Duplicate Sample ID:

Sample QC: Equipment Blank Yes ☒ No ☐ Equip Blank Sample ID:

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) 27'

Date: 01-11-22 Depth to Water (ft, btoc) 13.02 TD 29.50

Time Completed: 1015 Total Purge 8 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	^{0.1} ✓ pH	^{5.0} ✓ COND (mS/m)	TURB (NTU)	^{1.00} ✓ DO (mg/L)	✓ TEMP (C°)	✓ ORP (mV)	Water Depth (ft, btoc)	Rate mL/min
0845	start pump							13.02	
0850	500	7.34	10449	18.5	1.47	15.0	-112.5	13.10	250
0855	1250	7.37	10462	17.4	1.42	12.8	-115.6	13.18	200
0900	2000	7.38	10395	16.8	1.24	13.1	-117.6	13.24	150
0905	2750	7.38	10402	15.6	1.22	13.2	-119.2	13.42	
0910	3500	7.39	10377	14.4	1.02	13.8	-121.2	13.61	
0915	4250	7.40	10382	11.1	0.86	13.9	-123.1	13.91	
0920	5000	7.41	10326	9.20	0.61	14.0	-124.0	14.00	150
0925	5750	7.40	10492	9.68	0.23	15.0	-120.0	14.40	
0930	6500	7.41	10452	6.44	0.17	14.6	-122.2	14.91	
0935	7250	7.42	10308	5.98	0.20	14.4	-123.4	15.09	150
0940	8000	7.43	10202	4.12	0.22	14.5	-123.6	15.20	
1015	pump off								

Flow Rate 150 mL/min

Pump controller setting FT/DT

General Comments:

pale yellow-colored H₂O

pg 1 of 2

50°
Sunny

Water Sample Collection Field Data Sheet

Site Name: ComancheWell ID.: W-6BPersonnel: KentDate: 11 JAN 2022Static Depth to Water (ft, btoc) 14.45

TD = 45

Date/Time Sample Collected (match bottle and COC form exactly): 01-11-22 1435Sample Method: bladder

Water level meter, pump, and tubing decontaminated prior:

Yes

No

Sample QC: Duplicate

Yes

NoDuplicate Sample ID: —

Sample QC: Equipment Blank

Yes

NoEquip Blank Sample ID: —

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) 43'Time Completed: 1520Total Purge 38 Units LSample I.D. (match bottle and COC form exactly): W-6B

Field Measurements:

WL tape
is
shorting out

Time (24 hour)	Amount purged (ml)	✓ pH	✓ COND (µS/cm)	TURB (NTU)	✓ DO (mg/L)	TEMP (C°)	✓ ORP (mV)	Purging Water Depth (ft, btoc)
1040	Start pump							
1050	1000	6.85	43998	338	1.63	16.2	-116.0	14.65
1100	1700	6.85	43369	205	1.13	15.8	-121.2	14.78
1110	3000	6.81	42377	110	0.93	15.9	-120.7	15.00
1120	4500	6.75	41335	70.1	0.84	16.2	-120.1	15.70
1130	6000	6.72	40972	96.8	0.65	16.1	-118.2	15.85
1140	7500	6.71	40581	98.9	0.71	16.1	-117.3	16.05
1150	9000	6.70	41145	91.1	0.64	16.3	-118.0	16.10
1200	11000	6.69	41264	70.9	0.64	16.4	-119.2	16.10
1210	13500	6.68	42956	67.4	0.23	16.5	-110.1	16.10
1220	15000	6.68	42634	50.9	0.14	16.5	-114.2	16.05
1230	17000	6.65	42133	40.1	0.85	16.7	-112.4	16.05
1240	19500	6.67	41599	31.3	0.12	16.6	-114.7	16.05
1250	21000	6.67	41260	25.7	0.10	16.7	-115.4	16.05
1300	22500	6.67	40885	20.3	0.10	16.6	-116.6	
1310	24000	6.67	40558	20.8	0.14	16.6	-119.0	
1320	25500	6.70	43341	18.4	1.36	16.6	-108.3	

Flow Rate 150 ml/minPump controller setting FT/DT 20/7

General Comments:

yellow-colored H₂O & slightly effervescent

Next

Page

NTU's were not consistently under 10 NTU during
sample so pulled an extra 500ml for diss. metals

Water Sample Collection Field Data Sheet Continuation Page

Site Name: Comanche

Well ID.: 10-6B

Field Measurements:

[illegible]

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID.: W-7
 Sample I.D. (match bottle and COC form exactly): W-7
 Date/Time Collected (match bottle and COC form exactly): 01-12-22 1205
 Personnel: Kent 01-12-22 1255
 Sample Method: bladder
 Water level meter, pump, and tubing decontaminated prior: Yes No
 Sample QC: Duplicate Yes No Duplicate Sample ID: _____
 Sample QC: Equipment Blank Yes No Equip Blank Sample ID: W-7EB
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) 21'
 Date: 01-12-22 Depth to Water (ft, btoc) 7.75
 Time Completed: 1315 Total Purge 27 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	✓ pH	✓ COND (mS/m)	TURB (NTU)	✓ DO (mg/L)	TEMP (C°)	✓ ORP (mV)	Water Depth (ft, btoc)	Rate ml/min
0823	start pump							7.75	
0830	2000	6.68	40415	16.9	3.27	14.1	12.8	7.82	350
0835	3000	6.69	40359	15.5	1.98	14.1	-47.6	7.84	225
0840	4500	6.69	40215	20.2	1.82	14.1	-63.8	7.94	
0845	5500	6.69	40067	25.0	1.63	13.9	-75.4	7.88	200
0905	9000	6.64	39853	>40	2.19	14.1	-93.2	8.25	100
0915	10000	6.64	39561	24.9	1.59	10.7	-101.4	7.88	100
0925	11000	6.68	39506	19.6	1.53	11.4	-102.3	7.85	
0935	12000	6.64	40394	17.0	1.50	11.4	-107.0	7.72	100
0945	13000	6.66	40501	14.9	1.04	12.2	-110.8	7.80	
0950	13500	6.66	40572	18.5	1.01	12.4	-112.6	7.82	
1000	14500	6.66	40620	19.7	0.97	12.9	-109.5	7.85	
1005	15000	6.66	40584	20.3	0.95	13.2	-112.9	7.85	
1015	16000	6.67	40696	22.5	0.95	13.1	-110.5	7.85	
1020	16500	6.67	40550	23.3	0.95	13.6	-114.4		
1025	17000	6.66	40532	21.2	0.93	14.0	-115.3	7.85	
1030	17500	6.65	40552	20.9	0.95	13.9	-112.2	7.85	

Flow Rate 100 ml/minPump controller setting FT/DT 23/5

General Comments:

yellow-orange colored H₂O

→ NTU's still in teens after 3hr, all else stabilized
 pulled 1 extra bottle for diss. metals

01-12-2022

Water Sample Collection Field Data Sheet Continuation Page

Site Name: Comanche

Well ID.: W-7

Field Measurements:

Time (24 hour)	Amount purged (ml)	✓ pH	59° ✓ COND (μS/cm)	TURB (NTU)	100% ✓ DO (mg/L)	TEMP (C°)	✓ ORP (mV)	Purging Water Depth (ft, btoc)
1035	18000	6.64	40500	22.2	1.06	13.9	-114.8	7.85
1040	18500	6.66	40330	22.4	0.95	14.6	-116.7	7.85
1050	19500	6.66	40240	24.4	0.93	14.9	-117.3	7.85
1100	20500	6.66	40329	20.9	0.93	15.0	-118.1	7.88
1110	21500	6.65	40649	18.3	1.23	15.6	-112.1	7.88
1115	22000	6.66	40577	19.7	1.19	15.4	-115.1	7.88
1120	22800	6.66	40690	20.2	0.96	15.3	-109.2	
1125	23000	6.65	40630	23.5	0.97	15.7	-115.3	7.88
1130	23500	6.65	40687	22.3	0.98	15.7	-116.9	
1135	24000	6.64	40999	20.8	1.05	15.8	-117.0	7.88
1140	24500	6.65	40243	22.4	0.94	16.2	-117.4	
1145	25000	6.65	40420	23.5	1.23	16.2	-118.2	7.88
1150	25500	6.66	40762	21.3	1.01	16.2	-110.1	
1155	26000	6.68	40398	19.8	1.14	16.3	-102.3	7.88
1200	26500	6.65	40424	17.5	1.15	16.2	-102.4	
1205	27000	6.65	40249	17.1	1.10	16.5	-103.4	
Sampling				→ 14.3				
				14.8				
				13.3				
1240	STOP Pump							

Water Sample Collection Field Data Sheet

Site Name: Manche Well ID: W-8A

Sample I.D.(match bottle and COC form exactly): _____

Date/Time Collected (match bottle and COC form exactly): _____

Personnel: Kent

Sample Method: _____

Water level meter, pump, and tubing decontaminated prior:	Yes	No
---	-----	----

Sample QC: Duplicate Yes No Duplicate Sample ID: _____

Sample QC: Equipment Blank Yes No Equip Blank Sample ID: _____

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) _____

Date: 10 JAN 2022 Depth to Water (ft, btoc) 32.32

Time Completed: _____ Total Purge _____ Units _____

Field Measurements: Fill In All Blanks

[illegible]

Flow Rate		
-----------	--	--

Pump controller setting_____

General Comments:

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID.: W-9

Sample I.D.(match bottle and COC form exactly): W-9

Date/Time Collected (match bottle and COC form exactly): 01-11-22 1620

Personnel: Kent

Sample Method: bladder

Water level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ No

Sample QC: Duplicate Yes ☒ No ☐ Duplicate Sample ID: _____

Sample QC: Equipment Blank Yes ☐ No ☒ Equip Blank Sample ID:

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) 39.5'

Date: 01-11-22

Depth to Water (ft, btoc) 35.96 TD = 40.90

Time Completed: 1706

Total Purge ~5 Units 6

Field Measurements: Fill In All Blanks[illegible]

Flow Rate 100 ml/min

Pump controller setting_____

General Comments:

pale-pale yellowish color

btp: below top of pump

35°F
Sunny

Water Sample Collection Field Data Sheet

Site Name: Corranche Well ID.: W-11
 Sample I.D. (match bottle and COC form exactly): W-11
 Date/Time Collected (match bottle and COC form exactly): 01-13-22 1050
 Personnel: Kent

Sample Method: bladder

Water level meter, pump, and tubing decontaminated prior: Yes No

Sample QC: Duplicate Yes No Duplicate Sample ID:

Sample QC: Equipment Blank Yes No Equip Blank Sample ID:

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) 33'

Date: 01-13-22 Depth to Water (ft, btoc) 23.78 TD = 35.50

Time Completed: 1120 Total Purge Units

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	✓ pH	✓ COND (mS/m)	TURB (NTU)	✓ DO (mg/L)	TEMP (C°)	✓ ORP (mV)	Water Depth (ft, btoc)	Rate ml/min
0823	Start pump							23.78	300
0835	1000	6.98	17665	11.8	6.48	10.4	-36.2		150
0840	2000	6.96	18477	12.9	6.57	11.2	-32.2		125
0845	3000	6.97	18347	66.5	6.13	10.9	-33.1		100
0855	4000	6.91	18448	137	6.41	10.8	-46.7		
0905	5000	6.95	18526	166	5.59	11.9	-74.7		
0915	6000	6.96	18440	190	6.16	11.9	-89.9		
0925	7000	6.97	18367	186	4.72	12.2	-97.7		
0925	8000	6.97	18365	167	4.56	12.4	-101.7		100
0935	9000	6.97	18264	182	4.33	12.8	-104.2		275
0945	10000	6.96	18146	74.9	4.01	14.0	-106.8		300
0955	11000	6.96	18733	59.6	0.87	13.8	-101.4		175
1005	12000	6.95	18752	63.9	0.78	14.2	-109.3		150
1015	13000	6.96	18822	60.4	0.75	14.3	-112.1		
1025	14000	6.95	18963	45.2	0.74	14.4	-114.5		150
1030	15000	6.95	18913	09.1	0.71	14.8	-115.0		
1035	16000	6.95	18923	34.6	0.70	14.8	-115.4		

Flow Rate

Pump controller setting FT/DT 21/4

General Comments:

- orange-ish-yellow color water

- pulled extra bottle for diss. metals

- WL tape not working, constant beeping
 Troubleshoot → short in actual tape

adjusting
 Rate to
 see if
 NTU will
 drop
 ↓

Water Sample Collection Field Data Sheet Continuation Page

Site Name: Comanche

Well ID.: W-11

Field Measurements:

[illegible]

50°F
Sunny

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID.: W-12
 Sample I.D. (match bottle and COC form exactly): W-12
 Date/Time Collected (match bottle and COC form exactly): 01-13-22 1245
 Personnel: Kent
 Sample Method: bladder
 Water level meter, pump, and tubing decontaminated prior: Yes No
 Sample QC: Duplicate Yes No Duplicate Sample ID:
 Sample QC: Equipment Blank Yes No Equip Blank Sample ID:
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) 25'
 Date: 01-13-22 Depth to Water (ft, btoc) 22.02 TD 27.15
 Time Completed: 1310 Total Purge 10 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	✓ pH	✓ COND (mS/m)	TURB (NTU)	✓ DO (mg/L)	TEMP (C°)	✓ ORP (mV)	Water Depth (ft, btoc)	Rate ml/min
1132	start	pump						22.02	225
1140	1000	6.92	22412	17.0	0.33	15.9	-114.6		100
1145	1500	6.92	22518	20.3	0.22	16.0	-124.5		100
1150	2000	6.92	22669	58.1	0.30	15.6	-126.4		
1155	3500	6.95	22352	73.4	1.98	15.1	-129.8		
1200	4500	6.92	22803	69.4	0.50	15.0	-131.7		
1205	5000	6.89	23563	52.2	0.22	15.5	-135.8		
1210	6250	6.90	22994	19.4	0.12	15.4	-137.9		
1215	7000	6.90	23074	34.4	0.08	15.5	-136.1		
1220	7500	6.90	23045	28.6	0.18	15.6	-132.4		
1225	8000	6.90	23003	19.8	0.15	15.7	-137.2		
1230	8500	6.90	23015	14.1	0.26	15.7	-137.8		
1235	9000	6.91	23016	19.6	0.35	15.7	-137.1		
1240	9500	6.91	23006	8.14	0.36	15.5	-138.2		
1245	10000	6.91	22962	8.03	0.40	15.7	-138.7		

Flow Rate 100 ml/min
 Pump controller setting FT/DT → 22/7
 General Comments:

yellow colored H₂O

WL meter
not working

Static is based
on 1/10 WL
sweep

Water Sample Collection Field Data Sheet

Site Name: Umanche Well ID.: W-13

Sample I.D.(match bottle and COC form exactly): _____

Date/Time Collected (match bottle and COC form exactly): _____

Personnel: Kent

Sample Method: _____

Water level meter, pump, and tubing decontaminated prior:	Yes	No
---	-----	----

Sample QC: Duplicate Yes No Duplicate Sample ID: _____

Sample QC: Equipment Blank Yes No Equip Blank Sample ID: _____

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) _____

Date: 10 JAN 2022 Depth to Water (ft, btoc) 31.80

Time Completed: _____ Total Purge _____ Units _____

Field Measurements: Fill In All Blanks

[illegible]

Flow Rate

Pump controller setting_____

General Comments:

WL meter
 — not working
 — dtw is
 from 1/10/22
 initial
 sweep

Site Name: Xcel Courville Well ID.: W-1
 Personnel: E. Union
 Date: 21 Feb 22 Static Depth to Water (ft, btoc) 10.52
 Date/Time Sample Collected (match bottle and COC form exactly): 02/25/22 1235
 Sample Method: Bladder Pump
 Water level meter, pump, and tubing decontaminated prior: Yes No
 Sample QC: Duplicate Yes No Duplicate Sample ID:
 Sample QC: Equipment Blank Yes No Equip Blank Sample ID:
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) 18
 Time Completed: 2/21/22 1638 Total Purge 10 Units 6
 Sample I.D. (match bottle and COC form exactly): W-1

[illegible]

General Comments: (2/2) Weigh dry after 10C, return to sample later.

Water Sample Collection Field Data Sheet

Site Name: Xcel - Cananche Well ID: W-2A
 Personnel: E. Miller
 Date: 22 Feb 22 Static Depth to Water (ft, btoc) 26.47
 Date/Time Sample Collected (match bottle and COC form exactly): 02/22/22 1452
 Sample Method: LF Radde Pump
 Water level meter, pump, and tubing decontaminated prior: Yes No
 Sample QC: Duplicate Yes No Duplicate Sample ID:
 Sample QC: Equipment Blank Yes No Equip Blank Sample ID:
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) 31.35
 Time Completed: 1440 Total Purge 63 Units L
 Sample I.D. (match bottle and COC form exactly): W-2A

Field Measurements:

Time (24 hour)	Amount purged (ml)	pH	COND (µS/cm)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Purging Water Depth (ft, btoc)
0956	0		Start Pump					
1005	4000	6.56	41162	17.6	2.91	13.0	-131.2	28.88
1015	7600	6.53	47127	21.3	0.91	12.6	-156.7	29.40
1025	9000	6.54	42316	80.8	0.84	12.7	-156.6	30.00
1040	12500	6.54	41677	70.7	0.84	12.7	-135.3	30.15
1050	11000	6.54	41272	60.0	0.35	12.8	-176.7	30.30
1100	17000	6.54	41031	61.0	0.82	12.6	-177.1	30.50
1110	19000	6.54	40892	59.0	0.70	12.8	-180.9	30.68
1120	22000	6.54	41009	52.3	0.72	13.0	-183.6	30.70
1130	24000	6.56	40855	51.0	0.83	12.3	-176.6	30.90
1140	26000	6.54	40755	56.2	0.71	13.3	-184.6	31.00
1150	28000	6.53	40416	43.3	0.67	13.8	-185	Below Pump, Move Lower
1200	30500	6.50	54180	32.6	0.58	15.7	-185.1	31.05
1210	33000	6.52	44544	28.4	0.73	13.4	-191.7	31.15
1220	35000	6.54	42302	21.8	0.72	12.3	-179.2	31.25
1230	37000	6.54	40682	23.3	0.63	13.1	-191.5	31.25
1240	39000	6.54	40451	27.1	0.62	12.6	-192.3	31.25

Flow Rate 200

Pump controller setting D12 F25

General Comments:

Site Name: Xcel Couranche

Well ID.: W-2A

[illegible]

Water Sample Collection Field Data Sheet

Site Name: Xcel Conanche Well ID: W-2C

Personnel: E. Martinez

Date: 22 Feb 22 Static Depth to Water (ft, btoc) 27.83

Date/Time Sample Collected (match bottle and COC form exactly): 2/23/22 1020

Sample Method: LF bladder pump

Water level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ No

Sample QC: Duplicate Yes ☐ No ☒ Duplicate Sample ID:

Sample QC: Equipment Blank Yes ☐ No ☒ Equip Blank Sample ID:

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) 35

Time Completed: 2/23 1015 Total Purge 29 Units L

Sample I.D. (match bottle and COC form exactly): W-2C

Field Measurements:

Time (24 hour)	Amount purged (ml)	pH	COND (µS/cm)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Purging Water Depth (ft, btoc)
1535	0							
1540	1000	6.48	38291	26.6	4.07	12.1	-173.8	25.70
1550	5560	6.57	34777	24.4	0.92	13.8	-172.6	29.00
1600	8500	6.58	34606	27.7	2.30	13.9	-157.2	29.20
1610	10500	6.60	34908	26.8	5.78	13.9	-138.3	29.20
1630	14000	6.58	35967	38.6	6.66	13.8	-152.5	29.40
1640	20000	6.58	35603	32.9	6.29	13.8	-153.3	29.5
1650	22000	6.58	36152	26.2	5.61	13.8	-149.6	29.55
1700	24000	6.58	35917	22.5	5.37	13.8	-141.4	29.60
1710	26000	6.57	36195	18.2	5.17	13.7	-131.0	29.65
1720	28000	6.57	36609	18.7	5.33	13.4	-144.9	29.68
1730	30000	6.57	36805	17.4	1.04	13.6	-170.6	29.70
2/23 0828	Restart							
0835	3000	6.56	35915	49.3	2.01	12.7	-194.2	28.65
0845	6000	6.57	34472	30.9	1.81	12.8	-185.1	29.00
0855	8500	6.55	34491	26.2	1.83	13.0	-172.3	29.10
0905	11000	6.58	35242	33.3	1.72	12.9	-167.6	29.15

Flow Rate 250

Pump controller setting D13 F22

General Comments:

2/22: Had to stop, not stabilizing + losing light with
snowstorm moving in. Rebn, in morning.

Site Name: _____ Well ID: W-2C

Site Name:

Well ID.: W-2C

[illegible]

Site Name: Xcel Commerce Well ID: W-3

Well ID.: WJ-3

Static Depth to Water (ft, btoc) 11.77

62/23/22 1245

DUP @ 1250
(W-30)

☒ Yes

No

☒ Yes ☐ No

Duplicate Sample ID: W-310 (e 1280)

Yes ☒ No

Equip Blank Sample ID: _____

Depth of Sample Collection (pump depth) (ft, btoc) 24

Time Completed: 12 35 Total Purge 19 Units 2

Sample I.D.(match bottle and COC form exactly): W-3

[illegible]

Flow Rate 30

Pump controller setting DID F15

General Comments:

Water Sample Collection Field Data Sheet

Site Name: Xcel Conanche Well ID: W-3B

Personnel: E Minor

Date: 2/23/22 Static Depth to Water (ft, btoc) 15.94

Date/Time Sample Collected (match bottle and COC form exactly): 02/23/22 1600

Sample Method: LF Bladder Pump

Water level meter, pump, and tubing decontaminated prior: Yes No

Sample QC: Duplicate Yes No Duplicate Sample ID:

Sample QC: Equipment Blank Yes ~~No~~ Equip Blank Sample ID: X W-3BEB

Well Purging Data (Fill In All Blanks) @ 1640

Depth of Sample Collection (pump depth) (ft, btoc) 42

Time Completed: 1610 Total Purge 48 Units L

Sample I.D. (match bottle and COC form exactly): W-3B

Field Measurements:

Time (24 hour)	Amount purged (ml)	pH	COND (µS/cm)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Purging Water Depth (ft, btoc)
1343	0		Start	Purge				
1350	4000	6.15	44193	103	7.90	11.4	-185.7	17.20
1400	7500	6.55	44230	55.4	4.79	11.3	-179.0	17.60
1410	10500	6.55	44532	24.8	0.92	10.4	-181.9	17.85
1420	13000	6.54	44159	15.6	2.58	11.3	-183.5	17.90
1430	16000	6.54	44515	12.5	3.52	10.4	-186.5	18.00
1440	20000	6.53	44721	9.57	6.56	10.9	-184.2	18.15
1450	23000	6.54	44754	5.93	7.84	10.4	-186.4	18.20
1500	26000	6.54	44082	2.98	3.39	11.2	-194.1	18.30
1510	29000	6.53	44429	0.88	3.06	10.6	-194.1	18.40
1515	30500	6.54	44820	2.28	3.02	10.7	-186.5	18.40
1520	32000	6.53	44450	2.36	2.25	10.9	-177.2	18.40
1525	34500	6.54	44173	0.69	3.29	10.4	-187.9	18.40
1530	36000	6.53	43900	1.82	2.19	10.6	-192.2	18.40
1535	37500	6.53	43435	0.70	0.59	10.4	-198.4	18.40
1540	39000	6.53	44580	0.85	1.14	10.8	-201.5	18.40
1548	40500	6.53	44643	0.98	2.12	10.1	-202.9	18.40

Flow Rate 300

Pump controller setting D13 F20

General Comments:

Site Name: Xcel Commerce Well ID.: W-3B

Well ID.: W-3.B

[illegible]

300
300
300
300
300

Site Name: Comanche Well ID: W-4

Date: 3/2/22 Static Depth to Water (ft, btoc) 26.40
Date/Time Sample Collected (match bottle and COC form exactly): 3/2/22 1140
Sample Method: Shallow Bailer

Sample QC: Duplicate Yes ☒ No ☐ Duplicate Sample ID: _____

Sample QC: Equipment Blank Yes ☐ No ☒ Equip Blank Sample ID: _____

Depth of Sample Collection (pump depth) (ft, btoc) 270

Time Completed: 1135 Total Purge 379 Units mL

Sample I.D. (match bottle and COC form exactly): W-4

[illegible]

Pump controller setting 7

General Comments: TD = 27.65 Collected 375 mL total

Water Sample Collection Field Data Sheet

Site Name: Xcel Couranche Well ID.: W-5

Personnel: E. Martinez

Date: 24 Feb 22 Static Depth to Water (ft, btoc) 10.80

Date/Time Sample Collected (match bottle and COC form exactly): W- 02/24/22 16:25

Sample Method: LF Backs Pump

Water level meter, pump, and tubing decontaminated prior: Yes No

Sample QC: Duplicate Yes No Duplicate Sample ID: /

Sample QC: Equipment Blank Yes No Equip Blank Sample ID: /

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) 22

Time Completed: 16:15 Total Purge 20 Units L

Sample I.D. (match bottle and COC form exactly): W-5

Field Measurements:

Time (24 hour)	Amount purged (ml)	pH	COND (µS/cm)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Purging Water Depth (ft, btoc)
1505	0			Start Purge				
1515	4500	7.21	31877	1.12	3.370	13.6	-201.3	11.70
1525	8000	7.23	26318	3.49	1.76	11.8	-201.6	12.80
1535	10500	7.28	25030	0.02	1.45	11.1	-198.4	13.60
1545	12500	7.24	25318	0.02	1.12	11.1	-200.2	14.30
1550	14000	7.23	25522	0.02	1.02	11.7	-200.3	14.70
1555	15000	7.23	25813	0.02	0.87	11.3	-200.9	14.90
1600	16000	7.24	26055	0.02	0.92	11.1	-201.4	15.20
1605	17500	7.25	26245	0.02	1.42	11.4	-203.3	15.50
1610	19000	7.26	26386	0.02	1.37	11.3	-205.3	15.80
1615	20000	7.27	26621	0.02	1.43	11.9	-207.2	16.20

Flow Rate

Pump controller setting 011 F30

General Comments:

Water Sample Collection Field Data Sheet

Site Name: Xcel-Cuarache Well ID.: W-SB
 Personnel: E. Minor
 Date: 25 Feb 22 Static Depth to Water (ft, btoc) 11.54
 Date/Time Sample Collected (match bottle and COC form exactly): 02/25/22 1130
 Sample Method: LF Bladder Pump
 Water level meter, pump, and tubing decontaminated prior: Yes No
 Sample QC: Duplicate Yes No Duplicate Sample ID:
 Sample QC: Equipment Blank Yes No Equip Blank Sample ID:
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) 32
 Time Completed: 1120 Total Purge 40.5 Units L
 Sample I.D. (match bottle and COC form exactly): W-SB

Field Measurements:

Time (24 hour)	Amount purged (ml)	pH	COND (µS/cm)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Purging Water Depth (ft, btoc)
0924	0							
0945	9000	7.09	4725	0.96	6.00	13.7	-201.3	11.90
0955	12500	7.08	4778	0.02	1.20	14.3	-203.7	11.90
1000	13500	7.08	4801	0.93	1.37	14.0	-203.1	11.90
1005	16000	7.07	4858	0.06	2.72	14.5	-203.9	11.90
1010	18500	7.06	4923	0.02	2.58	14.5	-201.6	11.90
1015	20000	7.06	4939	0.02	3.28	14.6	-205.3	12.00
1020	21500	7.06	4994	0.02	2.97	14.7	-205.9	12.00
1025	23500	7.05	5046	0.02	2.40	14.4	-207.3	12.00
1030	25000	7.05	5061	0.19	3.06	14.8	-208.0	12.00
1035	26500	7.05	5069	0.59	2.24	14.4	-209.1	12.00
1040	28000	7.04	5091	0.14	1.86	15.0	-210.3	12.00
1045	30000	7.04	5097	0.02	2.76	14.7	-212.5	12.00
1050	31500	7.05	5061	0.02	3.84	13.5	-211.9	12.00
1055	33000	7.05	5072	0.55	3.40	14.9	-212.8	11.95
1100	34500	7.04	5173	0.02	3.11	14.4	-213.2	12.00
1105	36000	7.04	5159	0.02	2.44	15.1	-214.4	12.00

Flow Rate 320
 Pump controller setting 011 F18
 General Comments:

Site Name: Xcel Commerce Well ID.: W-5B

Field Measurements:

[illegible]

Site Name: Xcel Cananche Well ID.: W-6
 Personnel: E. Munoz
 Date: 24 Feb 22 Static Depth to Water (ft, btoc) 9.15
 Date/Time Sample Collected (match bottle and COC form exactly): 02/24/22 1420
 Sample Method: LF Bladder Pump
 Water level meter, pump, and tubing decontaminated prior: Yes No
 Sample QC: Duplicate Yes No Duplicate Sample ID:
 Sample QC: Equipment Blank Yes No Equip Blank Sample ID:
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) 24
 Time Completed: 1410 Total Purge FB Units L
 Sample I.D. (match bottle and COC form exactly): W-6

[illegible]

Flow Rate 200
Pump controller setting D10 F28
General Comments:

Water Sample Collection Field Data Sheet

Site Name: Xcel - Couranche Well ID.: W-6B
 Personnel: F. Llanos
 Date: 24 Feb 22 Static Depth to Water (ft, btoc) 14.22
 Date/Time Sample Collected (match bottle and COC form exactly): 02/24/22 1240
 Sample Method: LF Baedler Pump
 Water level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ No
 Sample QC: Duplicate Yes ☐ No Duplicate Sample ID:
 Sample QC: Equipment Blank Yes ☐ No Equip Blank Sample ID:
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) 39
 Time Completed: 1230 Total Purge 30 Units L
 Sample I.D. (match bottle and COC form exactly): W-6B

Field Measurements:

Time (24 hour)	Amount purged (ml)	pH	COND (µS/cm)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Purging Water Depth (ft, btoc)
1100	0			Start	Purge			
1110	4000	6.62	42842	132	0.29	13.3	-161.8	16.70 400
1120	8500	6.54	42246	73.1	0.51	13.7	-176.0	18.10 450
1130	11500	6.52	42006	51.6	0.35	14.0	-186.3	17.35 300
1140	14500	6.50	41901	30.1	0.32	13.1	-193.2	18.50 300
1150	19000	6.49	41723	19.9	0.15	13.6	-184.6	18.70 450
1200	22000	6.49	41602	11.3	0.15	13.8	-186.5	18.80 300
1210	24500	6.51	41504	8.33	0.15	13.4	-184.6	18.70 250
1215	28000	6.51	41667	7.08	0.19	12.6	-176.4	18.70 350
1220	27000	6.52	41644	7.50	0.21	13.9	-188.1	18.70 300
1225	28500	6.52	41484	7.10	0.23	13.1	-165.4	18.70 300
1230	30000	6.53	41327	8.10	0.25	13.4	-161.5	18.70 360

Flow Rate
 Pump controller setting 012 F22
 General Comments:

Snowing

Water Sample Collection Field Data Sheet

Site Name: Xcel ~~KMA~~ Comanche Well ID.: W-7
 Personnel: TR
 Date: 3/1/22 Static Depth to Water (ft, btoc) 8.22
 Date/Time Sample Collected (match bottle and COC form exactly): 3/1/22 1130
 Sample Method: Bladder
 Water level meter, pump, and tubing decontaminated prior: Yes No
 Sample QC: Duplicate Yes No Duplicate Sample ID: _____
 Sample QC: Equipment Blank Yes No Equip Blank Sample ID: _____
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) 21.5
 Time Completed: 1115 Total Purge 34.0 Units L
 Sample I.D. (match bottle and COC form exactly): W-7

Field Measurements:

Time (24 hour)	Amount purged (ml) L	pH	COND (µS/cm)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Purging Water Depth (ft, btoc)
0915	0.5	6.67	41378	83.9	4.46	14.7	-12.1	8.31
0925	3.0	6.66	41000	38.4	3.55	14.4	-65.9	8.38
0935	6.0	6.65	40863	30.9	2.86	14.6	-83.9	8.43
0945	10.0	6.63	40760	25.8	2.51	14.8	-95.2	8.44
0955	14.0	6.62	40804	24.1	2.31	15.0	-102.7	8.42
1005	18.0	6.61	40715	23.0	2.16	15.2	-110.1	8.40
1015	20.0	6.60	41140	15.9	1.13	15.4	-114.9	8.38
1025	22.0	6.59	40994	15.2	1.11	15.6	-115.6	8.39
1035	24.0	6.59	40844	16.0	1.08	15.8	-121.0	8.42
1045	26.0	6.58	40762	13.0	1.01	15.0	-132.0	8.40
1055	28.0	6.58	40726	12.0	0.96	16.1	-196.2	8.40
1105	30.0	6.57	40670	11.6	1.08	16.4	-224.2	8.40
1115	32.0	6.57	40536	9.93	1.06	16.5	-233.2	8.40
1120	33.0	6.56	40787	8.70	1.05	16.6	-238.0	8.40
1125	34.0	6.56	40675	9.86	1.03	16.6	-240.4	8.40

Flow Rate 400 mL/min
 Pump controller setting 10/25
 General Comments:

TD = 23.93
out of range after 2 hours
collected 1135 Metals sample

Site Name: Xcel Parachute Well ID: W-9

Well ID.: W-9

Personnel: F. Munoz

Static Depth to Water (ft, btoc) 35.81

Date/Time Sample Collected (match bottle and COC form exactly): 3/4/22 1340

Water level meter, pump, and tubing decontaminated prior: Yes No

Sample QC: Equipment Blank Yes ☐ No ☒ Equip Blank Sample ID:

Depth of Sample Collection (pump depth) (ft, btoc) 38.0

Sample I.D.(match bottle and COC form exactly): W-9

[illegible]

General Comments:

General Comments:
2/22/22: Tubing broke during setup, ordered new tubing.
TD = 40.42

$$TD = 40.42$$

Water Sample Collection Field Data Sheet

Site Name: Xcel Ouasche Well ID.: W-11
 Personnel: E. Menor
 Date: 02/25/22 Static Depth to Water (ft, btoc) 23.12
 Date/Time Sample Collected (match bottle and COC form exactly): 02/25/22 1635
 Sample Method: LF Badder Pump
 Water level meter, pump, and tubing decontaminated prior: Yes No
 Sample QC: Duplicate Yes No Duplicate Sample ID: 5
 Sample QC: Equipment Blank Yes No Equip Blank Sample ID: 5
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) 30
 Time Completed: 1625 Total Purge 52.5 Units L
 Sample I.D. (match bottle and COC form exactly): W-11

Field Measurements:

Time (24 hour)	Amount purged (ml)	pH	COND (µS/cm)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Purging Water Depth (ft, btoc)
1325	0			Start	huge			
1335	4000	6.83	18539	97.1	6.54	12.2	-196.3	24.20 400
1345	8000	6.82	18970	95.3	6.86	12.4	-191.6	24.50 400
1355	10500	6.87	19002	73.1	6.82	12.1	-190.7	24.45 250
1405	13500	6.87	19125	53.1	6.04	11.8	-187.7	24.60 300
1415	15000	6.87	19157	35.7	5.74	11.9	-186.2	24.60 150 200
1425	19000	6.87	19057	25.3	5.30	11.8	-186.5	24.60 350
1435	21500	6.87	19114	17.5	5.07	12.0	-186.9	24.65 250
1445	24000	6.87	19088	14.5	4.78	12.0	-187.1	24.70 250
1455	26500	6.87	19193	14.0	4.59	12.0	-187.2	24.70 250
1505	28500	6.87	19166	13.6	4.21	12.2	-187.4	24.75 150
1515	31500	6.87	19104	12.8	4.00	12.4	-188.5	24.80 350
1525	34500	6.87	19117	13.2	3.91	12.0	-190.8	24.80 300
1535	37500	6.87	19157	15.9	3.72	12.3	-192.1	24.85 300
1545	40500	6.87	19203	22.3	3.47	12.0	-193.3	24.90 300
1555	43500	6.87	19148	20.6	3.25	11.8	-193.8	24.90 300

Flow Rate 300

Pump controller setting D10 F17

General Comments:

Purged ~3hr turbidity and DO never truly stable. Collect sample w/ Dissolved Metals aliquot.

Site Name: Xcel Couranche Well ID: w-11

Well ID.: W-11

[illegible]

320
300
300

Site Name: Comanche Well ID.: W-12
 Personnel: TB
 Date: 3/1/22 Static Depth to Water (ft, btoc) 21.92
 Date/Time Sample Collected (match bottle and COC form exactly): 3/1/22 1630
 Sample Method: Bladder
 Water level meter, pump, and tubing decontaminated prior: Yes No
 Sample QC: Duplicate Yes No Duplicate Sample ID: _____
 Sample QC: Equipment Blank Yes No Equip Blank Sample ID: _____
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) 24.5
 Time Completed: 1615 Total Purge 12.0 Units L
 Sample I.D. (match bottle and COC form exactly): W-12

[illegible]

Flow Rate 200 mL/min
Pump controller setting 10/25
General Comments:
TD = 26.92

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID.: MW-7

Personnel: TS

Date: 3/2/22 Static Depth to Water (ft, btoc) 20.67

Date/Time Sample Collected (match bottle and COC form exactly): 3/2/22 0945

Sample Method: Bladder

Water level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ No

Sample QC: Duplicate Yes ☒ No ☐ Duplicate Sample ID: _____

Sample QC: Equipment Blank Yes ☒ No ☐ Equip Blank Sample ID: _____

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) 29.5

Time Completed: 0935 Total Purge 18.0 Units L

Sample I.D. (match bottle and COC form exactly): MW-7

Field Measurements:

Time (24 hour)	Amount purged (mL)	pH	COND (µS/cm)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Purging Water Depth (ft, btoc)
0840	0.5	6.77	9508	97.7	4.11	14.8	1.3	20.71
0850	5.0	6.80	10809	54.7	3.00	14.8	-90.8	20.70
0900	8.0	6.80	10787	25.7	0.44	14.9	-122.2	20.70
0910	11.0	6.79	10839	19.8	0.33	15.0	-137.3	20.70
0920	13.5	6.79	10822	10.6	0.31	15.1	-155.3	20.70
0925	15.0	6.79	10847	8.97	0.30	15.1	-163.1	20.70
0930	16.5	6.78	10902	6.29	0.30	15.1	-167.9	20.70
0935	18.0	6.77	10874	8.69	0.30	15.2	-172.7	20.70

Flow Rate 400 mL/min

Pump controller setting _____

General Comments:

TD = 39.0

46°F
Sunny

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID.: MW-1B
 Sample I.D.(match bottle and COC form exactly): MW-1B
 Date/Time Collected (match bottle and COC form exactly): 04.04.22 1650
 Personnel: Kent
 Sample Method: LF bladder pump
 Water level meter, pump, and tubing decontaminated prior: (Yes) No
 Sample QC: Duplicate Yes (No) Duplicate Sample ID:
 Sample QC: Equipment Blank Yes (No) Equip Blank Sample ID:
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) 40'
 Date: 4 APRIL 2022 Depth to Water (ft, btoc) 31.12 TD=4264
 Time Completed: 1705 Total Purge 13.5 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	✓ pH	COND (mS/m)	✓ TURB (NTU)	✓ DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
1536	Start Pump							31.12
1545	1500	6.80	29985	3.88	0.07	17.0	-192.5	31.12
1550	2500	6.80	29053	3.00	0.02	16.6	-196.9	31.12
1600	3500	6.80	27777	2.89	0.06	16.6	-200.1	31.12
1605	4500	6.80	26979	3.07	0.07	16.4	-202.4	31.12
1610	5500	6.81	26131	3.49	0.06	16.6	-204.3	31.10
1615	6500	6.81	25714	3.61	0.06	16.5	-205.4	31.11
1620	7500	6.81	25247	3.12	0.07	16.6	-191.4	31.12
1625	8500	6.81	24710	2.98	0.07	16.5	-199.5	31.12
1630	9500	6.81	24535	3.92	0.06	16.5	-203.4	31.12
1635	10500	6.81	24359	3.51	0.06	16.6	-206.1	31.12
1640	111500	6.80	24880	2.41	0.06	16.7	-208.0	31.12
1645	12500	6.80	24665	3.15	0.07	16.5	-200.4	31.10
1650	13500	6.80	24508	2.51	0.06	16.6	-204.3	31.12

Rate
mL/min
200

Flow Rate 200 mL/min
 Pump controller setting FT/DT 25/6

General Comments:

- blank yellow-colored water
- lots of yellow paint chips on metal casing & inside cap
- pulled 2-12 bottles for APPT/COTSS

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID: NW-1

Sample I.D.(match bottle and COC form exactly): _____

Date/Time Collected (match bottle and COC form exactly):

Personnel: Kent

Sample Method: _____

Water level meter, pump, and tubing decontaminated prior:	Yes	No
---	-----	----

Sample QC: Duplicate Yes No Duplicate Sample ID:

Sample QC: Equipment Blank Yes No Equip Blank Sample ID:

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc)

Date: 28 March 2022

Depth to Water (ft, btoc) 11.0

Time Completed:

Total Purge	Units

Field Measurements: Fill In All Blanks[illegible]

Flow Rate

Pump controller setting

General Comments:

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID.: MW-2

Sample I.D. (match bottle and COC form exactly): _____

Date/Time Collected (match bottle and COC form exactly): _____

Personnel: Kent

Sample Method: _____

Water level meter, pump, and tubing decontaminated prior:	Yes	No
---	-----	----

Sample QC: Duplicate Yes No Duplicate Sample ID: _____

Sample QC: Equipment Blank Yes No Equip Blank Sample ID: _____

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) _____

Date: 28 MARCH 2022 Depth to Water (ft, btoc) 11.88

Time Completed: _____ Total Purge _____ Units _____

Field Measurements: Fill In All Blanks

[illegible]

Flow Rate

Pump controller setting_____

General Comments:

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID: NW-3

Sample I.D.(match bottle and COC form exactly): MW-3

Date/Time Collected (match bottle and COC form exactly): 03-29-22 1145

Personnel: Kent Ray

Sample Method: bladder pump

Water level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ No

Sample QC: Duplicate Yes ☒ No Duplicate Sample ID: N/A

Sample QC: Equipment Blank Yes ☒ No ☐ Equip Blank Sample ID: N/A

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) 9'

Date: 03-29-2022 Depth to Water (ft, btoc) 8,56

Time Completed: 1200 Total Purge 8 Units 4

Field Measurements: Fill In All Blanks

[illegible]

Flow Rate 200 mL/min

Pump controller setting $FT/DT = 21/4$

General Comments:

General Comments:
orange-colored water

Pulled 2 - 1L bottles
for App III-170s

68°F

Sunny

Windy

15-25

(mph gusts)

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID: MW-2BSample I.D. (match bottle and COC form exactly): MW-2Date/Time Collected (match bottle and COC form exactly): 04-05-22 1220Personnel: KentSample Method: LF bladder pumpWater level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ NoSample QC: Duplicate Yes ☒ No ☐ Duplicate Sample ID: Sample QC: Equipment Blank Yes ☒ No ☐ Equip Blank Sample ID:

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) 29'Date: APRIL 2022 Depth to Water (ft, btoc) 18.12 TD = 32.80Time Completed: 1230 Total Purge 12.5 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	☒ pH	☒ COND (mS/m)	☒ TURB (NTU)	☒ DO (mg/L)	TEMP (C°)	☒ ORP (mV)	Water Depth (ft, btoc)
1135	start pump							18.12
1145	2000	6.87	35578	16.3	0.00	17.1	-177.2	18.15
1150	3500	6.88	35975	12.9	0.04	17.0	-181.4	18.15
1155	5000	6.88	35824	12.3	0.04	17.1	-184.3	18.15
1200	6500	6.87	35410	8.96	0.03	17.1	-183.4	18.15
1205	8000	6.87	36340	8.41	0.06	17.1	-184.3	18.15
1210	9500	6.87	36122	6.26	0.06	17.1	-186.4	18.18
1215	11000	6.86	36492	7.24	0.08	17.2	-182.3	18.16
1220	12500	6.86	36148	6.12	0.07	16.9	-185.4	18.15
1230	pump off							

Rate
ml/min
300Flow Rate 300 mL/min
Pump controller setting FT/DT 25/8

General Comments:

yellow colored H₂Ocollected 2-1L bottles for App III BTSS

Water Sample Collection Field Data Sheet

Site Name: Lomanche Well ID.: MW-4

Sample I.D.(match bottle and COC form exactly):

Date/Time Collected (match bottle and COC form exactly):

Personnel: Kent

Sample Method: _____

Water level meter, pump, and tubing decontaminated prior:	Yes	No
---	-----	----

Sample QC: Duplicate Yes No Duplicate Sample ID: _____

Sample QC: Equipment Blank Yes No Equip Blank Sample ID: _____

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc)

Date: 28 MARCH 2022 Depth to Water (ft, btoc) 37.70

Time Completed:	Total Purge	Units
-----------------	-------------	-------

$$TD = 30.22$$

Field Measurements: Fill In All Blanks

[illegible]

Flow Rate

Pump controller setting

General Comments:

45°
cloudy

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID.: MW-4B
 Sample I.D.(match bottle and COC form exactly): MW-4B
 Date/Time Collected (match bottle and COC form exactly): 04 04-22 1320
 Personnel: Kent

Sample Method: LF bladder

Water level meter, pump, and tubing decontaminated prior: Yes No

Sample QC: Duplicate Yes No Duplicate Sample ID:

Sample QC: Equipment Blank Yes No Equip Blank Sample ID:

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) 58'

Date: 4 APRIL 2022 Depth to Water (ft, btoc) 38.03 TD=60.92

Time Completed: 1335 Total Purge 20 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	µS/cm COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)	Rate ml/min
1013	Start pump							38.03	300
1020	1000	6.80	6348	8.88	1.33	13.3	-12.8	38.54	100
1025	1500	6.82	6300	8.73	1.18	13.5	-36.0	38.62	
1030	2000	6.83	6291	10.8	0.88	13.7	-61.0	38.78	
1035	2500	6.85	6280	15.0	0.78	14.0	-74.6	38.97	100
1045	3500	6.87	6277	17.0	0.08	14.7	-92.6	39.09	
1055	4500	6.88	6294	16.7	0.00	16.1	-111.5	39.21	
1105	5500	6.86	6255	14.1	0.10	14.4	-130.4	39.35	
1115	6500	6.87	6280	13.0	0.10	16.4	-148.2	39.32	
1125	7500	6.89	6285	10.7	0.09	15.5	-160.2	39.38	
1135	8500	6.89	6315	9.55	0.05	14.4	-167.4	39.42	
1145	9500	6.89	6305	8.29	0.08	14.8	-170.5	39.45	
1150	10000	6.89	6251	7.71	0.79	15.5	-171.4	39.47	
1155	10500	6.90	6318	6.76	0.79	16.2	-173.4	39.50	
1200	11000	6.90	6302	6.33	0.07	14.9	-174.3	39.51	
1205	11500	6.89	6398	6.02	1.32	15.3	-172.5	39.52	
1210	12000	6.89	6424	5.98	0.88	15.4	-174.4	39.53	

Flow Rate 900 ml/min
 Pump controller setting FTI DT 21/9

General Comments:

(*) Pale yellow colored water

(*) D.O. never truly stabilized

(*) collected 2- 1L bottles for App III ⊕ TSS

pg 2

Site Name: Comanche

Well ID.: mw-4B

Time (24 hour)	Amount purged (ml)	✓ pH	✓ COND (μ S/cm)	✓ TURB (NTU)	DO (mg/L)	TEMP (C°)	✓ ORP (mV)	Purging Water Depth (ft, btoc)
1210	12000	6.89	6424	5.98	0.88	15.4	174.4	39.53
1215	12500	6.89	6431	5.55	0.11	15.6	-174.3	39.57
1220	13000	6.89	6383	5.99	0.63	16.1	-174.5	39.45
1230	14000	6.89	6394	4.34	0.00	16.3	-175.4	39.38
1235	14500	6.89	6419	4.73	0.93	16.1	-176.6	39.31
1240	15000	6.89	6397	4.32	0.07	16.4	-176.7	39.27
1245	15500	6.89	6395	4.21	1.55	16.5	-177.4	39.25
1250	16000	6.88	6559	8.59	0.07	16.4	-176.5	39.20
1255	16500	6.88	6409	4.44	0.95	16.2	-172.3	39.71
1300	17000	6.88	6410	3.62	0.09	15.3	-172.1	39.80
1305	17650	6.88	6413	3.39	0.08	15.1	-172.3	40.01
1310	18500	6.88	6386	3.21	0.99	15.2	-172.1	40.15
1315	19500	6.88	6392	3.41	0.98	15.3	-172.4	40.28
1320	20000	6.89	6401	3.59	0.99	15.2	-172.3	40.36
1335	pump off							

④ Increasing rate to see if D.D. will stabilize.

55°F
cloudy
breezy

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID: mw-5
 Sample I.D. (match bottle and COC form exactly): MW-5
 Date/Time Collected (match bottle and COC form exactly): 03-31-22 1545
 Personnel: Kent, Ray
 Sample Method: bladder pump
 Water level meter, pump, and tubing decontaminated prior: Yes ☒ Yes ☐ No
 Sample QC: Duplicate Yes ☒ No Duplicate Sample ID: N/A
 Sample QC: Equipment Blank Yes ☒ No Equip Blank Sample ID: N/A
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) 34'-36'
 Date: 03/29/22 // 3/31/22 Depth to Water (ft, btoc) 26.82 26.90 on 3/31 TD = 36'
 Time Completed: 1325 // 1610 Total Purge 7 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	µS/cm COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)	Rate ml/min
1226	start pump							26.82	
1230	500ml	6.94	26222	4.42	1.50	15.7	-94.0	27.71	400
1235	1000ml	6.93	26105	2.07	1.16	15.7	-95.5	27.92	425
1240	2000	6.91	26107	2.49	0.92	15.8	-95.4	28.38	150
1245	3000	6.89	25926	3.41	0.97	15.6	-95.9	29.70	150
1250	4000	6.87	25721	1.47	0.66	15.6	-96.5	30.28	
1255	5000	6.87	25701	1.32	0.66	15.5	-97.0	31.05	150
1300	6000	6.90	25685	1.44	1.15	15.5	-87.5	*btp	
1315	7000	6.96	25791	—	2.00	15.4	-85.4	btp	
1325	pump off								

Flow Rate 150 ml/min

Pump controller setting FT/DT 15/5

General Comments:

pale yellow water

3/31/22 Returned to sample purged well

5 bottles for App III, IV ⊕ TSS

46° F
Sunny

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID.: MW-6
 Sample I.D.(match bottle and COC form exactly): MW-6
 Date/Time Collected (match bottle and COC form exactly): 04 04 22 1505
 Personnel: Kent

Sample Method: LF bladder pump

Water level meter, pump, and tubing decontaminated prior: Yes No

Sample QC: Duplicate Yes No Duplicate Sample ID:

Sample QC: Equipment Blank Yes No Equip Blank Sample ID:

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) 42'

Date: 4 April 2022 Depth to Water (ft, btoc) 31.23 TD = 44.48

Time Completed: 1518 Total Purge 13 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	✓ pH	✓ COND (mS/m)	✓ TURB (NTU)	DO (mg/L)	TEMP (C°)	✓ ORP (mV)	Water Depth (ft, btoc)
1355	Start pump							31.23
1405	1000	7.52	6465	27.7	0.07	16.2	-145.6	31.25
1410	2000	7.56	6451	31.2	0.07	16.3	-136.4	31.32
1420	4000	7.57	6441	24.9	0.06	16.2	-129.4	31.35
1430	6000	7.56	6422	17.0	0.15	16.1	-126.5	31.35
1440	8000	7.54	6404	11.5	0.07	16.2	-125.4	31.35
1445	9000	7.52	6420	9.32	1.29	16.0	-124.3	31.35
1450	10000	7.53	6409	6.82	0.08	15.9	-124.6	31.35
1455	11000	7.52	6406	5.88	0.07	16.1	-124.1	31.35
1500	12000	7.55	6387	4.89	0.07	16.0	-123.7	31.42
1505	13000	7.51	6400	4.31	0.08	16.0	-123.9	31.43
1518	pump off							

Rat
mL/min
250
200

Flow Rate 200 mL/min

Pump controller setting FT/D7 20/5

General Comments:

clear H₂O

collected 2 1L bottles for App H4(4) 155

Water Sample Collection Field Data Sheet

66°F

Sunny

Windy

10-12

Site Name: Comanche

Well ID.: mw-7

Personnel: Kent

Date: 5 April 2022

Static Depth to Water (ft, btoc) 20.11

TD = 40?

Date/Time Sample Collected (match bottle and COC form exactly): 04-05-22 1025

Sample Method: LF Bladder

Water level meter, pump, and tubing decontaminated prior:

Yes

No

Sample QC: Duplicate

Yes

No

Duplicate Sample ID: mw-7D

Sample QC: Equipment Blank

Yes

No

Equip Blank Sample ID:

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) 33'

Time Completed: 1108

Total Purge 17 Units L

Sample I.D. (match bottle and COC form exactly): MW-7 @ 1025

MW-7D @ 1025

Field Measurements:

Time (24 hour)	Amount purged (ml)	✓ pH	✓ COND (µS/cm)	✓ TURB (NTU)	✓ DO (mg/L)	TEMP (C°)	✓ ORP (mV)	Purging Water Depth (ft, btoc)
907	Start	pump						20.11
920	1000	6.97	12017	44.2	0.29	16.3	-138.5	20.19
925	2000	6.97	12030	42.0	0.08	16.4	-141.3	20.18
930	3000	6.97	12129	25.4	0.09	16.4	-142.4	20.15
935	4000	6.96	12140	19.0	0.07	16.3	-144.3	20.15
940	5000	6.95	12153	16.6	0.05	16.4	-146.3	20.15
945	6000	6.96	12177	13.5	0.07	16.3	-147.3	20.15
950	7000	6.95	12135	10.7	0.02	16.4	-148.7	20.15
955	8500	6.95	12035	13.6	0.66	15.9	-149.4	20.15
1000	9500	6.95	12071	8.05	0.50	15.8	-150.1	20.15
1005	11000	6.95	12078	5.90	0.78	16.0	-151.3	20.15
1010	12500	6.94	12377	4.22	0.06	15.8	-151.3	20.15
1015	14000	6.93	12301	4.65	0.06	15.8	-155.4	20.15
1020	15500	6.93	12360	4.20	0.06	15.9	-157.3	20.15
1025	17000	6.93	12367	3.98	0.07	15.9	-157.4	
1110	pump off							

Rate
ml/min

200

175

200

300

Flow Rate 300 ml/min

Pump controller setting

FT/DT 25/10

General Comments:

- yellow-colored water

↑
Anomaly of DO
emptied the ysi flowcell

- Windy gusts (15-25 mph)
while sampling

- collected 5 bottles (each) for App III, IV ⊕ TSS

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID: W1

Sample I.D.(match bottle and COC form exactly): W-1

Date/Time Collected (match bottle and COC form exactly): 04.05.22 1255

Personnel: Kent Ray

Sample Method: Bladder pump

Water level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ No

Sample QC: Duplicate Yes ☒ No ☐ Duplicate Sample ID: N/A

Sample QC: Equipment Blank Yes ☐ No ☒ Equip Blank Sample ID: N/A

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) 16-18'

Date: 29 MAR 2022 // 4/5/22 Depth to Water (ft, btoc) 10.30 // 10.55'

Time Completed: 0935 // 1315 Total Purge ~ 10 Units L

Field Measurements: Fill In All Blanks[illegible]

Flow Rate 300 mL/min

Pump controller setting FT | DT 15/6

General Comments:

pale yellow colored w/ aster

④ below top of pump

4/5/22. Windy during sampling
Collected 5 bottles for App III IV + TSS

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID: W-2

Sample I.D.(match bottle and COC form exactly):

Date/Time Collected (match bottle and COC form exactly): _____

Personnel: Ken

Sample Method: _____

Water level meter, pump, and tubing decontaminated prior:	Yes	No
---	-----	----

Sample QC: Duplicate Yes No Duplicate Sample ID: _____

Sample QC: Equipment Blank Yes No Equip Blank Sample ID: _____

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) _____

Date: 28 MARCH 2022 Depth to Water (ft, btoc) 5.21' (dry)

Time Completed: _____ Total Purge _____ Units _____

$$TD = 15.60$$

Field Measurements: Fill In All Blanks

[illegible]

Flow Rate

Pump controller setting_____

General Comments:

Sunny/breezy
39°

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID.: W-24
 Personnel: F. Davis Ray
 Date: 3/31/22 ~~Static~~^{DR} Depth to Water (ft, btoc) 26.97
 Date/Time Sample Collected (match bottle and COC form exactly): 3/31/22 @ 1020
 Sample Method: Bladder pump
 Water level meter, pump, and tubing decontaminated prior: (Yes) No
 Sample QC: Duplicate Yes (No) Duplicate Sample ID:
 Sample QC: Equipment Blank Yes (No) Equip Blank Sample ID:
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) 32 Total ^{well} depth (ft, btoc)
 Time Completed: 1100 Total Purge 9 Units L 35.81
 Sample I.D. (match bottle and COC form exactly): W-24

Field Measurements:

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Purging Water Depth (ft, btoc)
920	START	PUMP						
930	3000	6.32	39.31	2.48	0.80	15.7	213.0	* 64p
940	5000	6.31	41.66	0.86	0.59	15.1	214.2	28.61
945	6000	6.31	41.67	2.29	0.43	15.2	213.8	28.54
950	6500	6.31	41.38	0.83	0.52	15.1	212.9	28.50
955	7000	6.31	40.90	0.87	0.51	15.2	211.4	28.40
1000	7500	6.31	40.37	1.65	0.65	14.7	210.1	
1005	8000	6.31	39.52	1.07	0.58	15.2	208.8	28.35
1010	8500	6.32	39.23	2.25	0.56	15.5	207.3	28.37
1015	9000	6.31	39.12	1.62	0.60	15.8	204.7	28.30
SAMPLE @ 1020 App III + IV + TDS/TSS								
END (stop pump)	@	1100						

Rate (ml/min)

300
150
100



Flow Rate 100
 Pump controller setting 8D/16F

General Comments:

Lowered pump ~2 ft due to WT dropping below the top of the pump.

(pak) Light yellow color sampled

has
Combo lock

35°E
-45°F
Sunny
breezy

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID.: W-2C
Sample I.D. (match bottle and COC form exactly): W-2C
Date/Time Collected (match bottle and COC form exactly): 03-31-22 1040
Personnel: Kent
Sample Method: LT bladder
Water level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ No
Sample QC: Duplicate Yes ☒ No Duplicate Sample ID: _____
Sample QC: Equipment Blank Yes ☒ No Equip Blank Sample ID: _____
Well Purging Data (Fill In All Blanks)
Depth of Sample Collection (pump depth) (ft, btoc) 34'
Date: 03/31/2022 Depth to Water (ft, btoc) 28.12 TD = 35.81
Time Completed: 1110 Total Purge 18 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	✓ pH	✓ COND (mS/m)	TURB (NTU)	✓ DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
0905	Start Pump							28.12
0915	2000	6.44	33909	14.5	0.06	15.8	-80.4	
0920	3000	6.43	34180	8.94	0.07	15.8	-128.3	28.71
0925	4000	6.43	34461	14.5	0.06	15.9	-142.4	28.68
0930	5000	6.43	33249	11.9	0.06	15.8	-148.5	28.75
0935	6000	6.43	33130	13.4	0.05	15.8	-167.7	28.70
0940	7000	6.43	33168	13.4	0.06	16.0	-175.4	28.71
0950	9000	6.43	33042	12.6	0.04	16.1	-186.4	28.73
1000	11000	6.43	33120	13.1	0.08	15.9	-199.1	28.89
1010	13000	6.43	33205	12.8	0.06	16.1	-211.6	28.81
102	15000	6.42	33513	10.6	0.06	16.5	-212.4	28.90
1025	16000	6.44	33610	9.68	0.06	16.7	-215.4	28.88
1030	17000	6.42	33636	9.16	0.05	16.8	-218.2	28.90
1035	18000	6.42	33711	8.42	0.05	16.7	-218.7	28.92

Flow Rate 200

Pump controller setting FT/DT 25/5

General Comments:

5 bottles pulled for App III, IV & TSS

Sunny 59°
5 mph

KEY
LOCK

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID.: W-3

Personnel: F. Davis Ray

Date: 3/31/22 ^{Static} Depth to Water (ft, btoc) 13.76

Date/Time Sample Collected (match bottle and COC form exactly): 3/31/22 1230

Sample Method: Bladder pump

Water level meter, pump, and tubing decontaminated prior: Yes No

Sample QC: Duplicate Yes No Duplicate Sample ID:

Sample QC: Equipment Blank Yes No Equip Blank Sample ID: W-3EB

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) 27

Time Completed: 1245 / 1400 (EB) Total Purge 8 Units L

Sample I.D. (match bottle and COC form exactly): W-3

Total
Depth
(ft, btoc)
29.78

Field Measurements:

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Purging Water Depth (ft, btoc)
1155	START	PUMP						
1205	2500	7.95	1.80	13.3	7.11	10.3	189.9	14.13
1210	3750	7.54	1.78	8.55	7.17	10.2	194.3	14.05
1215	5000	7.54	1.77	4.01	7.09	10.3	198.0	14.03
1220	6250	7.54	1.80	1.24	7.10	10.2	201.2	14.04
1225	8000	7.54	1.79	0.42	6.99	10.5	204.6	
SAMPLE @ 1230								
STOP PUMP @ 1245								

Rate (ml/min)

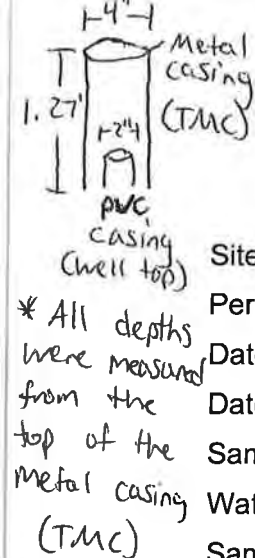
250
250
250
↓

Flow Rate 250
Pump controller setting 90/14F

General Comments:

Metal casing protrudes approximately 1.3 ft from the top of the PVC well casing.

Appears clear to slightly pale tan



has Combo
lock

50°F
Sunny

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID.: W-3B
Sample I.D. (match bottle and COC form exactly): W-3B
Date/Time Collected (match bottle and COC form exactly): 03-31-22 1335
Personnel: Kent
Sample Method: LF bladder pump
Water level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ No
Sample QC: Duplicate Yes ☒ No Duplicate Sample ID: N/A
Sample QC: Equipment Blank Yes ☒ No Equip Blank Sample ID: N/A
Well Purging Data (Fill In All Blanks)
Depth of Sample Collection (pump depth) (ft, btoc) 42'
Date: 03/31/2022 Depth to Water (ft, btoc) 16.30
Time Completed: 1415 Total Purge 15 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
1142	start pump							16.30
1153	2000	6.36	42926	32.5	0.09	16.1	-238.9	16.75
1200	3000	6.35	42589	41.8	0.06	15.8	-239.4	16.80
1210	4500	6.34	42376	32.3	0.55	16.1	-238.5	16.85
1220	6000	6.32	42314	32.7	0.00	16.3	-230.7	16.90
1230	7500	6.33	43724	22.0	0.42	16.9	-221.4	16.95
1240	9000	6.33	43374	31.4	0.38	16.8	-220.8	17.01
1250	10500	6.32	42966	15.3	0.06	17.8	-218.4	17.00
1255	11250	6.32	44215	15.1	0.06	16.7	-215.5	17.00
1300	12000	6.32	44196	15.5	0.06	17.0	-212.6	17.00
1310	12650	6.32	43595	12.5	0.01	17.0	-216.4	17.00
1315	13000	6.32	43262	9.85	0.03	17.1	-219.5	17.01
1325	14500	6.32	43010	9.68	0.03	17.1	-221.4	17.10
1330	15250	6.32	42964	9.32	0.03	17.2	-221.5	17.10

Flow Rate 50 ml/min
Pump controller setting FT/DT 25/6

General Comments:

pale yellow color

5 bottles pulled for App III, IV & TSS

Rate
ml/min

300

150

150

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID: W.4

Sample I.D.(match bottle and COC form exactly): W-4

Date/Time Collected (match bottle and COC form exactly): 04-05-22 1330

Personnel: Kent Ray.

Sample Method: butler

Water level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ No

Sample QC: Duplicate Yes ☐ No ☒

Duplicate Sample ID: N/A

Sample QC: Equipment Blank Yes No

Equip Blank Sample ID: N/A

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) N/A

Date:

3/29/22 // 4/5/22

Depth to Water (ft, btoc) 26.95

Time Completed:

1035 // 1340

Total Purge 550 Units mL

$$TD = 27.63$$
$$dtw = 27.25$$

on 4/5/22

Field Measurements: Fill In All Blanks

[illegible]

Flow Rate	N/A
-----------	-----

Pump controller setting N/A

General Comments:

General Comments: 3/29 bawled ~400ml of water & took readings

4/5/22 collected recharge of 125mL in unpreserved bottle

Partly sunny/cloudy
Light snow 50°

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID.: W-5
Personnel: F. Davis Ray
Date: 3/30/22 ^{DR} Static Depth to Water (ft, btoc) 12.28
Date/Time Sample Collected (match bottle and COC form exactly): 3/30/22 1420
Sample Method: Bladder pump
Water level meter, pump, and tubing decontaminated prior: Yes No
Sample QC: Duplicate Yes No Duplicate Sample ID: —
Sample QC: Equipment Blank Yes No Equip Blank Sample ID: —
Well Purging Data (Fill In All Blanks)
Depth of Sample Collection (pump depth) (ft, btoc) 22
Time Completed: 1440 Total Purge 8-9 Units L
Sample I.D. (match bottle and COC form exactly): W-5

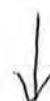
Total
Depth
(ft, btoc)
27.80

Field Measurements:

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Purging Water Depth (ft, btoc)
1345	START	<u>Pump</u>						
1355	2000	7.12	36.80	6.44	7.19	14.2	-22.9	13.25
1400	4000	7.11	35.84	1.86	7.51	13.2	-13.40	13.54
1405	5250	7.19	33.65	1.10	7.00	13.2	-2.8	14.05
1410	6500	7.23	32.12	1.54	6.89	13.0	-7.1	14.40
1415	7750	7.23	31.20	0.33	6.61	13.3	-6.0	14.75
SAMPLE @ <u>1420</u>								
STOP PUMP @ <u>1440</u>								

Rate (ml/min)

350
400
250



Flow Rate 250
Pump controller setting 60/13F

General Comments:

Western ash pond low; eastern WL high

Light pale yellow sample

38°F
cloudy
light
snow

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID: W-58

Sample I.D.(match bottle and COC form exactly): W-58

Date/Time Collected (match bottle and COC form exactly): 03-30-22 1545

Personnel: Kent

Sample Method: LF bladder pump

Water level meter, pump, and tubing decontaminated prior: (Yes) No

Sample QC: Duplicate Yes (No) Duplicate Sample ID: N/A

Sample QC: Equipment Blank Yes (No) Equip Blank Sample ID: N/A

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) 32'

Date: 30 MARCH 2022

Depth to Water (ft, btoc) 10.59 TD = 48.35

Time Completed: 1615

Total Purge 37 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	✓ pH	✓ COND (mS/cm)	TURB (NTU)	✓ DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)	Rate mL/min
1335	start pump							10.59	
1345	3000	7.08	5437	4.30	0.04	15.7	-216.3	10.82	275
1350	4500	7.08	5031	2.12	0.07	15.7	-174.6	10.90	
1355	6000	7.09	4930	1.51	0.05	15.5	-158.3	10.98	300
1400	7500	7.10	4849	0.98	0.20	15.3	-172.4	11.00	
1405	9000	7.10	4816	0.12	0.18	15.6	-165.3	10.82	
1410	10500	7.10	4798	1.52	0.29	15.7	-174.3	10.79	
1415	12000	7.10	4790	3.12	0.08	16.1	-173.8	10.91	
1420	13500	7.10	4835	0.87	0.08	15.4	-197.4	10.79	
1425	15000	7.10	4837	0.64	0.09	15.6	-160.1	10.85	300
1430	16500	7.09	4866	1.34	0.40	15.8	-235.4		
1440	18000	7.09	4915		0.10	15.5	-237.4	10.82	
1445	19500	7.08	4940	1.12	0.19	15.6	-201.3	10.90	
1450	21000	7.07	4986	0.42	0.07	15.6	-214.4	10.82	
1455	22500	7.07	5004	0.56	0.07	15.5	-189.2	10.88	
1505	25000	7.06	5046	0.32	0.07	15.2	-166.4	10.90	
1510	26500	7.06	5051		0.08	15.3	-162.7	10.90	

Flow Rate 300

Pump controller setting _____

General Comments:

- Pond to (W) very low ; Pond to (E) is high
- light pale yellow water

- Pulled 5 bottles for
App III, IV & TSS

Site Name: _____ Well ID.: W. 5B

Site Name: _____ Well ID.: W. 5B

[illegible]

1510 → again

300

30°F
cloudy
Snowing

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID.: W-6
Sample I.D. (match bottle and COC form exactly): W-6
Date/Time Collected (match bottle and COC form exactly): 03/30/22 1040
Personnel: Kent
Sample Method: LF bladder pump
Water level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ No
Sample QC: Duplicate ☒ Yes ☐ No Duplicate Sample ID: W-6D1 1040
Sample QC: Equipment Blank ☐ Yes ☒ No Equip Blank Sample ID: N/A
Well Purging Data (Fill In All Blanks)
Depth of Sample Collection (pump depth) (ft, btoc) 24 TD 29
Date: 03/30/22 Depth to Water (ft, btoc) 10.0
Time Completed: 1220 Total Purge 11 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	$\mu\text{S}/\text{cm}$ COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
915								
925	3000	7.32	10250	12.3	0.81	8.9	0.5	
930	3650	7.32	10151		0.56	8.9	-19.0	10.6
935	4500	7.33	10247	12.1	0.84	8.8	-22.8	10.68
940	5250	7.32	10190	15.4	0.48	8.9	-38.5	10.82
945	6000	7.32	10098	23.8	0.40	9.0	-51.3	11.0
955	6500	7.32	4767	19.6	0.37	9.5	-59.7	11.3
1005	7000	7.33	5399	14.0	0.39	9.3	-64.0	11.49
1015	8000	7.34	9066	8.66	0.14	8.8	-180.1	11.70
1020	8650	7.36	8781	6.64	0.26	9.0	-187.2	11.82
1025	9500	7.36	8689	5.82	0.36	8.7	-190.3	11.90
1030	10000	7.37	8491	5.34	0.20	8.7	-192.4	12.06
1035	10650	7.38	8361	4.18	0.25	8.9	-194.2	12.12

Flow Rate 150 mL/min
Pump controller setting FT/DT 24/3

General Comments:

pale yellow-colored water

Pulled 5 bottles for
Ap III & IV plus TSS

Cloudy/windy
3 mph 37°
Snowy/dusty
(sleet)

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID: W-6B
 Sample I.D. (match bottle and COC form exactly): 3/30/22 1235 W-6B
 Date/Time Collected (match bottle and COC form exactly): 3/30/22 1235
 Personnel: F. Davis Ray
 Sample Method: Bladder pump
 Water level meter, pump, and tubing decontaminated prior: Yes No
 Sample QC: Duplicate Yes No Duplicate Sample ID:
 Sample QC: Equipment Blank Yes No Equip Blank Sample ID:
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) 39
 Date: 3/30/22 Depth to Water (ft, btoc) 14.80
 Time Completed: 1305 Total Purge 23 Units L

Total (#, btoc)
Depth
45.00

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
928	START	PUMP						
938	2500	6.55	45.81					
948	3500	6.52	44.48					
958	5000	6.47	45.43					
1008	6500	6.46	45.15					
1018	8000	6.46	44.36					
1028	9500	6.45	44.23					
1038	11000	6.45	45.85					
1048	12500	6.47	45.60					
1058	13000	6.47	45.36					
1108	13500	6.46	45.39					
1118	14000	6.46	45.09					
1128	14500	6.46	46.02					
1138	15000	6.44	44.77					
1148	15500	6.45	45.77					
1158	16000	6.43	45.20					
1208	18000	6.44	44.77					

Rate (ml/min)

500

100

150

150

↓ 50?

* clogged
tube *
- restricting
flow

50

50

400 (FIXED)
200 TURB

Flow Rate 200

Pump controller setting 100/12F

General Comments:

Pump hit bottom of well (WL meter got stuck inside well with pump)
 * inaccurate depths caused accidental contact with the well bottom.

Dark grey to yellow brown → light yellow sample

* Discharge tube clogged mid-pump, resulting in a very low flow rate.

Water Sample Collection Field Data Sheet Continuation Page

Site Name: Comanche Well ID.: W-68

Comanche

Well ID.: W-68

Field Measurements:

Time (24 hour)	Amount purged (ml)	pH	COND (μ S/cm)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Purging Water Depth (ft, btoc)
1218	190000	6.44	44.39	11.6	0.15	14.4	92.5	16.93
1223	20000	6.44	44.27	5.88	0.14	14.2	92.7	16.88
1228	21000	6.44	45.16	7.49	0.11	14.3	84.5	16.73
1233	22000	6.44	44.87	8.28	0.14	14.5	90.9	16.77
SAMPLE @ 1235 App III + IV + TDS/TSS								
STOP PUMP @ 1305								

Rate (mL/min)

200
200

↓

10 → 5 min

* Pump
end dirty
upon
retrieval
(gray silty
material)

Combo
lock

Sunny 63°
6 mph

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID: W-7
 Sample I.D. (match bottle and COC form exactly): W-7
 Date/Time Collected (match bottle and COC form exactly): 3/31/22 1730
 Personnel: F. Davis Ray
 Sample Method: Bladder pump
 Water level meter, pump, and tubing decontaminated prior: Yes No
 Sample QC: Duplicate Yes No Duplicate Sample ID:
 Sample QC: Equipment Blank Yes No Equip Blank Sample ID:
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) 20
 Date: 3/31/22 Depth to Water (ft, btoc) 8.11
 Time Completed: 1800 Total Purge 46 Units L
OR

Total well
depth (ft, btoc)
23.96

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	MS/LM COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
1430	START	Pump						
1440	5000	6.44	39.48	40.1	3.56	15.0	258.6	8.29
1450	7500	6.44	39.31	58.4	3.64	15.2	249.3	8.28
1500	10000	6.44	39.71	43.1	3.50	15.0	237.2	8.30
1510	12500	6.44	39.56	47.2	3.45	15.3	225.9	8.29
1520	15000	6.44	39.34	46.3	2.36	15.3	217.9	8.30
1530	17500	6.44	40.65	31.4	1.39	15.2	214.3	8.31
1540	20000	6.44	40.47	34.9	1.40	15.1	210.5	8.31
1550	22500	6.44	40.29	28.3	1.37	15.0	207.1	8.32
1600	25000	6.44	40.13	22.8	1.37	15.1	205.3	8.33
1610	27500	6.44	39.97	19.1	1.29	15.2	202.9	8.33
1620	30000	6.44	39.76	16.4	1.21	15.3	198.2	8.33
1630	32500	6.44	39.74	16.7	1.25	15.3	195.3	8.34
1640	35000	6.44	39.61	14.2	1.35	15.2	191.5	8.33
1650	37500	6.44	39.57	14.1	1.37	15.1	188.2	8.34
1700	40000	6.44	39.34	9.45	1.33	15.1	185.1	8.33
1705	41250	6.44	39.50	14.6	1.54	15.1	183.4	8.34

Rate (ml/min)

250
250
250
↓

Flow Rate 250
 Pump controller setting 50/15 F

General Comments:

Initial orange yellow color; light orange/yellow at sample.
 Pulled an extra bottle for dissolved metals due to 710 NTUs
 3+ hours on well & losing light; all other parameters
 appear stable.

Interval
10 min → 5 min

Site Name: Comanche Well ID.: W-7

Site Name: Comanche Well ID.: W-7

[illegible]

RATE (ml/min)

250



SAMPLE @ 1730 App III + IV + TSS/TDS + Dissolved Metal

END @ 1800
(stop pump)

Water Sample Collection Field Data Sheet

Site Name: Lomax Well ID: W-8A

Sample I.D.(match bottle and COC form exactly): _____

Date/Time Collected (match bottle and COC form exactly): _____

Personnel: Yent

Sample Method: _____

Water level meter, pump, and tubing decontaminated prior:	Yes	No
---	-----	----

Sample QC: Duplicate Yes No Duplicate Sample ID: _____

Sample QC: Equipment Blank Yes No Equip Blank Sample ID: _____

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc)

Date: 28 March 2022 Depth to Water (ft, btoc) 31.12

Time Completed: _____ Total Purge _____ Units _____

Field Measurements: Fill In All Blanks

[illegible]

Flow Rate

Pump controller setting_____

General Comments:

55°F
Cloudy

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID: W-9
 Sample I.D. (match bottle and COC form exactly): W-9
 Date/Time Collected (match bottle and COC form exactly): 03-31-22 1450
 Personnel: Kent, Ray
 Sample Method: LF bladder pump
 Water level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ No
 Sample QC: Duplicate ☐ Yes ☒ No Duplicate Sample ID: N/A
 Sample QC: Equipment Blank ☐ Yes ☒ No Equip Blank Sample ID: N/A
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) 38'
 Date: 03/29/2022 // 3/31 Depth to Water (ft, btoc) 35.87 // 35.91 TD = 40.90
 Time Completed: 1445 // 1515 Total Purge 5 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	☒ pH	☒ COND (mS/m)	☒ TURB (NTU)	DO (mg/L)	TEMP (C°)	☒ ORP (mV)	Water Depth (ft, btoc)
1405	Start Pump							
1410	1500	6.99	16159	5.11	0.03	17.5	-107.3	35.87
1415	2000	6.98	16041	5.59	0.10	17.2	-106.4	36.29
1420	2500	6.98	16159	7.33	0.07	18.0	-104.4	36.31
1425	3000	6.99	16091	8.47	0.35	18.3	-103.2	36.36
1430	3500	7.01	16203	5.18	0.52	17.6	-102.1	36.40
1435	4000	7.00	16183	6.04	1.68	17.7	-100.2	36.52
1440	4500	7.00	16122	7.33	1.37	18.0	-99.6	36.52
1445	5000	7.00	16145	6.31	1.24	18.4	-98.4	36.58
1500	purged well dry							

Rate
ml/min
400
~~200~~
100
100

Flow Rate 100 ml/min

Pump controller setting FT/DT = 14/4

General Comments:

pale yellow color water

Slightly effe

3/29 purged well dry, started to pull samples & water ran dry

3/31 Returned to sample purged well

Pulled 5 bottles for App III, IV DTSS

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID.: W-10A

Sample I.D.(match bottle and COC form exactly): _____

Date/Time Collected (match bottle and COC form exactly): _____

Personnel: Kent

Sample Method: _____

Water level meter, pump, and tubing decontaminated prior:	Yes	No
---	-----	----

Sample QC: Duplicate Yes No Duplicate Sample ID: _____

Sample QC: Equipment Blank Yes No Equip Blank Sample ID: _____

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) _____

Date: 28 MARCH 2022 Depth to Water (ft, btoc) 20, 20

Time Completed: _____ Total Purge _____ Units _____

Field Measurements: Fill In All Blanks[illegible]

Flow Rate

Pump controller setting_____

General Comments:

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID: W-10B

Sample I.D.(match bottle and COC form exactly): _____

Date/Time Collected (match bottle and COC form exactly): _____

Personnel: LCM

Sample Method: _____

Water level meter, pump, and tubing decontaminated prior: Yes No

Sample QC: Duplicate Yes No Duplicate Sample ID: _____

Sample QC: Equipment Blank Yes No Equip Blank Sample ID: _____

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc)

Date: 28 MARCH 2022 Depth to Water (ft, btoc) 27.85

Time Completed: _____ Total Purge _____ Units _____

Field Measurements: Fill In All Blanks

[illegible]

Flow Rate

Pump controller setting

General Comments:

Combo
Lock

Cloudy / ~~hazy~~ windy
10 mph 45

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID.: W-11
 Sample I.D. (match bottle and COC form exactly): W-11
 Date/Time Collected (match bottle and COC form exactly): 4/1/22 1100
 Personnel: F. Davis Ray
 Sample Method: Bladder pump
 Water level meter, pump, and tubing decontaminated prior: Yes No
 Sample QC: Duplicate Yes No Duplicate Sample ID:
 Sample QC: Equipment Blank Yes No Equip Blank Sample ID:
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) 30
 Date: 4/1/22 Depth to Water (ft, btoc) 23.61
 Time Completed: 1120 Total Purge 24 Units L

Total
Depth
(ft, btoc)
35.28

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	ms/cm COND (mS/cm)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
910	START	PUMP						
920	3000	6.78	17.73	214	3.31	13.3	206.6	24.13
930	5500	6.78	18.27	163	2.56	13.0	208.9	24.15
940	8000	6.78	18.46	117	2.09	13.1	210.5	24.32
950	10000	6.78	18.70	47.5	1.73	13.6	212.1	24.39
1000	12000	6.78	18.82	30.1	1.55	13.5	213.4	24.38
1010	14000	6.78	18.81	23.0	1.37	13.8	214.2	24.44
1020	16000	6.77	18.87	18.6	1.27	13.6	215.1	24.42
1030	18000	6.77	18.94	13.9	1.16	13.7	214.8	24.52
1040	20000	6.77	18.98	9.84	1.11	13.4	214.5	24.51
1045	21000	6.77	19.15	7.44	0.94	13.5	215.7	24.52
1050	22000	6.76	19.16	7.89	0.92	13.4	215.3	24.54
1055	23000	6.76	19.12	9.25	0.96	13.6	214.8	24.56
SAMPLE @ 1100 STOP PUMP @ 1120								

Rate (ml/min)

350
250
250
200
200
200



Flow Rate 200
 Pump controller setting 90/13F

General Comments:
Orange-yellow color in sample

Combo
Locks

cloudy/windy
10 mph 48°

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID.: W-12

Personnel: F. Davis Ray

Date: 4/1/22 ~~Static~~ ^{OR} Depth to Water (ft, btoc) 21.92

Total Depth
(ft, btoc)

Date/Time Sample Collected (match bottle and COC form exactly): 4/1/22 1230

26.90

Sample Method: Bladder pump

Water level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ No

Sample QC: Duplicate ☐ Yes ☒ No Duplicate Sample ID:

Sample QC: Equipment Blank ☐ Yes ☒ No Equip Blank Sample ID:

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) ~~23~~ ^{OR} 24

Time Completed: 1250 Total Purge 8 Units L

Sample I.D. (match bottle and COC form exactly): W-12

Field Measurements:

Time (24 hour)	Amount purged (ml)	pH	mS/cm COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Purging Water Depth (ft, btoc)
1155	START	PUMP						
1205	2500	6.72	23.32	5.91	0.29	14.2	254.5	*6+p
1210	4000	6.73	23.35	9.38	0.42	14.3	252.8	6+p
1215	5000	6.73	23.43	5.62	0.50	14.2	250.5	6+p
1220	6000	6.73	23.35	3.35	0.54	14.3	247.4	6+p
1225	7000	6.73	23.38	2.56	0.53	14.4	243.5	6+p
SAMPLE @ 1230 App III + IV + TSS								
STOP PUMP @ 1250								

*LWL is below the top
of the pump

Rate
(ml/min)

250
200
200
200
200

Flow Rate 200
Pump controller setting 7 D/14 F

General Comments:

Light yellow to pale yellow samples
* Samples were taken with the water level below the top of the pump.

Site Name: Comanche Well ID.: W-13

Well ID.: W-13

Date: 3/28/22 // 4/5/22

Static Depth to Water (ft, btoc) 29.42

$$T_D = 31.33$$

Date/Time Sample Collected (match bottle and COC form exactly): N/A

Sample Method: bruter

Water level meter, pump, and tubing decontaminated prior: Yes No

Sample QC: Duplicate Yes ☒ No ☐ Duplicate Sample ID: _____

Sample QC: Equipment Blank Yes ☐ No ☒ Equip Blank Sample ID: _____

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc)

Time Completed: _____ Total Purge 1.3 Units ✓

Sample I.D.(match bottle and COC form exactly): N/A

[illegible]

Pump controller setting

31.33

29.42

1.91 ft of H₂O

~~187~~

General Comments:
 * Usually a day well
 but had a small amount
 of H₂O

④baled well dry, never recharged

53°F
cloudy
windy
7-12
mph

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID.: W-14
Sample I.D.(match bottle and COC form exactly): W-14
Date/Time Collected (match bottle and COC form exactly): 04-01-22 1240
Personnel: Kent
Sample Method: LF bladder pump
Water level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ No
Sample QC: Duplicate Yes ☐ No Duplicate Sample ID:
Sample QC: Equipment Blank Yes ☐ No Equip Blank Sample ID:
Well Purging Data (Fill In All Blanks)
Depth of Sample Collection (pump depth) (ft, btoc) 44' TD = 46
Date: 04/01/2022 Depth to Water (ft, btoc) 38.52
Time Completed: Total Purge Units

Field Measurements: Fill In All Blanks

[illegible]

Rate mL/min
200
200

Flow Rate 200 mL/min
Pump controller setting FT/DT 23/6
General Comments:
pale yellow colored H₂O

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID.: W-15

Sample I.D.(match bottle and COC form exactly): _____

Date/Time Collected (match bottle and COC form exactly): _____

Personnel: Kent

Sample Method: _____

Water level meter, pump, and tubing decontaminated prior:	Yes	No
---	-----	----

Sample QC: Duplicate Yes No Duplicate Sample ID: _____

Sample QC: Equipment Blank Yes No Equip Blank Sample ID: _____

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) _____

Date: 28 MARCH 2022

Depth to Water (ft. btoc) 34.22 (dm)

Time Completed: _____

Total Purge Units

Field Measurements: Fill In All Blanks[illegible]

Flow Rate

Pump controller setting

General Comments:

48°F
cloudy
breezy
7-9
mph

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID: W-16
 Sample I.D.(match bottle and COC form exactly): W-16
 Date/Time Collected (match bottle and COC form exactly): 04-01-22 1050
 Personnel: Kent
 Sample Method: LF Bladder pump
 Water level meter, pump, and tubing decontaminated prior: (Yes) No
 Sample QC: Duplicate Yes (No) Duplicate Sample ID:
 Sample QC: Equipment Blank Yes (No) Equip Blank Sample ID:
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) 45'
 Date: 1 APRIL 2022 Depth to Water (ft, btoc) 37.31 TD = 49.05
 Time Completed: 1100 Total Purge 19 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
917	start pump							37.31
930	2000	6.99	14716	32.1	0.08	13.6	-140.1	37.38
940	4000	6.99	14615	27.9	0.01	14.0	-187.4	37.43
950	6000	6.99	14610	18.4	0.08	14.4	-209.5	37.45
1000	8000	6.98	14611	11.5	0.08	14.4	-222.4	37.47
1010	10000	6.98	14628	7.83	0.08	14.5	-232.4	37.49
1020	13000	6.98	14653	6.07	0.08	14.4	-242.5	37.49
1030	15000	6.97	14808	5.65	0.08	14.3	-253.4	37.50
1040	17000	6.97	14832	4.10	0.08	14.3	-258.2	37.55
1045	18000	6.97	14884	3.98	0.07	14.3	-260.7	37.47
1050	19000	6.97	14864	3.12	0.08	14.2	-261.4	37.49

Rate
mL/min
300
200

Flow Rate 200 mL/min
 Pump controller setting FT/DT 20/6
 General Comments:
2022 new well - 1st sampling event
Water yellow colored H₂O
Pulled AppH, IV + TSS aliquots

Site Name: Comanche Well ID.: MW-1
 Personnel: TB
 Date: 5/2/22 Static Depth to Water (ft, btoc) DRY
 Date/Time Sample Collected (match bottle and COC form exactly): NA
 Sample Method: NA
 Water level meter, pump, and tubing decontaminated prior: Yes No
 Sample QC: Duplicate Yes No Duplicate Sample ID: _____
 Sample QC: Equipment Blank Yes No Equip Blank Sample ID: _____
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) NA
 Time Completed: NA Total Purge — Units —
 Sample I.D.(match bottle and COC form exactly): _____

[illegible]

General Comments:

Site Name: Comanche Well ID.: MW-1B
Personnel: TS
Date: 5/3/22 Static Depth to Water (ft, btoc) 31.30
Date/Time Sample Collected (match bottle and COC form exactly): 5/3/22 1540
Sample Method: Bladder
Water level meter, pump, and tubing decontaminated prior: Yes No
Sample QC: Duplicate Yes No Duplicate Sample ID: _____
Sample QC: Equipment Blank Yes No Equip Blank Sample ID: _____
Well Purging Data (Fill In All Blanks)
Depth of Sample Collection (pump depth) (ft, btoc) 40.0
Time Completed: 1530 Total Purge 11.5 Units L
Sample I.D.(match bottle and COC form exactly): MW-1B

[illegible]

Site Name: Comanche Well ID.: MW-2
Personnel: TS
Date: 5/6/22 Static Depth to Water (ft, btoc) 11.88
Date/Time Sample Collected (match bottle and COC form exactly): _____
Sample Method: Bailer
Water level meter, pump, and tubing decontaminated prior: Yes No
Sample QC: Duplicate Yes No Duplicate Sample ID: _____
Sample QC: Equipment Blank Yes No Equip Blank Sample ID: _____
Well Purging Data (Fill In All Blanks)
Depth of Sample Collection (pump depth) (ft, btoc) _____
Time Completed: 1220 Total Purge 500 Units ml
Sample I.D. (match bottle and COC form exactly): _____

[illegible]

Flow Rate _____
Pump controller setting _____
General Comments: _____

Site Name: Comanche Well ID.: MW-2B

Well ID.: MCW-2B

Personnel: 73

Date: 5/3/22

Static Depth to Water (ft, btoc)

18.35

Date/Time Sample Collected (match bottle and COC form exactly): 5/3/22 1145

Bladder

Yes

No

Yes

No

Duplicate Sample ID:

Yes

No

Equip Blank Sample ID:

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc)

30,0

Time Completed:

Total Purge

Units 6

Sample I.D.(match bottle and COC form exactly):

MW-2B

Field Measurements:

[illegible]

Flow Rate	300 mL/min
-----------	------------

Pump controller setting

General Comments:

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID.: MW-3
 Personnel: TS
 Date: 5/2/22 Static Depth to Water (ft, btoc) 8.79
 Date/Time Sample Collected (match bottle and COC form exactly): 5/2/22 1500
 Sample Method: Bladder
 Water level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ No
 Sample QC: Duplicate Yes ☒ No Duplicate Sample ID: _____
 Sample QC: Equipment Blank Yes ☒ No Equip Blank Sample ID: _____
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) 11.0
 Time Completed: 1455 Total Purge 17.0 Units 2
 Sample I.D. (match bottle and COC form exactly): MW-3

Field Measurements:

Time (24 hour)	Amount purged (L)	pH	COND (µS/cm)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Purging Water Depth (ft, btoc)
1340	0.5	6.84	29490	5.92	1.04	15.0	204.5	9.97
1350	3.0	6.82	29433	3.71	0.28	15.0	167.9	9.25
1400	5.5	6.80	29452	3.36	0.59	15.3	155.4	9.38
1410	8.0	6.77	29466	3.76	0.48	15.3	146.9	9.46
1420	10.5	6.73	29523	5.25	0.10	15.3	128.3	9.56
1430	13.0	6.71	29510	3.79	0.06	15.2	95.1	9.57
1440	14.5	6.68	29526	5.54	0.05	15.3	77.3	9.62
1450	16.0	6.66	29607	9.39	0.06	15.1	74.0	9.65
1455	17.0	6.65	29631		0.05	15.0	74.7	

Flow Rate 200 mL/min
 Pump controller setting 15/20
 General Comments:
ID = 1300

Site Name: Comanche Well ID.: MMW-4
Personnel: TB
Date: 5/2/22 Static Depth to Water (ft, btoc) DRY
Date/Time Sample Collected (match bottle and COC form exactly): NA
Sample Method: NA
Water level meter, pump, and tubing decontaminated prior: Yes No
Sample QC: Duplicate Yes No Duplicate Sample ID: _____
Sample QC: Equipment Blank Yes No Equip Blank Sample ID: _____
Well Purging Data (Fill In All Blanks)
Depth of Sample Collection (pump depth) (ft, btoc) DRY
Time Completed: NA Total Purge _____ Units _____
Sample I.D. (match bottle and COC form exactly): _____

[illegible]

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID.: MW-4B
 Personnel: TS
 Date: 5/4/22 Static Depth to Water (ft, btoc) 38.01
 Date/Time Sample Collected (match bottle and COC form exactly): 5/4/22 1210
 Sample Method: Bladder
 Water level meter, pump, and tubing decontaminated prior: Yes No
 Sample QC: Duplicate Yes No Duplicate Sample ID: _____
 Sample QC: Equipment Blank Yes No Equip Blank Sample ID: _____
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) 57.0
 Time Completed: 1155 Total Purge 16.5 Units L
 Sample I.D. (match bottle and COC form exactly): MW-4B

Field Measurements:

Time (24 hour)	Amount purged (L)	pH	COND (μ S/cm)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Purging Water Depth (ft, btoc)
0940	0.5	6.62	5082	29.3	1.60	14.4	158.0	38.05
0950	1.5	6.66	5117	15.4	0.17	14.4	158.8	39.50
1000	3.5	6.71	5152	26.3	0.13	14.3	152.4	39.88
1010	6.0	6.71	5153	31.0	0.13	14.4	148.1	40.02
1025	8.5	6.75	5169	28.4	0.12	14.5	140.6	40.11
1035	8.5	6.70	5167	23.5	0.09	15.2	132.6	40.18
1045	9.5	6.73	5169	21.3	0.08	15.3	126.1	40.29
1055	10.5	6.75	5172	19.1	0.07	15.5	116.6	40.44
1105	11.5	6.75	5168	15.9	0.06	15.5	110.4	40.50
1115	12.5	6.71	5163	13.5	0.06	15.5	110.7	40.55
1125	13.5	6.75	5164	12.1	0.05	15.5	111.4	40.60
1135	14.5	6.74	5175	10.6	0.04	15.7	109.7	40.63
1145	15.5	6.75	5171	9.67	0.04	16.1	108.9	40.69
1150	16.0	6.76	5196	9.42	0.05	15.7	109.0	40.74
1155	16.5	6.74	5194	6.01	0.04	16.0	108.6	40.75

Flow Rate 100 ml/min

Pump controller setting 13/35

General Comments:

- Passed 2 hrs mark but continued as turbidity was close to 40 NTU.

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID.: MW-5
 Personnel: TS
 Date: 5/3/22 Static Depth to Water (ft, btoc) 26.99
 Date/Time Sample Collected (match bottle and COC form exactly): 5/5/22 1610
 Sample Method: Bladder
 Water level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ No
 Sample QC: Duplicate Yes ☐ No Duplicate Sample ID: _____
 Sample QC: Equipment Blank Yes ☐ No Equip Blank Sample ID: _____
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) 36.0
 Time Completed: 0925 Total Purge 5.5 Units L
 Sample I.D. (match bottle and COC form exactly): MW-5

Field Measurements:

Time (24 hour)	Amount purged (L)	pH	COND (μ S/cm)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Purging Water Depth (ft, btoc)
0845	0.5	6.92	16784	10.2	4.08	11.3	211.3	27.68
0855	2.0	6.81	16872	1.09	1.82	12.0	176.6	28.06
0905	2.5	6.77	16886	1.67	1.94	12.1	157.2	29.60
0915	4.0	6.68	16893	7.92	2.01	12.5	126.0	32.48
0925	5.5	6.68	16504	4.07	1.90	12.2	107.0	33.98
Pump dry @ 0928								

Flow Rate 150 mL/min
 Pump controller setting 15/30
 General Comments:

Still a few feet of water but pump stopped
Flowing @ 33.98 - TD = 38.5
Returned 5/5 - WL @ 27.01 recharged - Sampled @ 1610

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID.: MW-6
 Personnel: TS
 Date: 5/4/22 Static Depth to Water (ft, btoc) 31.33
 Date/Time Sample Collected (match bottle and COC form exactly): 5/4/22 0915
 Sample Method: Bladder
 Water level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ No
 Sample QC: Duplicate Yes ☒ No Duplicate Sample ID: _____
 Sample QC: Equipment Blank Yes ☒ No Equip Blank Sample ID: _____
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) 42.0
 Time Completed: 0900 Total Purge 12.0 Units L
 Sample I.D. (match bottle and COC form exactly): MW-6

Field Measurements:

Time (24 hour)	Amount purged (L)	pH	COND (μ S/cm)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Purging Water Depth (ft, btoc)
0805	0.5	7.64	5130	22.2	6.31	11.8	207.4	31.52
0815	2.0	7.39	5195	42.3	4.57	13.3	186.8	31.52
0826	3.5	7.40	5194	36.7	5.40	13.9	176.9	31.52
0835	6.0	7.34	5175	17.0	5.88	14.2	157.6	31.58
0845	8.5	7.37	5193	6.87	5.37	14.0	142.6	31.65
0855	11.0	7.34	5195	2.49	4.94	14.0	136.6	31.68
0900	12.0	7.33	5188	1.33	4.92	14.0	132.7	31.64

Flow Rate 250 mL/min
 Pump controller setting 15/30
 General Comments: _____

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID.: MW-7
 Personnel: TB
 Date: 5/3/22 Static Depth to Water (ft, btoc) 20.60
 Date/Time Sample Collected (match bottle and COC form exactly): 5/3/22 1410
 Sample Method: Bladder
 Water level meter, pump, and tubing decontaminated prior: Yes No
 Sample QC: Duplicate Yes No Duplicate Sample ID: _____
 Sample QC: Equipment Blank Yes No Equip Blank Sample ID: _____
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) 37.0
 Time Completed: 1400 Total Purge 19.0 Units L
 Sample I.D. (match bottle and COC form exactly): MW-7

Field Measurements:

Time (24 hour)	Amount purged (L)	pH	COND (µS/cm)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Purging Water Depth (ft, btoc)
1245	0.5	6.85	10853	130	2.42	15.2	125.8	20.64
1255	3.0	6.84	9644	96.6	1.07	15.2	107.9	20.63
1305	5.5	6.80	9517	43.8	0.87	15.1	94.5	20.62
1315	8.0	6.78	9442	25.5	0.11	15.2	77.1	20.62
1325	10.5	6.78	9448	19.9	0.08	15.1	63.6	20.62
1335	13.0	6.81	9392	12.0	0.08	15.1	66.0	20.62
1345	15.5	6.79	9386	8.74	0.08	15.1	62.2	20.62
1355	18.0	6.80	9385	6.87	0.07	15.1	65.3	20.62
1400	19.0	6.79	9361	6.27	0.08	15.1	95.8	20.62

Flow Rate 250 mL/min
 Pump controller setting 15/30
 General Comments:

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID.: W-11
 Personnel: TB
 Date: 5/4/22 Static Depth to Water (ft, btoc) 23.65
 Date/Time Sample Collected (match bottle and COC form exactly): 5/4/22 1545
 Sample Method: Bladder
 Water level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ No
 Sample QC: Duplicate Yes ☐ No Duplicate Sample ID: _____
 Sample QC: Equipment Blank Yes ☐ No Equip Blank Sample ID: _____
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) 33.0
 Time Completed: 1535 Total Purge 25.0 Units L
 Sample I.D. (match bottle and COC form exactly): W-11

Field Measurements:

Time (24 hour)	Amount purged (L)	pH	COND (µS/cm)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Purging Water Depth (ft, btoc)
1335	0.5	6.46	14349	42.7	0.41	15.4	171.5	23.92
1345	3.0	6.86	14639	61.3	0.11	15.8	152.0	24.12
1355	5.0	6.84	14845	64.5	0.10	15.8	139.2	24.15
1405	7.0	6.85	14981	78.6	0.11	15.7	129.5	24.18
1415	9.0	6.86	14982	71.2	0.11	15.5	122.2	24.34
1425	11.0	6.97	15042	67.1	0.11	15.3	116.5	24.31
1435	13.0	6.85	15128	51.0	0.11	15.1	103.9	24.30
1445	15.0	6.83	15146	43.4	0.11	15.1	87.0	24.31
1455	17.0	6.84	15132	41.3	0.11	15.0	65.9	24.40
1505	19.0	6.83	15105	34.9	0.14	14.8	56.5	24.51
1515	21.0	6.84	15122	30.8	0.13	14.7	54.6	24.45
1525	23.0	6.82	15100	26.9	0.12	14.5	58.6	24.51
1535	25.0	6.83	15082	23.4	0.11	14.5	64.9	24.48

Flow Rate 200 ml/min
 Pump controller setting 15/40

General Comments:

Hit 2-hour mark - Turbidity out of range
Collected Diss Metals (Lab Filter)

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID.: W-12
 Personnel: TB
 Date: 5/5/22 Static Depth to Water (ft, btoc) 20.94
 Date/Time Sample Collected (match bottle and COC form exactly): 5/5/22 1045
 Sample Method: Bladder
 Water level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ No
 Sample QC: Duplicate Yes ☒ No Duplicate Sample ID: _____
 Sample QC: Equipment Blank Yes ☒ No Equip Blank Sample ID: _____
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) 24.0
 Time Completed: 1040 Total Purge 22.5 Units L
 Sample I.D. (match bottle and COC form exactly): W-12

Field Measurements:

Time (24 hour)	Amount purged (L)	pH	COND (μ S/cm)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Purging Water Depth (ft, btoc)
0850	0.5	6.88	17299	12.7	0.47	13.7	222.2	21.41
0900	2.0	6.84	17587	29.1	0.36	13.7	210.7	21.43
0910	3.5	6.81	17700	28.7	0.22	13.9	201.1	21.41
0920	5.0	6.79	17805	22.9	0.14	13.8	187.1	21.38
0930	6.5	6.76	17763	13.2	0.28	14.2	170.6	21.69
0940	8.0	6.73	17831	7.42	0.16	14.3	156.8	21.61
0950	10.5	6.70	17792	9.67	0.20	14.3	132.8	21.55
1000	13.0	6.67	17832	7.94	0.22	14.6	118.1	21.61
1010	15.5	6.64	17859	4.27	0.23	14.8	100.1	21.49
1020	18.0	6.63	17864	2.83	0.30	14.7	89.5	21.65
1030	20.5	6.61	17868	2.02	0.32	14.8	80.5	21.60
1035	21.5	6.64	17872	1.59	0.31	14.9	76.7	21.55
1040	22.5	6.65	17876	0.02	0.29	14.8	78.2	21.60

Flow Rate 200 mL/min
 Pump controller setting 15/35
 General Comments:

Water Sample Collection Field Data Sheet

Site Name: Cermanche Well ID.: W-13
 Personnel: TS
 Date: 5/5/22 Static Depth to Water (ft, btoc) 30.68 TD = 32.50'
 Date/Time Sample Collected (match bottle and COC form exactly): 5/11/22 1430
 Sample Method: Bailer 5/11/22 1430
 Water level meter, pump, and tubing decontaminated prior: Yes No
 Sample QC: Duplicate Yes No Duplicate Sample ID: _____
 Sample QC: Equipment Blank Yes No Equip Blank Sample ID: _____
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) 31.0
 Time Completed: 1200 Total Purge 250 Units ml
 Sample I.D. (match bottle and COC form exactly): W-13

Field Measurements:

Time (24 hour)	Amount purged (L)	pH	COND (µS/cm)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Purging Water Depth (ft, btoc)
1145								
		Well dry → No discharge						
1205	250ml	6.96	14160	NA	2.66	23.0	136.1	31.0
5/11/22								
F. Ray								
1415	START BAIL							31.90
1430	SAMPLE (only 250 ml; ASK PM)							DRY

Flow Rate _____

Pump controller setting _____

General Comments:

<1 foot water available. Tried to pump but no
discharge. Collected sample/parameters from water
in pump line. Only 250 ml collected in 500 mL

unpreserved
bottle

5/11/22 - Less than one foot of water (~0.6 ft).

Bailed sample after recharge, initial turbidity = 130 NTU

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID.: W-14
 Personnel: TS
 Date: 5/6/22 Static Depth to Water (ft, btoc) 38.62
 Date/Time Sample Collected (match bottle and COC form exactly): 5/6/22 1030
 Sample Method: Bladder
 Water level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ No
 Sample QC: Duplicate Yes ☒ No Duplicate Sample ID: _____
 Sample QC: Equipment Blank Yes ☒ No Equip Blank Sample ID: _____
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) 44.0
 Time Completed: _____ Total Purge _____ Units _____
 Sample I.D. (match bottle and COC form exactly): W-14

Field Measurements:

Time (24 hour)	Amount purged (L)	pH	COND (µS/cm)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Purging Water Depth (ft, btoc)
0835	0.5	6.99	19394	34.5	0.24	15.7	249.1	38.64
0845	1.5	7.01	19101	20.9	0.21	16.6	232.0	38.74
0855	3.0	6.97	19024	12.9	0.17	15.8	212.3	38.65
0905	4.5	6.99	18933	9.71	0.27	15.9	201.3	38.65
0915	6.0	6.99	18927	8.35	0.25	16.1	191.7	38.74
0925	7.5	6.97	18952	4.44	0.21	16.3	164.7	38.73
0935	8.5	6.95	18880	3.50	0.15	16.5	157.1	38.75
0945	9.5	6.92	18759	2.09	0.14	15.9	147.3	38.73
0955	10.0	6.92	18801	1.39	0.11	16.4	140.0	38.65
1000	10.5	6.92	18766	1.71	0.09	16.2	136.5	38.70
1005	11.0	6.91	18895	1.35	0.08	15.9	130.2	38.70
1010	11.5	6.90	18893	0.04	0.06	16.1	126.8	38.72
1015	12.5	6.90	18880	0.55	0.06	16.0	123.2	38.72
1020	13.5	6.90	18834	4.87	0.06	15.9	118.8	38.87

Flow Rate 100 mL/min
 Pump controller setting 15/30
 General Comments:

Turbidity within range (<10 NTU) but still
collected Dissolved Metals (Lab filter) for extra
analysis if needed

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID.: W-15
 Personnel: TS
 Date: 5/2/22 Static Depth to Water (ft, btoc) DRY
 Date/Time Sample Collected (match bottle and COC form exactly): NA
 Sample Method: NA
 Water level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ No
 Sample QC: Duplicate Yes ☒ No Duplicate Sample ID: _____
 Sample QC: Equipment Blank Yes ☒ No Equip Blank Sample ID: _____
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) NA
 Time Completed: _____ Total Purge _____ Units _____
 Sample I.D. (match bottle and COC form exactly): _____

Field Measurements:

Time (24 hour)	Amount purged (L)	pH	COND (μ S/cm)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Purging Water Depth (ft, btoc)
		Well dry						

Flow Rate _____
 Pump controller setting _____
 General Comments: _____

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID.: W-16

Personnel: TS

Date: 5/5/22 Static Depth to Water (ft, btoc) 37.31

Date/Time Sample Collected (match bottle and COC form exactly): 5/5/22 1500

Sample Method: Bladder

Water level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ No

Sample QC: Duplicate Yes ☒ No Duplicate Sample ID: _____

Sample QC: Equipment Blank Yes ☒ No Equip Blank Sample ID: _____

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) 47.0

Time Completed: 1450 Total Purge 18.5 Units L

Sample I.D. (match bottle and COC form exactly): W-16

Field Measurements:

Time (24 hour)	Amount purged (L)	pH	COND (µS/cm)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Purging Water Depth (ft, btoc)
1250	0.5	6.63	11253	45.6	1.41	20.3	164.0	37.37
1300	2.0	6.61	11153	29.6	0.16	19.6	127.0	37.37
1310	3.5	6.59	11159	38.9	0.10	19.6	99.2	37.37
1320	5.0	6.62	11180	38.9	0.09	19.7	82.0	37.36
1330	6.5	6.63	11180	31.4	0.07	19.9	84.4	37.37
1340	8.0	6.63	11209	26.4	0.06	20.1	86.5	37.37
1350	9.5	6.61	11194	24.1	0.04	20.2	79.8	37.37
1400	11.0	6.59	11204	21.6	0.03	20.7	59.2	37.37
1410	12.5	6.55	11236	20.3	0.03	20.4	39.1	37.34
1420	14.0	6.59	11259	15.8	0.02	21.1	48.1	37.37
1430	15.5	6.57	11234	13.0	0.02	20.5	44.5	37.37
1440	17.0	6.60	11252	10.7	0.02	20.6	42.4	37.37
1450	18.5	6.61	11256		0.02	20.8	50.0	37.37

Flow Rate 150 mL/min

Pump controller setting 15/35

General Comments:

Turbidity close to stabilized @ 2 hr mark
collected Dissolved Metals (Lab Filter) for extra
analysis anyways

Mostly Sunny
22 mph 61°

Site Name: Comanche Well ID.: W-1

Well ID.: W-1

Static Depth to Water (ft, btoc) 10.45

$$TD = 18.45$$

Date/Time Sample Collected (match bottle and COC form exactly): 5-11-22 1030

Sample Method: UF Bladder

Water level meter, pump, and tubing decontaminated prior: Yes No

Sample QC: Duplicate ☒ Yes ☐ No Duplicate Sample ID: _____

Sample QC: Equipment Blank Yes ☒ No Equip Blank Sample ID: _____

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) 16

Time Completed: 1040 Total Purge 11 Units 1

Sample I.D.(match bottle and COC form exactly): W-1

[illegible]Flow Rate

Pump controller setting 150/20 F

General Comments:

General Comments: Sample after recharge; initial turbidity = 0.02 NTU
Light yellow (pale) samples

Site Name: Comanche Well ID.: W-2
Personnel: F. Ray
Date: _____ Static Depth to Water (ft, btoc) DRY
Date/Time Sample Collected (match bottle and COC form exactly): N/A
Sample Method: N/A
Water level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ No
Sample QC: Duplicate Yes ☐ No Duplicate Sample ID: _____
Sample QC: Equipment Blank Yes ☐ No Equip Blank Sample ID: _____
Well Purging Data (Fill In All Blanks)
Depth of Sample Collection (pump depth) (ft, btoc) N/A
Time Completed: N/A Total Purge _____ Units _____
Sample I.D. (match bottle and COC form exactly): _____ No sample

[illegible]

Flow Rate _____
Pump controller setting _____
General Comments:

Mostly Sunny
w/ mph 61°

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID.: W-4

Personnel: F. Ray

Date: 5-2-22 Static Depth to Water (ft, btoc) 27.02 TD = 27.02

Date/Time Sample Collected (match bottle and COC form exactly): ~~5-11-22~~ No sample

Sample Method: Bail ($< 100 \text{ mL}$)

Water level meter, pump, and tubing decontaminated prior: Yes No

Sample QC: Duplicate Yes ☒ No ☐ Duplicate Sample ID:

Sample QC: Equipment Blank Yes ☐ No ☒ Equip Blank Sample ID: _____

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) 27.04

Time Completed: 1100 Total Purge Units 2

Sample I.D.(match bottle and COC form exactly): W-4

Field Measurements:

[illegible]Flow Rate $\frac{1}{2}$

Pump controller setting

General Comments:

DTW = Bailed sample from well due to low water volume (< 100 mL); discarded

27.42 Initial Turbidity = 42.2 NTU

Light pale yellow water

Key
lock

Sunny
20 mph 61°

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID.: W-5

Personnel: F. Ray

Date: 5-2-22

Static Depth to Water (ft, btoc) 12.70

TD = 27.55'

Date/Time Sample Collected (match bottle and COC form exactly): 5-11-22 1145

Sample Method: LF Bladder

Water level meter, pump, and tubing decontaminated prior: Yes No

Sample QC: Duplicate Yes No Duplicate Sample ID:

Sample QC: Equipment Blank Yes No Equip Blank Sample ID:

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) 25.5

Time Completed: 1200 Total Purge 21 Units L

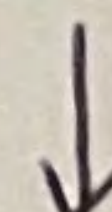
Sample I.D. (match bottle and COC form exactly): W-5

Field Measurements:

Time (24 hour)	Amount purged (ml)	pH	$\mu S/cm$ COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Purging Water Depth (ft, btoc)
1425	START	PUMP						
1435	3500	7.04	37851	26.0	0.15	16.1	-51.5	13.62'
1445	6000	7.04	37229	14.6	0.11	15.7	-43.5	14.40
1455	8500	7.05	34730	1.78	0.67	15.4	-14.4	15.14
1505	11000	7.07	33637	0.02	0.46	15.3	-6.1	15.87
1515	13500	7.03	34462	2.91	0.26	15.2	-1.6	16.75
1525	16000	6.99	35224	0.02	0.11	15.4	-6.5	19.95
1535	18500	6.99	35913	0.02	0.32	15.6	-21.7	23.85
1545	19500	7.02	36319	—	2.18	17.9	-17.2	* 6' top
1550	Purged well	DRY	(STOP PUMP)					
1145	SAMPLE	(App. III/IV + TSS/ + Diss. Metals (210 NTU))						
1200	STOP	PUMP						

Rate
(mL/min)

350
350
350



5/11/22
F. Ray

DTW =
15.61

Flow Rate
Pump controller setting 100/20F

General Comments: Sampled after recharge; light yellow samples (250mL DM)

Initial turbidity = 27.1 NTU

Combo
lock

Water Sample Collection Field Data Sheet

Sunny
5 mph 57°

Site Name: Comanche Well ID.: W-5B

Personnel: F. Davis Ray

Date: 5-6-22 Static Depth to Water (ft, btoc) 10.73

TD = 37.97'

Date/Time Sample Collected (match bottle and COC form exactly): 5-6-22 0950

Sample Method: LF Bladder

Water level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ No

Sample QC: Duplicate Yes ☒ No ☐ Duplicate Sample ID:

Sample QC: Equipment Blank Yes ☒ No ☐ Equip Blank Sample ID:

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) 35.5

Time Completed: 1015 Total Purge 18 Units L

Sample I.D. (match bottle and COC form exactly): W-5B

Field Measurements:

Time (24 hour)	Amount purged (L)	pH	COND (μ S/cm)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Purging Water Depth (ft, btoc)	Rate (mL/min)
0835	START	PUMP							
0845	4	6.84	12097	26.7	0.04	16.0	-25.0	11.10	250
0855	6	6.90	9361	6.98	0.04	16.0	-18.8	11.08	200
0905	8.5	6.97	7097	0.02	0.03	16.2	-6.8	10.99	200
0915	10.5	6.98	6256	0.02	0.03	16.3	3.0	11.10	200
0925	12.5	6.99	5735	0.02	0.03	16.5	13.5	10.98	
0935	14.5	6.98	5605	0.02	0.03	16.5	18.3	11.04	↓
0940	16.0	6.98	5510	0.02	0.03	16.4	22.0	11.09	
0945	17	6.98	5480	0.02	0.03	16.3	23.9	11.05	
0950	SAMPLE	(App. III/IV + TSS)							
1015	STOP	PUMP							

Flow Rate 200/250

Pump controller setting 9 D/29 F

General Comments:

Mostly Clear samples to light straw yellow color.
(pale)

Key
lock

Water Sample Collection Field Data Sheet

Mostly -
Cloudy,
7 mph 38°Site Name: Camaranche Well ID.: W-6Personnel: F. RayDate: 5-3-22Static Depth to Water (ft, btoc) 10.14TD = 29.27'Date/Time Sample Collected (match bottle and COC form exactly): 5-11-22 1245Sample Method: LF BladderWater level meter, pump, and tubing decontaminated prior: Yes NoSample QC: Duplicate Yes No Duplicate Sample ID: Sample QC: Equipment Blank Yes No Equip Blank Sample ID:

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) 27'Time Completed: 1300 Total Purge 35 Units LSample I.D. (match bottle and COC form exactly): W-6

Field Measurements:

Time (24 hour)	Amount purged (ml)	pH	$\mu S/cm$ COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Purging Water Depth (ft, btoc)	Rate (mL/min)
0850	START	PUMP							
0900	4000	7.12	9724	15.1	0.21	14.1	-59.3	11.07	350
0910	7000	7.13	9007	17.8	0.19	13.9	-36.5	11.89	350
0920	9500	7.20	7536	19.9	0.33	14.1	-7.7	12.87	350
0930	12000	7.21	7063	2.31	0.22	14.2	-2.0	14.25	
0940	15500	7.20	7251	4.36	0.17	14.2	3.7	15.41	
0950	18500	7.18	7564	7.11	0.15	13.9	13.1	16.37	
1000	21000	7.15	7970	4.69	0.10	14.3	25.8	17.10	
1010	PUMP	STOPPED							
1110	Resume	pumping							
1120	Blown	fuse?							
1112	STOP	PUMP							
	* Pump broken; check valve not working (return to Geotech)								
	(strong release of air/pressure when removing air tube)								
	(Re-purge)								
0750	Start	pump							
0800	26500	7.17	9583	23.4	0.22	15.1	-25.6	18.15	350
0810	30000	7.22	9254	36.4	0.96	15.1	-20.1	21.45	300
0820	33000	7.23	9418	47.2	0.99	15.1	-28.1	*6 top	300

Flow Rate 350/300Pump controller setting 15 D/24 F

General Comments:

* See field notes for additional information; replaced fuse after pump stopped, did not work properly due to check valve malfunction (not releasing air pressure). Resume purge next day with new equipment.

DTW = 24.10' (5-6-22)Replaced
broken
fuse
after 22L
(check valve)5-4-22
F. RayReplaced
fuseon
back

Time (24 hour)	Amount Purged (L)	pH	COND ($\mu\text{S}/\text{cm}$)	TURB (NTUs)	DO (mg/L)	T ($^{\circ}\text{C}$)	ORP (mV)	Water Depth (ft, bloc)
0830	34	7.24	9410	—	3.10	12.5	4.3	* 6 top

0832 Well purged DRY

5-11-22
F. Ray

1230

DTW = 21.32'

1245

Sample (App. III/IV + TSS)

1300

DRY — Only 600 mL of 1L - nitric (Rad 226/228)

Sample after recharge; initial turbidity = 1.50 NTU

No label
Combo
lock

Sunny
5 mph 73°

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID.: W-6B

Personnel: F. Davis Ray

Date: 5-6-22 Static Depth to Water (ft, btoc) 15.06

TD = 44.75'

Date/Time Sample Collected (match bottle and COC form exactly): 5-6-22 1310

Sample Method: LF Bladder

Water level meter, pump, and tubing decontaminated prior: Yes No

Sample QC: Duplicate Yes No Duplicate Sample ID:

Sample QC: Equipment Blank Yes No Equip Blank Sample ID: W-6B-EB

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) 42.5

Time Completed: 1320 Total Purge 40 Units L

Sample I.D. (match bottle and COC form exactly): W-6B

Field Measurements:

Time (24 hour)	Amount purged (L)	pH	COND (μ S/cm)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Purging Water Depth (ft, btoc)
1055	START	Pump						
1105	3	6.55	49600	44.0	0.29	17.8	-12.2	16.74
1115	6.5	6.46	47175	48.3	0.19	17.9	21.9	17.50
1125	9.5	6.39	46113	25.3	0.19	18.0	48.9	17.95
1135	12.5	6.36	45913	15.8	0.18	17.7	57.2	18.05
1145	16	6.34	45610	9.94	0.16	18.0	60.6	18.30
1155	19	6.33	45414	5.08	0.12	18.0	66.1	18.42
1205	22	6.33	45211	5.86	0.14	18.3	69.8	18.34
1215	25	6.33	45534	0.49	0.05	18.1	73.6	18.39
1225	28.5	6.34	45709	0.82	0.05	18.2	77.6	18.50
1230	30.5	6.34	45639	0.40	0.22	17.9	78.5	18.51
1235	32.5	6.34	45981	2.05	0.25	18.1	78.1	18.59
1240	34	6.34	46365	9.35	0.28	18.1	77.9	18.69
1245	35.5	6.34	46292	4.68	0.28	18.2	79.0	18.80
1250	37	6.34	46202	1.59	0.06	18.4	80.3	18.76
1255	38.5	6.35	46099	5.98	0.05	18.3	79.7	18.78
1300	40	6.36	45982	6.65	0.05	18.2	79.4	18.72

Rate
(mL/min)

350

350

350

↓

Flow Rate 350

Pump controller setting 120/20 F

General Comments:

Dark yellow-orange samples

SAMPLE @ 1310 (App. #/12 + TSS)

STOP PUMP @ 1320

Combo
Loch

Partly cloudy
12mph 63°

Water Sample Collection Field Data Sheet

Site Name: Comanche Well ID.: W-7
Personnel: F. Davis Ray
Date: 5-4-22 Static Depth to Water (ft, btoc) 8.25 TD = 23.97'
Date/Time Sample Collected (match bottle and COC form exactly): 5-4-22 1600
Sample Method: LF Bladder
Water level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ No
Sample QC: Duplicate Yes ☒ No Duplicate Sample ID:
Sample QC: Equipment Blank Yes ☒ No Equip Blank Sample ID:
Well Purging Data (Fill In All Blanks)
Depth of Sample Collection (pump depth) (ft, btoc) 21.5
Time Completed: 1620 Total Purge 26 Units L
Sample I.D. (match bottle and COC form exactly): W-7

Field Measurements:

Time (24 hour)	Amount purged (L)	pH	COND (µS/cm)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Purging Water Depth (ft, btoc)	Rate (mL/min)
1350	START	PUMP							
1400	3	6.50	43393	55.6	1.30	15.9	169.3	8.35	300
1410	5.5	6.49	43037	53.9	1.16	15.3	168.5	8.36	200
1420	7.5	6.48	42930	55.7	1.22	15.0	168.2	8.40	200
1430	9.5	6.49	42884	82.8	1.42	14.8	170.4	8.41	200
1440	11.5	6.48	43048	77.2	1.22	14.8	171.8	8.40	
1450	13.5	6.48	42994	47.9	1.24	14.7	173.7	8.42	
1500	15.5	6.48	42888	56.5	0.09	14.6	174.4	8.45	
1510	17.5	6.48	42826	48.6	1.26	14.5	175.6	8.47	
1520	19.5	6.48	42907	46.2	1.23	14.3	177.0	8.48	
1530	21.5	6.48	42830	45.0	1.20	14.2	180.9	8.50	
1540	23.5	6.48	42909	40.0	1.19	14.2	181.1	8.51	
1550	25.5	6.48	42807	—	1.18	13.4	181.8	8.51	
SAMPLE @ 1600 App. III/IV + TSS + Diss. Metals (>10 NTU)									
STOP PUMP @ 1620									

Flow Rate 200
Pump controller setting 80/29 F

General Comments:

Sampled after 2 hours; all parameters stable except turbidity.
Dark yellow/orange samples

Mostly cloudy
8 mph 46°

Site Name: Comanche Well ID.: W-8A

Personnel: F. Davis Ray

Date: 5-5-22 Static Depth to Water (ft, btoc) 31.07

$$T_D = 32.76$$

Date/Time Sample Collected (match bottle and COC form exactly): N/A

Sample Method: Bailer

Water level meter, pump, and tubing decontaminated prior: Yes No

Sample QC: Duplicate Yes No Duplicate Sample ID: _____

Sample QC: Equipment Blank Yes ☐ No ☒ Equip Blank Sample ID: _____

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) N/A (TD)

Time Completed: 1345 Total Purge 2 Units 2

Sample I.D. (match bottle and COC form exactly): _____

Field Measurements:

[illegible]

Flow Rate —

Pump controller setting _____

General Comments:

General Comments: Bailed dry after <100ml; clear sample; initial turbidity = 40.3 NTU

NTU

5-11-22
F. Ray

$$DTW = 31.76'$$

Combo
lock

Water Sample Collection Field Data Sheet

Partly Cloudy
7 mph 57°

Site Name: Comanche Well ID.: W-9

Personnel: F. Ray

Date: 5-4-22 Static Depth to Water (ft, btoc) 35.90

TD = 40.45'

Date/Time Sample Collected (match bottle and COC form exactly): 5-6-22 1410

Sample Method: LF Bladder

Water level meter, pump, and tubing decontaminated prior: Yes No

Sample QC: Duplicate Yes No Duplicate Sample ID:

Sample QC: Equipment Blank Yes No Equip Blank Sample ID:

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) 38

Time Completed: 1430 Total Purge 10 Units L

Sample I.D. (match bottle and COC form exactly): W-9

Field Measurements:

Time (24 hour)	Amount purged (ml)	pH	COND (mS/cm)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Purging Water Depth (ft, btoc)	Rate (mL/min)
1225	START	PUMP							
1235	3000	6.87	16207	2.80	1.41	18.0	160.7	*6top	300
1245	5500	6.85	16297	1.29	0.58	18.1	157.3	*6top	250
1255	7000	6.85	16299	5.61	0.22	18.8	153.2	*6top	150
1305	8500	6.86	16324	4.06	0.13	19.6	147.8	*6top	150
1315	PURGED	DRY							
1400	START	PUMP							
1410	SAMPLE	(App. III/IV + TSS)				NTUs	<10		
1430	STOP	PUMP							

Flow Rate 250/300

Pump controller setting 10 D/25 F

General Comments:

Sampled 5-6-22 after WL returned to static; initial turb = 0.02 NTU
Light yellow samples (before sampling)

Combo
Lock

Water Sample Collection Field Data Sheet

Cloudy
8 mph 46°

Site Name: Comanche Well ID.: W-2A

Personnel: F. Ray

TD = 35.82'

Date: 5-4-22 Static Depth to Water (ft, btoc) 27.01

Date/Time Sample Collected (match bottle and COC form exactly): 5-4-22 1120

Sample Method: LF Bladder

Water level meter, pump, and tubing decontaminated prior: Yes No

Sample QC: Duplicate Yes No Duplicate Sample ID:

Sample QC: Equipment Blank Yes No Equip Blank Sample ID:

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) 33.5

Time Completed: 1145 Total Purge 30 Units L

Sample I.D. (match bottle and COC form exactly): W-2A

Field Measurements:

Time (24 hour)	Amount purged (ml)	pH	$\mu\text{S/cm}$ COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Purging Water Depth (ft, btoc)	Rate (mL/min)
0915	START	PUMP							
0925	4000	6.34	44431	1.91	0.52	16.1	166.5	28.81	400
0935	6000	6.36	44382	5.46	0.53	15.4	171.3	28.90	200
0945	8000	6.36	42889	9.81	0.60	15.7	176.6	29.40	200
0955	10500	6.35	42726	14.6	0.51	16.9	178.3	29.63	250
1005	12500	6.35	42362	32.0	0.51	16.5	179.0	29.98	250
1015	15250	6.35	42073	44.1	0.49	16.4	181.2	30.30	250
1025	18000	6.35	42153	63.0	0.45	16.6	179.4	30.44	
1035	20500	6.35	41898	46.4	0.44	16.7	177.7	30.71	
1045	22500	6.35	42126	46.8	0.41	16.2	181.2	30.81	
1055	25000	6.35	42148	40.4	0.42	16.3	180.2	30.88	
1105	27000	6.35	41710	34.2	0.44	16.5	179.5	31.10	
1115	29000	6.35	42095	25.7	0.41	17.8	172.8	31.08	
SAMPLE @ 1120 App. III/IV + TSS + Diss. Metals (>10 NTUs)									
STOP PUMP @ 1145									

Flow Rate 250

Pump controller setting 10 D/30 F

General Comments:

Sampled after 2 hours ~~all parameters stable~~ all parameters stable except turbidity
Dark yellow samples

No label

Water Sample Collection Field Data Sheet

Cloudy
6 mph 50°Site Name: Comanche Well ID.: W-2CPersonnel: F. Davis RayDate: 5-5-22Static Depth to Water (ft, btoc) 28.18TD = 37.10'Date/Time Sample Collected (match bottle and COC form exactly): 5-5-22 1120Sample Method: LF BladderWater level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ NoSample QC: Duplicate Yes ☒ No Duplicate Sample ID: Sample QC: Equipment Blank Yes ☒ No Equip Blank Sample ID:

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) 35Time Completed: 1145 Total Purge 24 Units LSample I.D. (match bottle and COC form exactly): W-2C

Field Measurements:

Time (24 hour)	Amount purged (L)	pH	COND (μ S/cm)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Purging Water Depth (ft, btoc)
0935	START	PUMP						
0945	3	6.33	40364	26.6	0.55	16.4	163.9	28.70
0955	5.5	6.34	38998	20.0	0.53	16.5	160.3	28.94
1005	7.5	6.34	38606	19.8	0.56	16.5	159.9	29.02
1015	9.75	6.35	38114	27.6	0.60	16.6	160.7	29.10
1025	11.75	6.35	38117	23.5	0.59	16.7	161.8	29.11
1035	14.5	6.35	38258	19.6	0.60	16.8	158.8	29.12
1045	16.5	6.35	38312	16.9	0.03	16.8	154.7	29.10
1055	18.5	6.35	38329	11.0	0.03	16.8	148.3	29.11
1105	20.5	6.35	38405	5.26	0.04	16.8	149.6	29.22
1110	21.5	6.34	38521	3.48	0.04	16.9	150.7	29.24
1115	22.5	6.34	38484	0.74	0.04	16.9	152.6	29.20
1120	SAMPLE		App. III/IV + TSS					
1145	STOP	PUMP						

Rate
(mL/min)

300/275

300

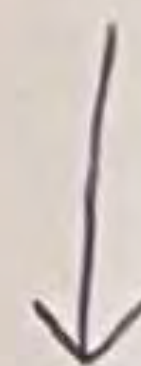
300

275

250

250

250

Flow Rate 250-300Pump controller setting 9 D/24 F

General Comments:

Dark yellow samples

Combo
Lock
No label

Water Sample Collection Field Data Sheet

Sunny
6 mph 63°

Site Name: Comanche Well ID.: W-38

Personnel: F. Davis Ray

Date: 5-5-22

Static Depth to Water (ft, btoc) 16.44

TD = 47.50'

Date/Time Sample Collected (match bottle and COC form exactly): 5-5-22 1455

Sample Method: LF Bladder

Water level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ No

Sample QC: Duplicate ☒ Yes ☒ DR Duplicate Sample ID: W-38-FD

Sample QC: Equipment Blank ☐ Yes ☒ No Equip Blank Sample ID: _____

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) 45.50

Time Completed: 1525 Total Purge 35 Units L

Sample I.D. (match bottle and COC form exactly): W-38

Field Measurements:

Time (24 hour)	Amount purged (L)	pH	COND (µS/cm)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Purging Water Depth (ft, btoc)	Rate (mL/min)
1230	START	PUMP							
1240	2.5	6.29	49889	316	0.04	16.2	60.6	17.005	250
1250	4.5	6.24	48460	94.8	0.03	16.2	102.5	17.17	200
1300	6.5	6.24	47740	85.8	0.06	16.2	77.2	17.26	200
1310	8	6.24	47519	62.7	0.04	16.3	60.3	17.35	200
1320	9.75	6.25	47305	47.0	0.02	16.5	46.3	17.40	175
1330	11.5	6.24	47027	39.7	0.02	16.5	39.9	17.41	200
1340	13.5	6.23	47922	37.5	0.05	15.9	67.5	17.80	250
1350	16.5	6.23	47668	27.3	0.05	16.0	64.3	17.85	300
1400	19.5	6.24	47473	21.3	0.04	16.0	46.7	18.10	300
1410	22.5	6.23	47234	20.4	0.05	16.0	61.5	18.11	300
1420	25.5	6.23	47119	16.4	0.05	16.0	67.5	18.12	
1430	28.5	6.22	48016	9.01	0.05	15.9	65.1	18.32	↓
1435	30	6.22	47893	7.75	0.04	16.1	68.6	18.23	
1440	31.5	6.22	47749		0.05	16.0	56.9*	18.32	
* DR	STOP	STOP	STOP	STOP	STOP	STOP	STOP	STOP	DR

Flow Rate 250/300

Pump controller setting 13 D/20 F

General Comments:

Dark yellow samples; duplicate suite taken in field (W-38-FD)

* ORP went out of
range (see other side)

On back

Time (24 hour)	Amount Purged (L)	pH	COND ($\mu S/cm$)	TURB (NTUs)	DO (mg/L)	T ($^{\circ}C$)	ORP (mV)	Purging Water Depth (ft, ftoc)
1440	31.5	6.22	47749	4.63	0.05	16.0	56.9	18.32
1445	33	6.22	47592	4.42	0.05	15.9	51.5	18.35
1450	34.5	6.22	47473	3.84	0.04	16.1	54.8	—

1455 SAMPLE App. III/IV + TSS + FD (~~W-38-FD~~)
W-38-FD

1525 STOP PUMP

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID: MW-7
 Sample I.D. (match bottle and COC form exactly): MW-7
 Date/Time Collected (match bottle and COC form exactly): 6/10/22 1310
 Personnel: F. Ray
 Sample Method: Bladder
 Water level meter, pump, and tubing decontaminated prior: Yes No
 Sample QC: Duplicate Yes No Duplicate Sample ID:
 Sample QC: Equipment Blank Yes No Equip Blank Sample ID:
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) 37
 Date: 6/10/22 Depth to Water (ft, btoc) 20.6 TD = 39.0
 Time Completed: 1330 Total Purge 28 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)	Rate (mL/min)
1120	START	PUMP							
1130	3500	4.85	9,627	536	7.81	20.55	211.8	20.75	300
1140	6500	4.21	8,417	210	7.17	20.64	232.2	20.73	
1150	9000	4.20	11,165	80.8	7.91	18.47	233.0	20.74	
1200	11500	5.95	10,786	44.7	7.80	18.63	238.2	20.73	250
1210	14000	5.72	10,948	27.6	7.44	18.37	246.1	20.71	
1220	17000	5.66	10,603	25.2	7.64	18.57	255.6	20.73	300
1230	19500	5.66	10,538	22.1	7.43	18.38	253.7	20.72	
1240	22500	5.67	10,425	15.1	7.24	18.85	252.5	20.71	
1250	25000	5.66	10,245	9.97	6.96	18.34	250.7	20.70	
1255	26500	5.68	10,172	8.17	6.82	18.26	248.1	20.70	250
1300	28000	5.70	10,148	5.23	6.72	18.11	247.4		
1310	SAMPLE	(App. III + IV + TSD)							
1330	STOP	PUMP							

Flow Rate 250/300
 Pump controller setting 10 D/25 F

General Comments:
All parameters stable; yellow sample color

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID.: W-2A
 Sample I.D. (match bottle and COC form exactly): W-2A
 Date/Time Collected (match bottle and COC form exactly): 6/7/22 1745
 Personnel: F. Ray
 Sample Method: Bladder
 Water level meter, pump, and tubing decontaminated prior: (Yes) No
 Sample QC: Duplicate Yes (No) Duplicate Sample ID:
 Sample QC: Equipment Blank Yes (No) Equip Blank Sample ID:
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) 33.5
 Date: 6/7/22 Depth to Water (ft, btoc) 27.05' TD = 35.82
 Time Completed: 1805 Total Purge 45 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	$\mu S/cm$ COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)	Rate (ml/min)
1445	START	PUMP							
1455	3500	5.89	35,728	8.94	7.30	20.6	164.6	28.65	250
1505	6500	6.05	35,437	5.19	6.92	20.37	167.2	29.18	300
1515	9500	6.54	34,044	10.14	6.45	19.69	184.0	29.74	300
1525	12000	6.56	33,889	28.7	6.45	19.39	172.7	30.10	250
1535	14500	6.55	33,871	46.5	6.36	19.21	169.0	30.40	250
1545	17000	6.53	34,175	40.0	6.27	18.71	168.9	30.78	250
1555	19500	6.57	33,900	37.9	6.18	18.34	168.9	31.00	250
1605	22000	6.60	34,000	28.3	6.08	18.33	168.2	31.09	250
1615	24500	6.66	33,003	38.5	5.75	19.62	165.3	31.35	250
1625	27000	6.62	33,850	26.5	5.77	20.38	174.1	31.38	250
1635	29500	6.55	33,242	21.5	5.78	19.86	169.9	31.50	250
1645	32000	6.51	32,263	17.1	5.76	20.26	168.0	31.70	250
1655	34500	6.52	33,281	13.1	5.64	20.04	168.4	31.75	250
1705	36500	6.55	33,154	16.5	5.60	19.78	168.7	*6 top	200
1715	38500	6.58	33,576	14.4	5.55	20.06	168.5		200
1725	40500	6.58	33,249	8.82	5.49	20.08	168.7		200

Flow Rate 250
 Pump controller setting 130/21 F

* Continue On Back →

General Comments:

All parameters stable; except turbidity - sampled after 3 hours; dark to light yellow samples; 250 ml up. bottle for diss. metals (>10 NTU)

Site Name: Xcel Comanche Well ID.: W-2A

Site Name: Xcel Comanche

Well ID.: W-2A

[illegible]

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID.: W-2C

Sample I.D. (match bottle and COC form exactly): W-2C

Date/Time Collected (match bottle and COC form exactly): 6/7/22 1750

Personnel: D. Fuhr + F. Ray

Sample Method: Bladder

Water level meter, pump, and tubing decontaminated prior: Yes No

Sample QC: Duplicate Yes No Duplicate Sample ID: _____

Sample QC: Equipment Blank Yes No Equip Blank Sample ID: _____

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) ~~33.5~~ 33.5

Date: 6/7/22 Depth to Water (ft, btoc) 28.16

Time Completed: 1810 Total Purge 59 Units L

TD = 37.10

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	+/- 0.1 pH	+/- 5% COND (mS/cm)	<10 TURB (NTU)	+/- 10% DO (mg/L)	TEMP (C°)	+/- 10 ORP (mV)	Water Depth (ft, btoc)
1435	START PUMP							
1445	4000	4.52	18551	18.55 23.5	7.88	21.68	246.8	28.95
1455	7000	4.62	16996	33.6	7.49	20.35	219.2	29.05
1505	9500	4.69	16864	22.4	7.37	20.14	200.5	29.25
1515	13000	4.72	17460	17.0	7.02	19.45	183.0	29.41
1525	15500	4.82	1581.9	23.1	7.16	20.35	172.2	29.60
1535	18500	4.85	1603.3	20.8	7.03	20.57	165.1	29.61
1545	21000	4.81	1685.5	23.9	6.96	19.81	157.6	29.84
1555	25000	4.92	1660.7	18.6	6.96	18.87	152.4	29.94
1605	28500	4.97	1638.5	18.0	6.78	19.41	148.9	29.98
1615	32000	5.01	1590.5	20.4	6.49	21.28	149.1	30.05
1625	35500	4.80	1522.7	30.8	6.10	23.51	150.9	30.32
1635	38500	4.71	1632.9	21.5	6.47	22.30	145.2	30.13
1645	42000	4.66	1612.8	20.7	6.23	23.38	141.3	30.31
1655	45500	4.61	1679.8	15.8	5.98	25.05	135.4	30.41
1705	49000	4.58	1593.2	31.6	5.91	24.33	122.8	30.39
1715	52000	4.57	1589.9	20.3	5.93	24.73	120.6	30.42

Rate
(mL/min)
350

Flow Rate 350
Pump controller setting 100/20F

General Comments:

sample depth was 33.5, felt some resistance with pump so stopped at 32.

All parameters stable except turbidity after 3 hours

<u>Time</u>	<u>Amount Purged (mL)</u>	<u>pH</u>	(μ S/cm) <u>COND</u>	(NTU) <u>TURB</u>	(mg/L) <u>DO</u>	$^{\circ}$ C <u>Temp</u>	(MV) <u>ORP</u>	<u>Water Level</u>
1725	55500	4.58	1556.5	20.9	5.74	25.01	123.0	30.47
1735	59,000	4.59	1554.1	12.6	5.71	25.47	122.1	30.67

1750 SAMPLE App. III + IV + TSS + Diss. Metals (>10 NTU)

All parameters besides turbidity; sampled after 3 hours.
 Since NTU >10 , took an extra 250 mL unpreserved sample

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID.: W-3B

Sample I.D. (match bottle and COC form exactly): W-3B

Date/Time Collected (match bottle and COC form exactly): 6/8/22 1455

Personnel: F. Ray

Sample Method: Bladder

Water level meter, pump, and tubing decontaminated prior: Yes No

Sample QC: Duplicate Yes No Duplicate Sample ID:

Sample QC: Equipment Blank Yes No Equip Blank Sample ID:

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) 45'

Date: 6/8/22 Depth to Water (ft, btoc) 17.32

Time Completed: 1515 Total Purge 26.5 Units L

TD = 47.45'

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	± 0.1 pH	$\pm 5\%$ COND (mS/m)	< 10 TURB (NTU)	$\pm 10\%$ DO (mg/L)	TEMP (C°)	± 10 ORP (mV)	Water Depth (ft, btoc)	Rate (mL/min)
1305	START PUMP								
1315	3000	6.72	28528	63.8	7.18	18.89	-151.8	17.68	300
1325	5000	6.70	28256	62.0	7.16	18.86	-148.6	17.72	
1335	7500	6.65	25379	39.5	6.81	19.31	-147.8	17.79	
1345	10500	6.60	24085	25.6	6.56	19.20	-144.7	17.96	
1355	13000	6.58	23611	17.9	6.36	19.35	-140.4	18.14	300
1405	16000	6.55	23149	10.8	5.97	19.31	-136.9	18.14	
1415	18000	6.52	24559	15.3	5.99	18.65	-132.1	18.22	
1425	20000	6.48	19238	9.29	5.78	19.00	-127.9	18.29	
1435	22500	6.46	21724	6.64	5.53	19.07	-123.7	18.19	
1440	24000	6.42	22057	3.92	5.52	19.03	-120.7	18.92	
1445	26500	6.43	22060	3.50	5.22	19.42	-120.3	18.42	
sampled at 1455									
App # + IV + TSS									

Flow Rate 300 mL/min

Pump controller setting ILD/20 F

General Comments:

conductivity jumping around all other parameters

Stable.

samples pale yellow color

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID.: W-5B
 Sample I.D. (match bottle and COC form exactly): W-5B
 Date/Time Collected (match bottle and COC form exactly): 6/7/22 1300
 Personnel: F. Ray
 Sample Method: CF Bladder
 Water level meter, pump, and tubing decontaminated prior: Yes No
 Sample QC: Duplicate Yes No Duplicate Sample ID: W-5B-FD
 Sample QC: Equipment Blank Yes No Equip Blank Sample ID:
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) 35.5
 Date: 6/7/22 Depth to Water (ft, btoc) 10.64 TD = 37.98'
 Time Completed: 1330 Total Purge 33 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	±0.1 pH	±5% COND (mS/m)	±10% TURB (NTU)	±10% DO (mg/L)	N/A TEMP (C°)	±10 ORP (mV)	Water Depth (ft, btoc)
1045	START PUMP			3.2				
1055	2000	4.09	0.05	2.82	6.48	28.76	175.6	
1105	4500	4.88	0.05	3.03	6.41	28.21	176.3	11.11
1115	6500	4.95	0.05	1.54	6.44	27.87	177.5	10.91
1125	9000	5.08	6.73	1.38	6.55	26.09	196.5	10.93
1135	12000	5.12	0.26	1.15	6.48	26.17	183.9	10.97
1145	15000	5.16	13.05	2.79	6.48	25.86	183.5	11.07
1155	17500	6.76	539.92	0.89	4.54	22.60	122.7	11.05
1205	20,100	6.26	904.91	1.53	4.27	22.72	130.4	10.90
1215	22500	5.99	879.36	1.59	4.39	24.36	136.9	11.01
1225	25006	6.31	3118.6	1.15	7.41	20.44	117.8	10.99
1235	27500	6.07	3068.4	2.04	7.30	20.13	128.0	11.07
1245	30000	5.90	3022.2	2.03	7.35	20.11	135.2	11.04
1250	31000	5.85	3135.7	1.08	7.35	19.88	136.9	11.05
1255	32500	5.84	3107.9	1.33	7.29	20.56	137.0	
1300	SAMPLE (App. 14 + TD + 755)							

Flow Rate 250

Pump controller setting 12 D/24 F

General Comments:

cond. reading very low attempted to adjust multimeter

multimeter was leaking at an angle, so we adjusted it vertically in a bucket to catch leakage. Next, we set up multimeter back at an angle on top of Bucket to catch leakage for better numbers at 1150

Pale yellow samples; all parameters stable

1330 STOP PUMP

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID.: W-6B
 Sample I.D. (match bottle and COC form exactly): W-6B
 Date/Time Collected (match bottle and COC form exactly): 6/8/22 1620
 Personnel: E. Ray
 Sample Method: Bladder
 Water level meter, pump, and tubing decontaminated prior: Yes No
 Sample QC: Duplicate Yes No Duplicate Sample ID:
 Sample QC: Equipment Blank Yes No Equip Blank Sample ID:
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) 42.0
 Date: 6/8/22 Depth to Water (ft, btoc) 15.31
 Time Completed: 1630 Total Purge 46 Units L

TD = 44.30'

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
1345	START	PUMP						
1355	4000	7.05	26,866	19.3	7.40	19.77	-115.3	17.84
1405	7000	6.95	23,376	76.5	7.20	19.99	-80.3	18.27
1415	10000	6.90	23,178	88.1	7.03	19.75	-23.1	18.45
1425	13000	6.85	21,679	65.3	6.91	20.01	10.4	18.61
1435	16000	6.79	21,758	39.7	6.70	20.24	26.7	18.76
1445	19000	6.81	21,376	18.3	6.31	21.91	31.5	
1455	22000	6.70	20,472	22.6	6.48	20.08	41.9	18.54
1505	25000	6.66	21,562	12.8	6.46	20.50	46.6	18.85
1515	28000	6.61	25,613	8.62	6.21	20.59	50.4	18.97
1525	31000	6.59	24,374	11.5	6.17	20.49	58.8	19.02
1535	34000	6.59	23,868	12.6	6.06	20.09	64.5	19.15
1545	37000	6.57	23,764	7.42	6.56	20.24	69.1	19.28
1555	40000	6.52	23,332	4.90	5.97	20.23	74.3	19.29
1605	43000	6.49	23,216	9.14	5.94	20.06	78.8	19.28
1610	44500	6.47	23,090	6.90	5.85	20.64	81.2	19.34
1615	46000	6.46	22,881	8.18	5.87	20.63	82.5	19.32

Rate
cmL/min
300
300
300
300
300
↓

Flow Rate 300
 Pump controller setting 11 D/25 F
 General Comments: All parameters stable; samples light/pale → dark
~~orange~~ - yellow in color

1620 SAMPLE (App. III + IV + TSS)

1630 STOP PUMP

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID.: W-14
 Sample I.D. (match bottle and COC form exactly): W-14
 Date/Time Collected (match bottle and COC form exactly): 6/6/22 1645
 Personnel: F. Ray

Sample Method: LF Bladder

Water level meter, pump, and tubing decontaminated prior: Yes No

Sample QC: Duplicate Yes No Duplicate Sample ID: _____

Sample QC: Equipment Blank Yes ~~No~~ Equip Blank Sample ID: W-14-EB

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) 44.5'

Date: 6/6/22 Depth to Water (ft, btoc) 38.48 TD = 46.60

Time Completed: 1700 Total Purge 26 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	US/cm COND (mS/cm)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)	Rate (ml/min)
1500	START	PUMP							
1510	3000	5.12	13719	11.4	7.29	21.76	161.0	38.75	300
1520	5500	5.21	13377	4.41	7.09	20.97	182.2	38.68	300
1530	8000	5.23	18530	0.97	7.38	18.96	221.1	38.84	300
1540	10500	5.26	18365	0.70	7.44	18.03	239.0	38.76	250
1550	13000	5.23	18468	0.90	7.36	18.27	233.3	38.77	250
1600	15500	5.27	18971	0.02	7.17	17.80	222.7	38.85	250
1610	18000	5.25	18722	0.25	7.04	17.90	211.2	38.87	275
1620	20500	5.28	18766	0.30	6.85	17.76	205.7	38.81	250
1630	23000	5.25	18666	0.11	7.06	17.81	202.1	38.82	250
1635	24500	5.29	18679	0.31	6.82	18.00	199.2	38.88	250
1640	26000	5.30	18721	0.02	6.81	18.09	196.0		
1645	SAMPLE (App. III + IV + TSS)								
1700	STOP	PUMP							

Flow Rate 250/300

Pump controller setting 12D/25F

General Comments:

All parameters stable; sample color dark to pale yellow

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID.: W-15
 Sample I.D. (match bottle and COC form exactly): N/A
 Date/Time Collected (match bottle and COC form exactly): N/A
 Personnel: F. Ray
 Sample Method: N/A
 Water level meter, pump, and tubing decontaminated prior: Yes No
 Sample QC: Duplicate Yes No Duplicate Sample ID: _____
 Sample QC: Equipment Blank Yes No Equip Blank Sample ID: _____
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) N/A
 Date: 6/6/22 Depth to Water (ft, btoc) DRY
 Time Completed: 1200 Total Purge _____ Units _____

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
<u>Well Dry</u>								

Flow Rate _____
 Pump controller setting _____
 General Comments:

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID.: W-16
 Sample I.D. (match bottle and COC form exactly): W-16 ~~W-16~~
 Date/Time Collected (match bottle and COC form exactly): 6/8/22 1145
 Personnel: F. Ray
 Sample Method: Bladder

Water level meter, pump, and tubing decontaminated prior: Yes No
 Sample QC: Duplicate Yes No Duplicate Sample ID: _____
 Sample QC: Equipment Blank Yes No Equip Blank Sample ID: _____

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) 47.5
 Date: 6/8/22 Depth to Water (ft, btoc) 37.43 TD = 49.55
 Time Completed: 1200 Total Purge 23 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	± 0.1 pH	$\pm 5\%$ COND (mS/m)	<10 TURB (NTU)	$\pm 10\%$ DO (mg/L)	TEMP (C°)	± 10 ORP (mV)	Water Depth (ft, btoc)
1010	START PUMP							
1020	3000	5.16	12338	69.5	3.59	28.56	162.3	37.50
1030	4500	4.92	12402	37.4	7.43	20.33	192.2	37.51
1040	6000	4.87	11937	18.1	7.12	21.21	196.4	37.53
1050	8000	4.86	11709	13.1	6.98	21.16	203.4	37.55
1100	10500	4.82	11369	8.68	6.86	21.62	213.0	37.54
1105	12000	4.82	11442	6.90	6.85	20.92	216.4	37.55
1110								
1120	15000	6.30	13041	4.74	7.65	20.47	220.8	37.54
1125	16500	6.25	13047	2.79	7.48	20.60	219.3	37.52
1130	18500	6.20	12991	3.55	7.38	20.57	219.5	37.56
1135	20500	6.11	12934	2.55	7.18	20.92	219.4	37.58
1140	23000	6.13	12863	3.02	7.04	21.01	219.9	37.54
1145	SAMPLE (App. III + II + ISS)							
1200	STOP PUMP							

Flow Rate 250 ml/min
 Pump controller setting 110/20R

General Comments:

at 1110 sensor stopped working so we switched them out.

rate (ml/min)

300

250

1145

Site Name: Xcel Comanche Well ID.: W-2A
Sample I.D. (match bottle and COC form exactly): W-2A
Date/Time Collected (match bottle and COC form exactly): 7/13/22 1040
Personnel: F-Ray
Sample Method: Bladder
Water level meter, pump, and tubing decontaminated prior: Yes No
Sample QC: Duplicate Yes No Duplicate Sample ID: W-2A - FD
Sample QC: Equipment Blank Yes No Equip Blank Sample ID:
Well Purging Data (Fill In All Blanks)
Depth of Sample Collection (pump depth) (ft, btoc)
Date: 7/13/22 Depth to Water (ft, btoc) 27.83
Time Completed: 1200 Total Purge 5 Units L

[illegible]

Flow Rate 150
Pump controller setting 100/20F
General Comments:
Dark yellow samples

Site Name: Xcel Comanche Well ID: W-2C
Sample I.D. (match bottle and COC form exactly): W-2C
Date/Time Collected (match bottle and COC form exactly): 7/13/22 1300
Personnel: F. Ray
Sample Method: Bladder
Water level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ No
Sample QC: Duplicate Yes ☒ No Duplicate Sample ID:
Sample QC: Equipment Blank Yes ☒ No Equip Blank Sample ID:
Well Purging Data (Fill In All Blanks)
Depth of Sample Collection (pump depth) (ft, btoc)
Date: 7/13/22 Depth to Water (ft, btoc) 27.9
Time Completed: 1330 Total Purge 6 Units 6

[illegible]

Flow Rate 200
Pump controller setting 10 D/25 F
General Comments:
Light/pale yellow samples

Site Name: Xcel Comanche Well ID.: W-38
Sample I.D. (match bottle and COC form exactly): W-38
Date/Time Collected (match bottle and COC form exactly): 7/14/22 1300
Personnel: F. Ray
Sample Method: Bladder
Water level meter, pump, and tubing decontaminated prior: Yes No
Sample QC: Duplicate Yes No Duplicate Sample ID:
Sample QC: Equipment Blank Yes No Equip Blank Sample ID:
Well Purging Data (Fill In All Blanks)
Depth of Sample Collection (pump depth) (ft, btoc)
Date: 7/14/22 Depth to Water (ft, btoc) 17.03
Time Completed: 1620 Total Purge 23 Units 6

[illegible]

General Comments: Dark yellow samples

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID.: W-5B
 Sample I.D. (match bottle and COC form exactly): W-5B
 Date/Time Collected (match bottle and COC form exactly): 7/14/22 1430
 Personnel: F. Ray
 Sample Method: Bladder
 Water level meter, pump, and tubing decontaminated prior: Yes No
 Sample QC: Duplicate Yes No Duplicate Sample ID:
 Sample QC: Equipment Blank Yes No Equip Blank Sample ID:
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc)
 Date: 7/14/22 Depth to Water (ft, btoc) 11.28
 Time Completed: 1500 Total Purge 8 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
1340	START	PUMP						
1350	2,000	7.04	10,353	20.7	0.86	20.1	-57.4	11.66
1400	4,000	7.14	7,012	8.05	0.75	19.8	-55.5	11.64
1405	5,000	7.11	7,028	4.99	0.76	20.0	-50.6	11.65
1410	6,000	7.13	5,868	3.78	0.79	20.1	-48.9	11.66
1415	7,000	7.12	5,778	2.57	0.77	20.5	-47.5	11.58
1420	8,000	7.11	5,743	4.88	0.75	20.4	-46.6	11.60
1430	SAMPLE	- App. III + IV + TSS + ALK + Mg + K (5 bottles)						

Rate
(mL/min)
 200
 200
 200
 200
 200
 200
 200

Flow Rate 200
 Pump controller setting 10 D/20 F
 General Comments:
Light/pale yellow samples

Site Name: Xcel Comanche Well ID.: MW-7
Sample I.D.(match bottle and COC form exactly): MW-7
Date/Time Collected (match bottle and COC form exactly): 7/14/22 1730
Personnel: F. Ray
Sample Method: Bladder
Water level meter, pump, and tubing decontaminated prior: Yes No
Sample QC: Duplicate Yes No Duplicate Sample ID: _____
Sample QC: Equipment Blank Yes No Equip Blank Sample ID: _____
Well Purging Data (Fill In All Blanks)
Depth of Sample Collection (pump depth) (ft, btoc) _____
Date: 7/14/22 Depth to Water (ft, btoc) 20.62
Time Completed: 1800 Total Purge 26 Units 6

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
1510	START	PUMP						
1520	2,000	6.89	14,190	213	0.62	17.6	67.9	20.76
1530	3,500	6.85	12,715	194	0.32	17.4	70.2	20.75
1540	5,000	6.84	12,409	129	0.30	17.5	71.1	20.74
1550	7,000	6.85	12,178	102	0.28	17.4	71.0	20.75
1600	9,000	6.83	12,117	74.4	0.27	17.2	72.9	20.74
1610	11,000	6.82	12,066	62.2	0.28	17.2	77.1	20.75
1620	13,000	6.85	11,923	35.0	0.26	16.8	79.5	20.74
1630	15,000	6.85	12,002	26.5	0.38	17.2	80.3	20.75
1640	17,000	6.84	11,805	31.6	0.32	16.7	77.8	20.74
1650	19,000	6.84	11,941	43.8	0.31	17.1	76.4	20.75
1700	21,000	6.83	11,899	18.1	0.30	16.6	75.6	20.74
1710	23,000	6.84	11,778	16.8	0.25	16.7	74.2	20.75
1715	24,000	6.86	11,719	8.64	0.24	16.5	73.8	20.74
1720	25,000	6.85	11,742	8.06	0.25	16.7	74.1	20.75
1725	26,000	6.83	11,766	7.50	0.26	16.6	74.0	20.74
1730	SAMPLE							20.75

1705: Heavy pick up of eastward wind from/over landfill.
Possible rain/lightning + dust clouds moving in

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID.: W-108
 Sample I.D. (match bottle and COC form exactly): W-108
 Date/Time Collected (match bottle and COC form exactly): 7/14/22 1000
 Personnel: F. Ray
 Sample Method: Bladder
 Water level meter, pump, and tubing decontaminated prior: Yes No
 Sample QC: Duplicate Yes No Duplicate Sample ID:
 Sample QC: Equipment Blank Yes No Equip Blank Sample ID: W-108-EB
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc)
 Date: 7/14/22 Depth to Water (ft, btoc) 28.06
 Time Completed: 1030 Total Purge 7 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
7/13/22 1400	START	PUMP						
1410	1,500	6.65	44,155	5.61	1.14	24.7	108.1	29.05
1420	3,000	6.72	43,457	22.0	0.58	22.8	89.3	30.13
1430	4,500	6.65	43,786	15.7	0.36	24.3	79.7	btoc
1440	6,000	6.64	44,134	27.0	0.37	24.4	79.0	btoc
1450	7,000	6.62	43,730	41.2	0.33	29.5	83.7	btoc
1500	DRY							
Return 7/14/22								
1000	SAMPLE	- App. III + IV + TSS + ALK + Mg + K + Diss. Metals						
		+ Equipment Blank (10 bottles)						
		+ 1 Diss. Metals						
		11 Total						

Rate
(mL/min)

150/200
200
200
200
200

(>10 NTU)

Flow Rate 150/200
 Pump controller setting 10 D/20 F
 General Comments:

Dark yellow samples; purged dry and collected next day
after >90% recharge. Initial turbidity prior to sampling
was 27.2 NTU

+ 1 500 mL Diss. Metals

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID.: W-14
 Sample I.D. (match bottle and COC form exactly): W-14
 Date/Time Collected (match bottle and COC form exactly): 7/15/22 1330
 Personnel: F. Ray
 Sample Method: Bladder
 Water level meter, pump, and tubing decontaminated prior: Yes No
 Sample QC: Duplicate Yes No Duplicate Sample ID:
 Sample QC: Equipment Blank Yes No Equip Blank Sample ID:
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc)
 Date: 7/15/22 Depth to Water (ft, btoc) 38.54
 Time Completed: 1350 Total Purge 15 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
1210	START	<u>pump</u>						
1220	2,500	6.98	19.786	3.84	0.75	18.6	108.4	37.90
1230	4,500	7.01	19.820	2.71	1.74	18.5	111.9	37.92
1240	6,500	7.00	19.940	1.73	1.13	18.7	116.2	37.92
1250	8,500	6.99	20.111	1.93	1.77	18.8	115.7	37.95
1300	10,500	7.00	20.051	37.8	2.55	18.4	112.8	37.89
1310	12,500	7.01	20.066	0.77	2.57	18.8	109.8	38.08
1315	13,500	7.02	20.357	0.02	2.63	19.2	108.4	37.97
1320	14,500	7.01	20.191	0.02	2.58	18.9	109.7	37.96
1330	SAMPLE	- App. III + IV + TSS + ALK + Mg + K (5 bottled)						

Rate
(mL/min)
 250
 200
 200
 200
 200
 200
 200
 200
 200

Flow Rate 200
 Pump controller setting 13 D/27 F
 General Comments:

Site Name: Xcel Comanche Well ID: W-15

Sample I.D. (match bottle and COC form exactly): N/A

Date/Time Collected (match bottle and COC form exactly): N/A

Personnel: F. Ray

Sample Method: N/A

Water level meter, pump, and tubing decontaminated prior: Yes No

Sample QC: Duplicate Yes No Duplicate Sample ID: N/A

Sample QC: Equipment Blank Yes No Equip Blank Sample ID: N/A

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) DRY

Date: 7/15/22 Depth to Water (ft, btoc) DRY

Time Completed: N/A Total Purge 0 Units

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
Well Dry								

General Comments:

No sample

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID.: W-16
 Sample I.D. (match bottle and COC form exactly): W-16
 Date/Time Collected (match bottle and COC form exactly): 7/15/22 1115
 Personnel: F. Ray
 Sample Method: Bladder
 Water level meter, pump, and tubing decontaminated prior: Yes No
 Sample QC: Duplicate Yes No Duplicate Sample ID: _____
 Sample QC: Equipment Blank Yes No Equip Blank Sample ID: _____
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) _____
 Date: 7/15/22 Depth to Water (ft, btoc) 37.27
 Time Completed: 1145 Total Purge 13 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
0955	START	PUMP						
1005	1,000	6.67	12,627	35.6	1.05	18.8	164.1	37.47
1015	2,500	6.68	12,288	27.9	0.34	18.2	154.0	37.49
1025	4,000	6.67	12,133	18.7	0.28	17.8	148.4	37.52
1035	6,000	6.69	12,206	13.9	0.26	17.9	140.4	37.50
1045	8,000	6.71	12,419	10.9	0.23	18.6	125.4	37.49
1050	9,000	6.72	12,430	8.94	0.22	18.7	118.7	37.50
1055	9,500	6.71	12,336	7.32	0.22	18.3	112.3	37.49
1100	10,500	6.72	12,444	6.49	0.22	18.5	105.4	37.50
1105	11,500	6.73	12,445	4.58	0.21	18.7	99.2	37.49
1110	12,500	6.74	12,495	6.14	0.20	18.9	96.5	37.50
1115	SAMPLE	- App. III + IV + TSS + ALK + Mg + K						

Rate
(mL/min)
 200
 200
 200
 200
 200
 200
 200
 200
 200
 200
 200
 200

Flow Rate 200
 Pump controller setting 14 D/26 F
 General Comments:
Light yellow samples

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID.: W-2A
 Sample I.D. (match bottle and COC form exactly): W-2A
 Date/Time Collected (match bottle and COC form exactly): 8/22/22 1530
 Personnel: F. Davis Ray
 Sample Method: Dedicated Bladder
 Water level meter, pump, and tubing decontaminated prior: Yes No
 Sample QC: Duplicate Yes No Duplicate Sample ID:
 Sample QC: Equipment Blank Yes No Equip Blank Sample ID:
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) Dedicated pump
 Date: 8/22/22 Depth to Water (ft, btoc) 27.20
 Time Completed: 1545 Total Purge 40 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
1245	START	PUMP						
1255	2500	6.40	39.570	0.44	0.76	18.84	153.4	28.89
1305	5000	6.42	39.341	1.41	0.92	18.81	105.1	29.39
1315	7500	6.42	38.918	3.71	0.89	18.71	83.6	29.82
1325	10000	6.42	38.766	8.07	0.88	18.78	78.6	29.98
1335	12500	6.41	38.877	13.6	0.69	18.70	75.0	30.03
1345	15000	6.42	39.008	20.7	0.64	18.79	64.8	30.27
1355	17500	6.42	39.015	18.9	0.67	18.55	59.1	30.43
1405	20000	6.42	38.936	14.9	0.69	18.62	54.8	30.70
1415	22500	6.42	38.871	13.2	0.64	18.30	51.3	31.00
1425	25000	6.42	39.092	11.6	0.68	18.65	45.3	31.14
1435	27500	6.43	39.177	6.08	0.68	18.75	43.6	31.21
1445	30000	6.44	39.403	10.6	0.67	18.45	39.7	31.22
1455	32500	6.44	39.079	12.2	1.22	18.51	39.9	31.26
1505	35000	6.44	38.809	15.8	2.40	18.62	39.9	—
1515	37500	6.43	39.917	9.74	5.91	18.39	40.1	6+op
1520	38500	6.44	39.788	9.74	5.87	18.57	33.9	6+op

Flow Rate 250 9.66

Pump controller setting 12 D/30 F

General Comments:

Pale/light yellow samples; Dissolved Oxygen jumped at 1455 and restabilized shortly after.

Site Name: Xcel Comanche Well ID.: W-2A

Site Name: Xcel Comanche Well ID.: W-2A

Field Measurements:

[illegible]

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID.: W-2C
 Sample I.D. (match bottle and COC form exactly): W-2C
 Date/Time Collected (match bottle and COC form exactly): 8/23/22 1045
 Personnel: F. Davis Ray
 Sample Method: Dedicated Bladder
 Water level meter, pump, and tubing decontaminated prior: Yes No
 Sample QC: Duplicate Yes No Duplicate Sample ID: _____
 Sample QC: Equipment Blank Yes No Equip Blank Sample ID: _____
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) Dedicated Pump
 Date: 8/23/22 Depth to Water (ft, btoc) 27.94
 Time Completed: 1100 Total Purge 14 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
1000	START	pump						
1010	3500	6.65	27,234	1.30	3.13	17.49	93.2	28.48
1020	7000	6.66	25,620	7.64	2.96	17.57	92.5	28.64
1030	10000	6.66	25,439	9.49	2.81	17.49	90.9	28.63
1035	11500	6.67	25,560	8.99	2.71	17.61	88.6	28.63
1040	13500	6.67	25,592	9.22	2.62	17.66	86.1	—
1045	SAMPLE (App. III + IV + TSS + Alk + Mg + K) =							5 bottles

Flow Rate 300
 Pump controller setting 10 D/30 F
 General Comments:
Pale yellow samples

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID.: W-3B
 Sample I.D. (match bottle and COC form exactly): W-3B
 Date/Time Collected (match bottle and COC form exactly): 8/23/22 1215
 Personnel: F. Davis Ray
 Sample Method: Dedicated Bladder
 Water level meter, pump, and tubing decontaminated prior: Yes No
 Sample QC: Duplicate Yes No Duplicate Sample ID:
 Sample QC: Equipment Blank Yes No Equip Blank Sample ID:
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) Dedicated Pump
 Date: 8/23/22 Depth to Water (ft, btoc) 17.27
 Time Completed: 1230 Total Purge 9 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
1125	START	PUMP						
1135	2500	6.41	47,250	8.24	0.19	18.76	81.5	17.98
1145	4500	6.40	46,689	7.22	0.11	18.42	122.3	18.19
1155	6500	6.39	45,961	4.46	0.10	18.29	126.2	18.38
1200	7500	6.40	45,872	3.60	0.11	17.80	126.4	18.42
1205	8500	6.40	45,263	3.68	0.10	17.98	126.5	—
1215								

Flow Rate 200
 Pump controller setting 10 D/30 F
 General Comments:
Pale yellow samples

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID: W-58
 Sample I.D. (match bottle and COC form exactly): W-58 (+ DUP)
 Date/Time Collected (match bottle and COC form exactly): 8/23/22 1410
 Personnel: F. Daws Ray
 Sample Method: Dedicated Bladder
 Water level meter, pump, and tubing decontaminated prior: Yes No
 Sample QC: Duplicate Yes No Duplicate Sample ID: W-58-FD 1430
 Sample QC: Equipment Blank Yes No Equip Blank Sample ID:
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) Dedicated pump
 Date: 8/23/22 Depth to Water (ft, btoc) 13.17
 Time Completed: 1440 Total Purge 25 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
1240	START	PUMP						
1250	2500	6.93	12,704	0.02	0.16	18.66	-124.5	13.45
1300	5500	6.99	8,829	0.02	0.10	18.51	-100.3	13.61
1310	8500	7.02	7,392	0.02	0.09	18.48	-72.6	13.46
1320	11000	7.04	6,442	0.02	0.06	18.27	-51.7	13.53
1330	14000	7.05	6,001	0.02	0.09	18.44	-35.2	13.48
1340	17000	7.06	5,779	0.02	0.08	18.49	-22.7	13.52
1350	20000	7.05	5,724	0.02	0.15	18.55	-14.0	13.51
1355	21500	7.06	5,711	0.02	0.13	18.45	-11.6	13.55
1400	23000	7.06	5,680	0.02	0.12	18.56	-10.8	13.61
1405	24500	7.06	5,665	0.02	0.13	18.42	-9.8	—
1410	SAMPLE	(App. III + II + TSS + Alk + Mg + K) = <u>5 bottles</u>						
1430	DUPLICATE	= +5 bottles = <u>10 TOTAL</u>						

Flow Rate 300
 Pump controller setting 10 D/30 F
 General Comments:
Clear to pale yellow samples

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID: W-6B
 Sample I.D. (match bottle and COC form exactly): W-6B
 Date/Time Collected (match bottle and COC form exactly): 8/23/22 1750
 Personnel: F. Davis Ray
 Sample Method: Dedicated Bladder
 Water level meter, pump, and tubing decontaminated prior: Yes ☒ Yes ☐ No
 Sample QC: Duplicate Yes ☒ No ☐ Yes Duplicate Sample ID:
 Sample QC: Equipment Blank Yes ☒ No ☐ Yes Equip Blank Sample ID:
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) Dedicated Pump
 Date: 8/23/22 Depth to Water (ft, btoc) 15.54
 Time Completed: 1810 Total Purge 45 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
1455	START	PUMP						
1505	2500	6.71	46.068	762	0.13	19.53	11.1	16.59
1515	5000	6.66	45.985	367	0.14	18.71	20.6	16.96
1525	8000	6.60	45.812	620	0.15	18.39	25.2	17.36
1535	11000	6.59	45.604	559	0.19	18.97	39.6	17.21
1545	14000	6.55	45.181	286	0.22	19.00	59.2	17.41
1555	17000	6.52	45.079	189	0.21	18.87	70.3	17.37
1605	19500	6.51	44.789	146	0.22	18.81	79.3	17.46
1615	22500	6.50	44.655	111	0.21	18.69	85.6	17.41
1625	25500	6.49	44.777	101	0.23	18.73	87.8	17.53
1635	27500	6.48	45.573	35.0	0.24	18.74	96.2	17.66
1645	29500	6.48	45.265	32.9	0.27	18.52	96.6	17.59
1655	32500	6.47	45.009	24.8	0.17	18.58	97.0	17.64
1705	35000	6.46	46.711	20.3	0.19	18.51	101.7	17.76
1715	37500	6.46	46.313	15.3	0.19	18.30	97.3	17.74
1725	40000	6.46	45.952	13.8	0.20	18.37	97.1	17.67
1735	42500	6.45	45.700	9.23	0.20	18.36	98.3	17.73

Flow Rate 250/300
 Pump controller setting 12 D/30 F
 General Comments:
Dark yellow samples

Site Name: Xcel Comanche Well ID.: W-68

Site Name: Xcel Comanche Well ID.: W-68

[illegible]

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID.: MW-7
 Sample I.D. (match bottle and COC form exactly): MW-7
 Date/Time Collected (match bottle and COC form exactly): 8/24/22 1305
 Personnel: F. Davis Ray
 Sample Method: Dedicated Bladder
 Water level meter, pump, and tubing decontaminated prior: Yes No
 Sample QC: Duplicate Yes No Duplicate Sample ID:
 Sample QC: Equipment Blank Yes No Equip Blank Sample ID:
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) Dedicated Pump
 Date: 8/24/22 Depth to Water (ft, btoc) 20.61
 Time Completed: 1320 Total Purge 30 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
1120	START	PUMP						
1130	3000	6.77	15,371	1.60	0.22	16.79	130.6	20.62
1140	6000	6.78	14,308	0.99	0.19	16.91	99.7	20.63
1150	9000	6.78	13,950	0.02	0.18	16.66	77.3	20.65
1200	12000	6.78	13,744	0.02	0.19	16.81	61.6	20.62
1210	15000	6.78	13,638	0.92	0.18	16.73	48.2	20.61
1220	18000	6.78	13,610	0.02	0.18	16.78	36.5	20.62
1230	21000	6.79	14,119	0.48	0.16	17.00	34.1	20.61
1240	24000	6.78	13,972	0.02	0.14	17.01	20.4	20.62
1250	27000	6.79	13,875	0.02	0.15	16.93	11.1	20.61
1255	28500	6.79	13,799	0.02	0.15	16.87	8.0	20.62
1300	30000	6.79	13,693	0.02	0.15	16.91	5.9	20.61
1305	SAMPLE	(App. III + IV + TSS + Alk + Mg + K) = 5 bottles						

Flow Rate 300
 Pump controller setting 100/30 F
 General Comments:
Yellow samples

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID.: W-10B
 Sample I.D. (match bottle and COC form exactly): W-10B (+ BLANK)
 Date/Time Collected (match bottle and COC form exactly): 8/24/22 1000
 Personnel: F. Davis Ray
 Sample Method: LF Bladder * NO dedicated pump
 Water level meter, pump, and tubing decontaminated prior: Yes No
 Sample QC: Duplicate Yes No Duplicate Sample ID:
 Sample QC: Equipment Blank Yes No Equip Blank Sample ID: W-10B-EB 0930
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) 31.00
 Date: 8/2 Depth to Water (ft, btoc) 28.02
 Time Completed: 1030 Total Purge 6 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
0900	START	PUMP						
0910	2000	6.72	46.276	13.5	0.54	17.90	196.3	—
0920	4000	6.71	46.465	18.3	0.52	18.30	160.5	6 top
0930	5000	6.71	46.462	12.0	1.35	18.19	139.0	6 top
0940	6000	6.71	46.621	19.1	1.03	18.89	119.5	6 top
0945	PURGED	DRY						
1000	SAMPLE (App. III + IIZ + TSS + Alk + Mg + K) = 5 bottles + Equipment Blank = +5 bottles = 10 TOTAL							

Flow Rate 200
 Pump controller setting 10 D/30 F

General Comments:

Purged dry after six(6) liters on 8/24; returned on 8/25
after 24-hour recharge for grab (>90% recovery)
Dark yellow samples

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID: W-14
 Sample I.D. (match bottle and COC form exactly): W-14
 Date/Time Collected (match bottle and COC form exactly): 8/24/22 1500
 Personnel: F. Davis Ray
 Sample Method: Dedicated Bladder
 Water level meter, pump, and tubing decontaminated prior: Yes ☒ Yes ☐ No
 Sample QC: Duplicate Yes ☒ No ☐ Yes Duplicate Sample ID:
 Sample QC: Equipment Blank Yes ☒ No ☐ Yes Equip Blank Sample ID:
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) Dedicated pump
 Date: 8/24/22 Depth to Water (ft, btoc) 38.71'
 Time Completed: 1520 Total Purge 11 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
1400	START	PUMP						
1410	1000	6.88	23.904	0.02	0.54	20.44	69.3	38.97
1420	3000	6.95	23.602	0.02	1.81	19.42	49.7	38.98
1430	5000	6.95	23.656	0.02	2.24	19.30	43.8	38.99
1440	7500	6.94	23.543	0.02	2.12	19.38	40.6	39.04
1445	8500	6.95	23.607	0.02	1.60	19.04	44.3	39.02
1450	9500	6.94	23.542	0.02	1.51	18.96	41.4	38.98
1455	11000	6.94	23.583	0.02	1.56	19.19	38.3	—
1500	SAMPLE	(App. III + IV	+ TSS + Alk + Mg + K)				=	5 Bottles

Flow Rate 200/250
 Pump controller setting 13 D/30 F
 General Comments:
Yellow samples

Site Name: Xcel Comanche Well ID.: W-15
Sample I.D. (match bottle and COC form exactly): N/A
Date/Time Collected (match bottle and COC form exactly): N/A
Personnel: F. Davis Ray
Sample Method: N/A
Water level meter, pump, and tubing decontaminated prior: Yes ☒ No ☐
Sample QC: Duplicate Yes ☒ No ☐ Duplicate Sample ID:
Sample QC: Equipment Blank Yes ☒ No ☐ Equip Blank Sample ID:
Well Purging Data (Fill In All Blanks)
Depth of Sample Collection (pump depth) (ft, btoc) N/A
Date: 8/25/22 Depth to Water (ft, btoc) DRY
Time Completed: 0830 Total Purge 0 Units L

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
Well Dry								

Flow Rate N/A
Pump controller setting N/A
General Comments:
Well Dry - no sample

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID.: W-16
 Sample I.D. (match bottle and COC form exactly): W-16
 Date/Time Collected (match bottle and COC form exactly): 8/25/22 1020
 Personnel: F. Davis Ray
 Sample Method: Dedicated Bladder
 Water level meter, pump, and tubing decontaminated prior: Yes No
 Sample QC: Duplicate Yes No Duplicate Sample ID:
 Sample QC: Equipment Blank Yes No Equip Blank Sample ID:
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) Dedicated pump
 Date: 8/25/22 Depth to Water (ft, btoc) 37.42
 Time Completed: 1045 Total Purge 11 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
0925	START	PUMP						
0935	2000	6.69	15,105	0.02	0.72	17.45	77.1	37.51
0945	4000	6.69	15,026	0.02	0.32	17.52	49.8	37.54
0955	6500	6.70	14,987	0.02	0.32	17.59	30.7	37.52
1005	8500	6.71	14,955	0.02	0.28	17.64	21.6	37.53
1010	10000	6.71	14,966	0.02	0.28	17.77	18.0	37.61
1015	11000	6.71	14,993	0.02	0.29	17.91	14.6	—
1020	SAMPLE	(General Water Quality/Chemistry - pH, TSS, Mg, Ca, Na, K, Cl, SO ₄ , carb/bicarb + Boron + TDS + Cobalt) = <u>7 bottles</u>						
		(5 from original suite + 2 spare 500ml - unp.)						

Flow Rate 200/250
 Pump controller setting 12 D/30 F

General Comments: See "Yellow samples - "Ask PM/COC" written on bottle labels due to unknown required volumes/preservatives for testing constituents.

* SEPARATE COC *

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID.: W-6B1
 Sample I.D. (match bottle and COC form exactly): W-6B1
 Date/Time Collected (match bottle and COC form exactly): 9/29/22 1630
 Personnel: F. Ray
 Sample Method: Dedicated Bladder
 Water level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ No
 Sample QC: Duplicate Yes ☒ No Duplicate Sample ID:
 Sample QC: Equipment Blank Yes ☒ No Equip Blank Sample ID:
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) ~ 35
 Date: 9/29/22 Depth to Water (ft, btoc) 15.40
 Time Completed: 1650 Total Purge 48 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	US/cm COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
1315	START	PUMP						15.40
1325	3000	6.68	39665	60.8	0.70	18.4	-52.6	16.89
1335	6000	6.56	40196	87.8	0.40	18.7	-38.7	16.95
1345	8500	6.52	39974	97.3	0.52	18.6	-46.4	16.87
1355	11000	6.52	39858	104	0.56	18.4	-49.6	16.98
1405	13500	6.49	39801	116	0.55	18.4	-54.0	17.17
1415	16000	6.46	39659	110	0.53	18.3	-77.3	17.24
1425	18500	6.43	40091	99.5	0.15	18.4	-60.7	17.25
1435	21000	6.41	39890	93.3	0.07	18.4	-107.8	17.19
1445	23500	6.40	39715	103	0.08	18.3	-99.9	17.32
1455	26000	6.39	39677	80.3	0.98	18.2	-103.5	17.36
1505	28500	6.39	39642	83.5	0.16	18.2	-86.6	17.39
1515	31000	6.39	39626	81.8	0.17	18.1	-84.7	17.40
1525	33500	6.38	39682	102	0.07	18.2	-98.4	17.45
1535	36000	6.38	39631	70.4	0.08	18.1	-102.4	17.43
1545	38500	6.38	39803	66.5	0.07	18.2	-95.7	17.42
1555	41000	6.38	39786	62.0	0.08	18.2	-93.4	17.51

Flow Rate 250 mL/min
 Pump controller setting 8 D/30 F

General Comments:

Sampled after 3 hours; all parameters stable except turbidity.
NTU hovering around 50-60, so dissolved metal sample
taken = 6 bottles

Site Name: Xcel Comanche Well ID.: W-682

Site Name: Xcel Comanche Well ID.: W-682

[illegible]

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID.: W-10B

Sample I.D. (match bottle and COC form exactly): W-10B

Date/Time Collected (match bottle and COC form exactly): 9/30/22 1030

Personnel: F. Ray

Sample Method: Bladder

Water level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ No

Sample QC: Duplicate Yes ☒ No ☐ Duplicate Sample ID:

Sample QC: Equipment Blank ☒ Yes ☐ No Equip Blank Sample ID: W-10B-EB (1000)

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) ~30 FT

Date: 9/30/22 Depth to Water (ft, btoc) 28.01

Time Completed: 1100 Total Purge 7 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	μ S/cm COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
0820	START	PUMP						28.01
0825	1000	6.68	38588	24.2	0.62	17.5	37.7	28.72
0830	2000	6.68	38304	29.3	0.51	17.2	-26.8	29.18
0835	3000	6.68	38298	29.0	0.63	17.2	-47.8	29.96
0840	4000	6.69	38270	23.6	0.67	17.2	-48.9	30.75
0845	5000	6.66	38388	25.6	0.43	17.3	-73.4	btop
0850	6000	6.66	38505	74.9	0.38	17.4	-88.2	btop
0855	6500	6.66	38692	50.5	0.32	17.8	-75.6	btop
0900	DRY	—	—	—	—	—	—	—
1030	SAMPLE	(App. III + IV, pH/Alk, Rad 226/228, TSS/TDS)						
		+ Dissolved Metals (>10 NTU)						
		+ Equipment Blank (W-10B-EB)						

moved pump
down 1 FT

Flow Rate 200 mL/min
Pump controller setting 10 D/30 F

General Comments:

Purged dry during pumping; collected recharge as grab
sample ~~with~~ after 24-hour recharge = 6 bottles (including DM)
Initial turbidity before grab = 16 NTU + Diss. Metals + EB (5)
(1)

9/29

Return
9/30

Site Name: Xcel Comanche Well ID: W-13
Sample I.D. (match bottle and COC form exactly): N/A - no sample
Date/Time Collected (match bottle and COC form exactly): N/A
Personnel: F. Ray
Sample Method: N/A
Water level meter, pump, and tubing decontaminated prior: Yes No
Sample QC: Duplicate Yes No Duplicate Sample ID: N/A
Sample QC: Equipment Blank Yes No Equip Blank Sample ID: N/A
Well Purging Data (Fill In All Blanks)
Depth of Sample Collection (pump depth) (ft, btoc) N/A
Date: 9/27/22 Depth to Water (ft, btoc) 30.67
Time Completed: — Total Purge 1500 Units mL

[illegible]

General Comments:
Initial static WL/volume was less than a foot (≈ 500 ml)
Bailed dry to potentially grab recharge - no significant
recovery ($\approx 0.4'$ ET after 24 hours) $\rightarrow$ considered dry = no sample
9/30 $< 6"$ of water after 48+ hours

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID: W-14
 Sample I.D. (match bottle and COC form exactly): W-14
 Date/Time Collected (match bottle and COC form exactly): 9/28/22 1600
 Personnel: F. Ray
 Sample Method: Dedicated Bladder
 Water level meter, pump, and tubing decontaminated prior: Yes No
 Sample QC: Duplicate Yes No Duplicate Sample ID: W-14-FD (1630)
 Sample QC: Equipment Blank Yes No Equip Blank Sample ID: —
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) 43
 Date: 9/28/22 Depth to Water (ft, btoc) 38.73
 Time Completed: 1700 Total Purge 35 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	US/cm COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
1240	START	PUMP						38.73
1250	1000	6.99	20,793	16.6	0.75	18.9	-113.1	38.91
1300	3000	7.00	20,613	6.86	0.66	18.5	-10.9	38.89
1310	5000	7.04	20,324	3.15	1.12	18.1	22.3	38.98
1320	7000	7.04	20,329	13.0	0.85	18.4	25.2	39.06
1330	9000	7.02	20,431	1.75	1.12	18.3	30.6	39.08
1340	11000	7.00	20,442	0.79	0.93	18.6	25.5	39.00
1350	13000	6.98	20,458	2.65	1.34	18.3	15.3	39.10
1400	15000	6.99	20,480	0.54	0.70	18.4	6.7	39.08
1410	17000	6.98	20,345	—	1.02	18.1	-1.0	—
1420	19000	6.96	20,429	0.02	0.93	18.3	-5.9	39.00
1430	21000	6.95	20,470	0.02	0.80	18.4	-26.9	39.08
1440	23000	6.94	20,878	0.02	0.94	19.1	-34.0	39.04
1450	24000	—	—	—	—	—	—	39.02
1500	27000	6.93	20,593	1.85	1.09	18.6	-90.0	38.98
1510	29000	6.93	20,476	0.87	0.99	18.5	-117.5	39.01
1520	31000	6.93	20,492	1.48	1.33	18.4	-117.7	38.99

YSI
leaked
(empty +
refill
flowcell)

Flow Rate 200/250 mL/min
 Pump controller setting 00 D/30 F

General Comments:

Yellow samples; 5 bottles + Field Duplicate

*

Site Name: Xcel Comanche Well ID.: W-19

Site Name: Xcel Comanche Well ID.: W-19

[illegible]

Site Name: Xcel Comanche Well ID.: W-15
Sample I.D. (match bottle and COC form exactly): N/A
Date/Time Collected (match bottle and COC form exactly): N/A
Personnel: F. Ray
Sample Method: N/A
Water level meter, pump, and tubing decontaminated prior: Yes No
Sample QC: Duplicate Yes No Duplicate Sample ID: —
Sample QC: Equipment Blank Yes No Equip Blank Sample ID: —
Well Purging Data (Fill In All Blanks)
Depth of Sample Collection (pump depth) (ft, btoc) No sample
Date: 9/27/22 Depth to Water (ft, btoc) DRY
Time Completed: — Total Purge N/A Units —

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
Well Dry								

Flow Rate N/A
Pump controller setting MA
General Comments:
well dry

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID: W-16
 Sample I.D. (match bottle and COC form exactly): W-16
 Date/Time Collected (match bottle and COC form exactly): 9/29/22 1130
 Personnel: F. Ray
 Sample Method: Dedicated Bladder
 Water level meter, pump, and tubing decontaminated prior: Yes No
 Sample QC: Duplicate Yes No Duplicate Sample ID:
 Sample QC: Equipment Blank Yes No Equip Blank Sample ID:
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) 445
 Date: 9/29/22 Depth to Water (ft, btoc) 37.38
 Time Completed: 1145 Total Purge 22 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	COND (mS/cm)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
0950	START	PUMP						37.38
1000	2500	6.64	12484	3.27	0.45	16.6	-134.4	37.55
1010	5000	6.66	12447	6.70	0.23	16.9	-173.4	37.53
1020	8000	6.67	12566	3.35	0.29	17.1	-192.0	37.59
1030	10000	6.69	12630	2.36	0.13	17.2	-197.5	37.54
1040	12000	6.70	12603	1.54	0.11	17.4	-183.6	37.51
1050	14000	6.70	12559	0.91	0.11	17.1	-162.3	37.49
1100	16000	6.70	12586	1.67	0.10	17.6	-47.1	37.51
1110	18000	6.68	12664	0.50	0.30	17.3	18.9	37.62
1120	19000	6.67	12690	3.54	0.32	17.3	21.4	37.56
1125	20000	6.67	12647	2.17	0.31	17.3	22.8	37.53
1130	22000	6.66	12695	0.39	0.30	17.4	21.1	—
1130	SAMPLE	(App. III + Boron, Ca, Co, Mg, K, Na + TDS/SS + pH/ALK + Rad 226/228)						

Flow Rate 250 ml/min

Pump controller setting 8.0/30F

General Comments:

Light yellow samples; 4 bottles

Water Sample Collection Field Data Sheet

Site Name: Xcel - Comanche Well ID: W-3B

Sample I.D. (match bottle and COC form exactly): W-3B

Date/Time Collected (match bottle and COC form exactly): 10/27/22 11:00

Personnel: TJB

Sample Method: Low Flow - Dedicated Bladder

Water level meter, pump, and tubing decontaminated prior: Yes No

Sample QC: Duplicate Yes No Duplicate Sample ID: —

Sample QC: Equipment Blank Yes No Equip Blank Sample ID: —

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) Dedicated Pump

Date: 10/27/22 Depth to Water (ft, btoc) 16.97

Time Completed: 11:16 Total Purge — Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
10:08		6.78	46877	18.9	0.39	14.50	96.8	17.40
10:12		6.78	46887	18.40	0.34	14.37	94.9	17.45
10:16		6.77	46684	15.2	0.29	14.30	93.0	17.53
10:20		6.77	46570	13.4	0.38	14.17	91.5	17.55
10:24		6.77	46515	13.3	0.32	14.10	90.8	17.55
10:28		6.77	46464	10.6	0.34	14.00	89.6	17.55
10:32		6.76	46212	6.49	0.33	14.27	88.4	17.55
10:36		6.76	46250	6.28	0.34	14.22	87.6	17.55
10:40		6.77	46194	6.34	0.34	14.37	86.9	17.55
10:44		6.76	46102	5.81	0.33	14.30	86.0	17.55
10:48		6.75	46075	5.99	0.33	14.31	85.4	17.55

Flow Rate 150 ml/min

Pump controller setting 15 - F45

General Comments:

Purge Start 9:39 ; initial purge water yellow - stayed yellow

Start Fill 10:51 Stop Fill 11:16

10/27/22

- overcast 45°F
- 18 mph wind S
- Wind blowing lots
of dust

150 ml/min →

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID: W-53

Sample I.D.(match bottle and COC form exactly): W-53

Date/Time Collected (match bottle and COC form exactly): 10/27/2022

Personnel: MHB

Sample Method: bladder

Water level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ No

Sample QC: Duplicate ☒ Yes ☐ No Duplicate Sample ID: 1

Sample QC: Equipment Blank ☒ Yes ☐ No Equip Blank Sample ID: _____

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) Dedicated Pump

Date: 10/27/2022 Depth to Water (ft, btoc) 11.53

Time Completed: 1 Total Purge 16.5 Units liters

Field Measurements: Fill In All Blanks

[illegible]

Flow Rate 300 mL/min (flow rate decreased when pump issues occurred)

Pump controller setting 10/40

General Comments:

General Comments:
did not sample — pump would shut off every 5 min or so, could not determine cause. Disconnecting & reconnecting cable seemed to help, but did not prevent pump from stopping.


 pump stopped
 working for
 ~5 min.
 Turning on
 car engine
 solves the
 problem.

x pump stopped
again, restarted
again

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID.: W-5B

Sample I.D.(match bottle and COC form exactly): W-53

Date/Time Collected (match bottle and COC form exactly): 10/27/2022, 1325

Personnel: MHB

Sample Method: bladder

Water level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ No

Sample QC: Duplicate Yes ☒ No ☐ Duplicate Sample ID: _____

Sample QC: Equipment Blank Yes ☒ No Equip Blank Sample ID:

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) dedicated pumps

Date: 10/27/2022

Depth to Water (ft, btoc) 11.53

Time Completed: 1355'

Total Purge 9.25 Units liters

Field Measurements: Fill In All Blanks

[illegible]

Flow Rate 250 mL/min - 300 mL/min

Pump controller setting 10/40

General Comments:

General Comments.
pump working as normal again

pH 1/2

10/27
44°F
cloudy
windy

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID: W-6B1Sample I.D. (match bottle and COC form exactly): W-6B1Date/Time Collected (match bottle and COC form exactly): 10/27/2022, 1855Personnel: MHBSample Method: bladderWater level meter, pump, and tubing decontaminated prior: ☒ Yes ☐ NoSample QC: Duplicate ☒ Yes ☐ No Duplicate Sample ID: Sample QC: Equipment Blank ☒ Yes ☐ No Equip Blank Sample ID:

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) dedicated pumpDate: 10/27/2022 Depth to Water (ft, btoc) 15.42Time Completed: 1920 Total Purge 43.75 Units liters

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
1620	start	Purge						
1625	3000	6.83	39904	43.7	0.49	16.6	-46.3	17.09
1630	3000	6.69	39439	>40.0	0.26	16.5	-44.0	17.44
1635	3000	6.60	39163	>40.0	0.22	16.5	-45.1	17.50
1640	3000	6.56	39111	—	0.17	16.3	-48.5	17.52
1645	3000	6.53	38981	33.2	0.19	16.5	-56.4	17.70
1650	2500	6.53	38920	39.0	0.17	16.4	-63.0	17.73
1700	2500	6.54	39071	39.6	0.17	16.5	-63.8	17.75
1710	2500	6.52	39182	23.3	0.17	16.4	-66.0	17.81
1720	2500	6.50	39228	17.5	0.17	16.5	-74.3	17.88
1730	2500	6.50	39133	21.6	0.16	16.4	-76.4	17.99
1740	2500	6.49	39230	21.0	0.16	16.5	-81.0	18.10
1750	2500	6.49	39194	18.7	0.15	16.4	-83.3	18.13
1800	2500	6.50	39221	18.4	0.16	16.2	-32.9	18.28
1810	2500	6.49	39236	18.3	0.15	16.4	-79.1	18.37
1815	1250	6.49	39192	18.4	0.15	16.4	-82.0	18.49
1820	1250	6.49	39201	9.79*	0.15	16.1	-84.4	18.53

Flow Rate 500-600 mL/min → 250/300 mL/min → switched turb. meterPump controller setting 40/25 - 10/30

General Comments:

Water is orange-brown in colorlowered
flow
rate →cleaned
flow
through cell
w/ distilled
H₂O →* →
recalibrated
turbidity
meter.
Have not
seen >40
before.

Water Sample Collection Field Data Sheet

Site Name: _____ Well ID.: W-031

Sample I.D.(match bottle and COC form exactly): _____

Date/Time Collected (match bottle and COC form exactly): _____

Personnel:

Sample Method: _____

Water level meter, pump, and tubing decontaminated prior:	Yes	No
---	-----	----

Sample QC: Duplicate Yes No Duplicate Sample ID: _____

Sample QC: Equipment Blank Yes No Equip Blank Sample ID: _____

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc)

Date: _____ Depth to Water (ft, btoc) _____

Time Completed: _____ Total Purge _____ Units _____

Field Measurements: Fill In All Blanks

[illegible]

→ switched pumps

Flow Rate

Pump controller setting_____

General Comments:

General Comments: pump stopped working @ 1825, we switched it out. Flow rate started off very low, causing some parameters to deviate from previous values (last page). We waited for parameters to stabilize, then continued data entry.

We also switched turbidity meters @ 1820, as the previous one was reading anomalously high values.

Water Sample Collection Field Data Sheet

10/28/22
- Sunny 61°F
- No breeze
- No precip

Site Name: Xcel - Comanche Well ID.: W-7

Sample I.D. (match bottle and COC form exactly): W-7

Date/Time Collected (match bottle and COC form exactly): 10/28/22 16:40

Personnel: TB

Sample Method: LF Bladder dedicated

Water level meter, pump, and tubing decontaminated prior: Yes No

Sample QC: Duplicate Yes No Duplicate Sample ID:

Sample QC: Equipment Blank Yes No Equip Blank Sample ID:

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) Dedicated Pump

Date: 10/28/22 Depth to Water (ft, btoc) 7.48

Time Completed: 16:49 Total Purge Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
15:50		6.50	41124	21.9	1.49	17.2	203.4	7.63
15:54		6.49	40844	7.75	1.48	17.1	197.8	7.65
15:58		6.49	40281	6.02	1.40	17.1	194.7	7.66
16:02		6.49	39960	7.36	1.38	17.1	191.4	7.67
16:06		6.49	39621	7.38	1.43	17.1	188.3	7.68
16:10		6.49	39342	3.40	1.49	17.1	186.1	7.69
16:14		6.49	39300	3.82	1.54	17.1	176.5	7.70
16:18		6.49	39174	1.72	1.54	17.1	173.7	7.71
16:22		6.49	39060	1.66	1.49	17.1	172.4	7.72
16:26		6.48	39071	1.70	1.49	17.1	170.4	7.73
16:30		6.48	38907	1.59	1.51	17.0	168.8	7.74
16:34								

Flow Rate 275 ml/min

Pump controller setting D:8/F:35

General Comments:

Pump Start 15:29 - Purge water is dark yellow

Start Fill 16:31 16:49 Stop Fill

Water Sample Collection Field Data Sheet

Site Name: Xcel - Cornucopia Well ID: W-9

Sample I.D. (match bottle and COC form exactly): W-9

Date/Time Collected (match bottle and COC form exactly): 10/29/22 13:50

Personnel: TTB

Sample Method: LF Bladder - Dedicated

Water level meter, pump, and tubing decontaminated prior: Yes No

Sample QC: Duplicate Yes No Duplicate Sample ID:

Sample QC: Equipment Blank Yes No Equip Blank Sample ID:

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) Dedicated tubing

Date: 10/29/22

Depth to Water (ft, btoc) 35.74 / 36.11

Time Completed: 14:00

Total Purge 8.7 Units 2

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
17:14	1890	6.48	15900	0.02	3.09	16.0	169.9	btop
17:18	2410	6.76	15896	0.02	2.50	16.0	167.6	btop
17:22	2930	6.78	15876	0.02	2.36	16.0	165.9	btop
17:26	3450	6.80	15895	0.02	2.18	16.0	164.2	btop
17:30	3970	6.82	15894	0.02	1.90	15.9	161.9	btop
17:34	4490	6.83	15917	0.02	1.72	15.9	159.6	btop
17:38	5010	6.83	15919	0.02	1.54	15.8	157.4	btop
17:42	5530	6.84	15911	0.02	1.34	15.8	149.4	btop
17:46	6050	6.85	16000	0.02	1.24	15.7	121.8	btop
17:50	6570	6.85	16040	0.02	1.19	15.7	111.1	btop
17:54	7090	6.85	16025	0.02	0.99	15.7	97.0	btop
17:58	7610	6.86	16043	0.02	0.82	15.6	84.8	btop
18:02	8130	6.86	16068	0.02	0.82	15.5	96.8	btop
18:06	8650	6.87	16047	0.02	0.81	15.5	68.7	btop
18:30	8700	7.04	16005	0.02	4.25	18.4	167.9	36.00

Flow Rate 150 ml/min

Pump controller setting D:10 / F:35

General Comments:

17:10 Start pump Slight yellow tint Stop 18:06, ran dry

Return 10/29/22 Start Fill: 13:32 Stop Fill: 14:00

10/28/22

- Sunny 60°F

- Light Breeze

- no precip

10/29/22

- Sunny 62°F

- Light Breeze

- no precip

Ran dry
→

Water Sample Collection Field Data Sheet

Site Name: Xcel - Comanche Well ID.: W-10B
 Sample I.D.(match bottle and COC form exactly): W-10B + W-10BEB
 Date/Time Collected (match bottle and COC form exactly): 10/28/22 19:00 19:30 W-10BEB
 Personnel: TPB

Sample Method: LF Bladder

Water level meter, pump, and tubing decontaminated prior: Yes No

Sample QC: Duplicate Yes No Duplicate Sample ID: W-10BEB

Sample QC: Equipment Blank Yes No Equip Blank Sample ID: W-10BEB

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) 31'

Date: 10/28/22 Depth to Water (ft, btoc) 27.79 10/27 28.05 10/28

Time Completed: 19:05 Total Purge Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
16:06		7.00	46548	18.3	1.00	15.15	68.1	29.35
16:10		6.99	46471	18.0	0.73	15.22	63.6	29.62
16:14		7.04	46460	17.9	0.63	15.21	59.0	30.25
16:18		7.04	46513	17.0	0.47	15.17	56.7	30.72
16:22		7.01	46553	15.3	0.45	15.15	54.3	btop
16:26		7.02	46608	17.7	0.44	15.06	52.6	btop
16:30		7.02	46618	11.9	0.41	15.03	51.4	btop
16:34		7.02	46813	8.05	0.46	14.99	50.3	btop
16:38		7.04	46771	17.6	0.44	14.13	49.4	btop
18:36		6.92	44480	20.49.1	5.39	16.1	94.6	29.95

Flow Rate 120 ml/min

Pump controller setting D:10-F:30

General Comments:

Purge start 15:56 Purge water has yellow tint

10/28/22 - Pump on 18:34 - 18:39 - Start Fill - 19:05 Stop Fill

10/27/22
 - overcast 42°F
 - Precip before sample, none during
 - Wind 10 mph S

10/27
 Purge Dry →

10/28

→ Diss metals

Water Sample Collection Field Data Sheet

10/29/22
- Sunny 60°F
- light breeze
- no precip

Site Name: Xcel - Comanche Well ID.: W-11

Sample I.D. (match bottle and COC form exactly): W-11

Date/Time Collected (match bottle and COC form exactly): 10/29/22 12:30

Personnel: TBS

Sample Method: LF Bladder Dedicated

Water level meter, pump, and tubing decontaminated prior: Yes No

Sample QC: Duplicate Yes No Duplicate Sample ID:

Sample QC: Equipment Blank Yes No Equip Blank Sample ID:

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) Dedicated tubing

Date: 10/29/22 Depth to Water (ft, btoc) 23.89

Time Completed: 12:42 Total Purge 35.75 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
10:40	10750	6.80	19209	105	5.25	14.6	25.3	24.91
10:44	11750	6.77	19202	110	4.75	14.7	207.3	24.91
10:48	12750	6.77	19222	108	4.49	14.8	202.4	24.91
10:52	13750	6.76	19296	119	4.12	14.7	196.4	24.91
10:56	14750	6.76	19190	115	3.80	14.8	191.9	24.91
11:24	21750	6.76	19169	92.7	2.90	14.9	176.0	24.95
11:28	22750	6.76	19146	85.1	2.73	14.9	174.7	24.96
11:32	23750	6.76	19190	78.2	2.75	14.8	173.5	24.97
12:00	30750	6.76	19480	61.8	6.29	14.9	168.7	25.05
12:04	31750	6.76	19440	54.0	6.10	15.0	168.2	25.06
12:08	32750	6.76	19441	50.6	5.80	15.0	167.5	25.07
12:12	33750	6.76	19383	46.5	5.85	15.0	167.3	25.08
12:16	34750	6.76	19350	47.9	5.83	15.0	166.7	25.09
12:20	35750	6.76	19370	45.2	5.89	15.0	166.3	25.10

Letting
Turb fill
↓
Let turb
fill

Flow Rate 250 ml/min

Pump controller setting D:15 / F:45

* Diss Metals

General Comments:

Purge Start 9:57 Purge water is light yellow

Start Fill 12:21 Stop Fill 12:42

Water Sample Collection Field Data Sheet

10/29/22

Site Name: Xcel Comanche Well ID: W-12

- Sunny 65°F
- No precip
- Light breeze

Sample I.D. (match bottle and COC form exactly): W-12

Date/Time Collected (match bottle and COC form exactly): 10/28/22 16:45

Personnel: PTB

Sample Method: LF Bladder Dedicated

Water level meter, pump, and tubing decontaminated prior: Yes No

Sample QC: Duplicate Yes No Duplicate Sample ID: _____

Sample QC: Equipment Blank Yes No Equip Blank Sample ID: _____

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) Dedicated Pump

Date: 10/29/22 Depth to Water (ft, btoc) 22.31

Time Completed: 16:56 Total Purge _____ Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
15:52		6.71	23544	24.6	3.40	15.2	134.7	22.75
15:56		6.70	23568	19.8	3.39	15.2	131.5	22.75
16:00		6.70	23529	16.1	3.02	15.3	128.1	22.75
16:04		6.70	23537	15.0	2.99	15.2	122.5	22.75
16:08		6.69	23622	10.9	2.65	15.2	127.6	22.75
16:12		6.69	23658	10.8	2.50	15.3	129.8	22.75
16:16		6.68	23565	7.74	2.39	15.2	129.3	22.75
16:20		6.69	23559	7.85	2.20	15.1	129.4	22.75
16:24		6.69	23533	7.39	2.20	15.1	129.5	22.75
16:28		6.69	23603	7.47	2.18	15.1	129.5	22.75

Flow Rate 200 mL/min

Pump controller setting ID:10 / F:30

General Comments:

Purge Start 14:53 - Stop pump 15:00 discharge hose draining 15:30 reinstall pump, some issue
fixed draining discharge hose → new discharge hose connection is needed, did not prevent
Sample collection Start Fill 16:30 Stop Fill 16:56

Water Sample Collection Field Data Sheet

10/31/22

Site Name: Xcel - Comanche Well ID.: W-14

- Sunny 45°F
- Light breeze
- no precip

Sample I.D. (match bottle and COC form exactly): W-14

Date/Time Collected (match bottle and COC form exactly): 10/31/22 12:45 14

Personnel: TPB 10/31/22 13:00 140

Sample Method: LF Bladder Dedicated

Water level meter, pump, and tubing decontaminated prior:

Yes

No

Sample QC: Duplicate Yes No

Duplicate Sample ID: W-14D Dupe 14 W-1410

Sample QC: Equipment Blank Yes No

Equip Blank Sample ID:

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) dedicated pump

Date: 10/31/22 Depth to Water (ft, btoc) 38.70

Time Completed: 13:00 Total Purge Units 6

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
11:02		6.95	23521	16.8	1.62	16.0	142.2	38.85
11:08		6.95	23483	1.52	1.14	16.0	146.2	38.85
11:10		6.95	23488	0.02	1.03	16.1	146.1	38.85
11:14		6.95	23550	0.02	1.00	16.1	146.0	38.85
11:18		6.94	23531	0.02	0.92	16.1	145.8	38.85
11:22		6.94	23489	0.02	0.75	16.2	145.8	38.85
11:26		6.94	23508	0.02	0.74	16.2	145.6	38.85
11:30		6.94	23516	0.02	0.71	16.2	145.9	38.85

Flow Rate 160 ml/min

Pump controller setting 0.15/F:30

General Comments:

10:03 Purge start → water drains back into discharge line, yellow tint to purge water

10:28 Purge Stop → Utility locate for drilling

10:54 Purge Start again Start Fill 11:30 → Stop Fill → 12:00

10/31/22

- Sunny 65°F

- Light breeze

- no precip

Time Completed: 14:45 Total Purge Units 2

- filled 2xL nopes, 1x 1L nitric, 1x 500 nitric, 1x 500 nopes - unclear
- more bottles than requested as backup what Lab
needs, only
3 bottles w/
labels given
by Ewald

Well Development

SITE NAME	Xcel Comanche
WELL NUMBER	W-17
JOB NUMBER	
OWNER	Xcel
DATE	10/28/22

Static WL → 25.77' bgs
TD → 35' bgs + SU = 37.87'

TIME	CONDUCTIVITY (μS/cm)	pH	TEMP. (°C)	TURBIDITY (NTU)	WATER VOLUME REMOVED
8:45	8375	6.97	12.7	477	3.0 gal
9:00	8426	6.98	12.7	512	4.25 gal
9:08	7825	6.89	14.3	71100	3.50
9:26	7567	6.90	14.2	71100	4.25
17:26	8228	6.61	16.8	25.5	+ 1 bailer (0.10 g)
17:36	7946	6.70	14.7	859	+ 1.5 g
17:47	7824	6.73	14.0	840	+ 3.0 g
9:30	8008	6.89	14.2	837	+ 3.5 g
9:42	8240	6.95	14.1	785	+ 1.25 g
15:35	8244	6.66	17.3	520	+ 2 g
15:45	8124	6.84	16.3	549	+ 1.5 g

Bailer 10/28

→ Dry 10/29

Surge block + FR

Bailer

→ Dry

← Bailer, before Surge

← Bailer + Surge

← Bailer + Surge

← Bailer + Surge

→ Dry

← Surge block

← Bailer

→ Dry

NOTES:

Well Development

SITE NAME	
WELL NUMBER	11-17
JOB NUMBER	
OWNER	
DATE	

11/1/22 @ 7:00

SWL → 25.78

Pump on 7:28

2500 ml/min

31.0

- Reduce Flow

300 ml/min

@ 7:35

32.0

33.70

37.07

15:21 → 25.48

- 200 ml/min ↓

28.80

34.00

37.06

26.42

SWL 25.67

@ 8:05

Pump on 8:36

190 ml/min

27.05

TIME	CONDUCTIVITY (μS/cm)	pH	TEMP. (°C)	TURBIDITY (NTU)	WATER VOLUME REMOVED
7:33	7809	6.78	11.3	81.0	+ 2g
7:40	7956	6.79	8.0	107	+ 0.4
7:55	7837	6.79	11.6	59.4	+ 1g
8:05	7994	6.82	8.8	21.6	+ 0.6g
15:40	7860	6.66	19.7	43.2	+ 1.0g
16:00	7916	6.57	19.5	40.1	+ 1.5g
16:09	8120	6.50	19.5	37.6	+ 0.75g
9:00	7855	6.60	14.4	21.1	()g + 740 mL
9:10	7848	6.60	14.4	0.02	+ 1.9L

Geosols

Dry

Dry

Bladder

NOTES: _____

11/2/22
- Sunny 48°F
- Light breeze
- no precip

- Sunny 48°F
- Light breeze
- no precip

- Sunny 48°F
- Light breeze
- no precip

- Sunny 48°F
- Light breeze
- no precip

- Sunny 48°F
- Light breeze
- no precip

- Sunny 48°F
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- Sunny 48°F
- Light breeze
- no precip

- Sunny 48°F
- Light breeze
- no precip

- Sunny 48°F
- Light breeze
- no precip

Water Sample Collection Field Data Sheet

Site Name: Xcel - Comanche Well ID: W-2C

Sample I.D. (match bottle and COC form exactly): W-2C

Date/Time Collected (match bottle and COC form exactly): 10/27/22 13:30

Personnel: TB

Sample Method: Low Flow Bladder

Water level meter, pump, and tubing decontaminated prior: Yes No

Sample QC: Duplicate Yes No Duplicate Sample ID:

Sample QC: Equipment Blank Yes No Equip Blank Sample ID:

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) Dedicated Pump

Date: 10/27/22 Depth to Water (ft, btoc) 27.91

Time Completed: 13:35 Total Purge Units 2

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
12:18	3000	6.81	31942	9.64	2.49	14.2	63.3	28.15
12:22		6.89	31382	8.29	2.41	14.42	61.5	28.15
12:26		6.93	30316	7.13	2.46	15.05	60.1	28.19
12:30		6.89	28680	6.69	2.71	15.20	58.7	28.25
12:34		6.82	28330	6.25	2.77	15.15	58.2	28.30
12:38		6.99	28431	5.84	2.69	15.05	58.2	28.35
12:42		6.83	28583	5.04	2.60	15.02	57.5	28.40
12:46		6.46	28758	5.30	2.52	15.00	57.7	28.40
12:50		6.84	28877	5.94	2.55	14.78	57.0	28.40
12:54		6.90	28969	3.67	2.31	14.75	56.5	28.40
12:58		6.92	28947	3.57	2.31	14.71	56.4	28.40
13:02		6.90	28950	3.49	2.32	14.75	55.7	28.40
13:06		6.41	29005	3.88	2.27	14.57	55.6	28.40

Flow Rate 175 ml/min

Pump controller setting 0:10 / F:35

General Comments:

Start Pump 11:56 Purge water has yellow tint

Start Fill 13:09 Stop Fill @ 13:35

10/27/22
- overcast 42°F
- wind 18 mph S
- no precip
- Hail started 12:43
- Rain start 13:04

11/1/22

- Sunny 70°F
- Light breeze
- no precip

Time Completed: 14:53 Total Purge 10.8 Units 2

Start Fill 14:39 stop fill - 14:53

Water Sample Collection Field Data Sheet

Site Name: Xcel - Comanche Well ID.: MW-2B

Sample I.D.(match bottle and COC form exactly): MW-2B

Date/Time Collected (match bottle and COC form exactly): 11/1/22 11:20

Personnel: TJB

Sample Method: LF Bladder Dedicated

Water level meter, pump, and tubing decontaminated prior: Yes No

Sample QC: Duplicate Yes No Duplicate Sample ID: MW-2B D 11/1/22 11:30

Sample QC: Equipment Blank Yes No Equip Blank Sample ID:

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) Dedicated Pump

Date: 11/1/22 Depth to Water (ft, btoc) 18.35

Time Completed: 11:25 Total Purge 24.4 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
10:26	11,600	6.76	34576	0.02	3.76	14.4	168.4	18.38
10:30	13,200	6.75	34472	0.02	3.48	14.4	161.2	18.38
10:34	14,800	6.74	34360	0.02	3.32	14.4	154.4	18.38
10:38	16,400	6.74	34163	0.02	3.14	14.5	149.8	18.38
10:42	18,000	6.74	34161	0.02	2.85	14.6	145.3	18.38
10:46	19,600	6.74	34067	0.02	2.88	14.6	141.0	18.38
10:50	21,200	6.74	33871	0.02	2.49	14.6	138.5	18.38
10:54	22,800	6.74	33889	0.02	2.97	14.6	136.3	18.38
10:58	24,400	6.74	33965	0.02	2.97	14.6	133.2	18.38

Flow Rate 400 ml/min

Pump controller setting D:12/F:25

General Comments:

9:51 Pump Start Purge water has yellow tint

Start Fill 11:00 Stop Fill 11:25

Water Sample Collection Field Data Sheet

11/2/22

Site Name: Xcel Commerce Well ID: mw-4B

- Sunny 72°F
- Light Breeze
- No precip

Sample I.D. (match bottle and COC form exactly): mw-4B

Date/Time Collected (match bottle and COC form exactly): 11/2/22 13:00

Personnel: TPB

Sample Method: LF Blender Dedicated

Water level meter, pump, and tubing decontaminated prior: Yes No

Sample QC: Duplicate Yes No Duplicate Sample ID:

Sample QC: Equipment Blank Yes No Equip Blank Sample ID:

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) Dedicated Pump

Date: 11/2/22 Depth to Water (ft, btoc) 38.05

Time Completed: 13:12 Total Purge 12.3 Units 6

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
11:36	2240	6.73	6838	38.9	0.49	15.3	172.2	39.30
11:40	2800	6.74	6824	39.0	0.47	15.3	171.6	39.44
11:44	3360	6.74	6795	38.7	0.88	15.3	170.6	39.62
11:48	3920	6.74	6806	37.9	0.84	15.3	170.4	39.75
12:20	8400	6.74	6772	15.5	1.00	15.3	171.8	40.44
12:24	8960	6.74	6766	15.7	0.84	15.5	170.5	40.55
12:28	9520	6.74	6748	15.4	0.82	15.6	170.1	40.70
12:32	10080	6.74	6766	10.0	0.84	15.7	169.6	40.71
12:36	10640	6.74	6765	0.02	0.82	15.7	168.7	40.80
12:40	11200	6.74	6776	0.02	0.82	15.7	168.0	40.80
12:44	11760	6.74	6788	0.02	0.83	15.7	167.5	40.81
12:48	12320	6.74	6772	0.02	0.82	15.7	166.8	40.81

Flow Rate 140 ml/min

Pump controller setting 0:15 / 0:40

General Comments:

10:28 purge start - water draining back into discharge line, 10:46 stop pump
11:20 pump start again
Start Fill 12:44 Stop Fill 13:12

(letting tub
fill)

Water Sample Collection Field Data Sheet

Site Name: Xcel - Comanche Well ID: MW-7

Sample I.D.(match bottle and COC form exactly): MW-7

Date/Time Collected (match bottle and COC form exactly): 11/1/22 13:30

Personnel: TJB

Sample Method: LF Bladder Dedicated

Water level meter, pump, and tubing decontaminated prior: Yes No

Sample QC: Duplicate Yes No Duplicate Sample ID:

Sample QC: Equipment Blank Yes No Equip Blank Sample ID:

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) Dedicated Pump

Date: 11/1/22 Depth to Water (ft, btoc) 20.20

Time Completed: 13:32 Total Purge Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
12:44	5700	6.80	14510	1.08	3.14	15.9	143.0	20.21
12:48	6900	6.80	14381	0.15	3.03	15.8	142.3	20.21
12:52	7100	6.80	14234	0.02	2.85	15.8	134.4	20.21
12:56	8300	6.79	14197	0.02	2.92	15.9	137.8	20.21
13:00	9500	6.79	14090	0.02	2.60	15.9	135.2	20.21
13:04	10700	6.79	14036	0.02	2.94	15.7	132.8	20.21
13:08	11900	6.79	14002	0.02	2.85	15.7	130.7	20.21
13:12	13100	6.79	13987	0.02	2.73	15.8	127.4	20.21
13:16	14300	6.79	13938	0.02	2.64	15.8	125.7	20.21
13:20	15500	6.79	13920	0.02	2.66	15.8	124.8	20.21

Flow Rate 300 ml/min

Pump controller setting 15/20

General Comments:

12:25 Stop pump - Yellow tint to water

Start Fill 13:21 Stop Fill 13:32

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID.: MW-3

Sample I.D. (match bottle and COC form exactly): MW-3

Date/Time Collected (match bottle and COC form exactly): 11/29/2022, 1200 1240
 Personnel: MHB MHB

Sample Method: low flow bladder

Water level meter, pump, and tubing decontaminated prior: Yes No

Sample QC: Duplicate Yes No Duplicate Sample ID: _____

Sample QC: Equipment Blank Yes No Equip Blank Sample ID: _____

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) dedicated pump 8.50' w/pump

Date: 11/29/2022 Depth to Water (ft, btoc) 8.67' w/pump MHB

Time Completed: 1300 // 1615 Total Purge 5 Units liters

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	COND (mS/cm)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
1150	START PUMP							
1155	500	7.44	32788	2.45	5.81	10.2	174.7	8.65
1200	1000	7.31	33008	2.62	5.15	11.4	170.0	8.68
1205	1500	7.31	33329	2.49	2.84	11.9	166.7	8.75
1210	2000	7.29	34738	2.21	2.22	12.1	161.5	8.79
1215	2500	7.27	34783	2.21	1.14	11.9	156.0	8.82
1220	3000	7.26	34530	1.87	2.24	11.9	152.6	8.84
1225	3500	7.25	34523	1.88	0.14	11.9	150.5	8.88
1230	4000	7.20	34571	2.35	1.78	11.6	147.5	8.89
1235	4500	7.19	34504	1.99	1.77	11.7	145.8	8.89
1240	STOP PUMP							
1300								

purged any while sampling.

- filled 2 1L unpreserved. will return tomorrow or later
 for rest of sample

- collect rest of CCR sample ~~at 1600~~ @ 1605. MHB

Flow Rate 100 mL/min
 Pump controller setting 10/30

General Comments:

previous depth of sample collection was 9'. Dedicated pump is @ 8.67'

return dtw @ 1600 was 8.64'.

Site Name: Xcel Comanche Well ID.: MW-5

Sample I.D. (match bottle and COC form exactly): MW-5

Date/Time Collected (match bottle and COC form exactly): 11/29/2022, 1545

Personnel: MHB

Sample Method: low flow bladder

Water level meter, ~~pump~~, and ~~tubing~~ decontaminated prior: Yes No

Sample QC: Duplicate Yes No Duplicate Sample ID:

Sample QC: Equipment Blank Yes No Equip Blank Sample ID:

Well Purging Data (Fill In All Blanks)

Depth of Sample Collection (pump depth) (ft, btoc) dedicated pump ~~26.65'~~

Date: 11/29/2022 Depth to Water (ft, btoc) ~~26.65'~~

Time Completed: 1700//1555 Total Purge 2.75 Units liters

[illegible]

General Comments:

General Comments:
previous depth of sample collection was 34'-36'. Dedicated pump is @ 30.43'.
return depth to water @ 1540 was ~~27.13'~~ 27.13'
MHB

11/8
sunny
69°

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID.: M/W-6
 Sample I.D. (match bottle and COC form exactly): M/W-6
 Date/Time Collected (match bottle and COC form exactly): 11/08/2022, 1017
 Personnel: MHB
 Sample Method: bladder
 Water level meter ~~pump~~ and tubing decontaminated prior: Yes No
 Sample QC: Duplicate Yes ~~No~~ Duplicate Sample ID: _____
 Sample QC: Equipment Blank Yes ~~No~~ Equip Blank Sample ID: _____
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) dedicated pump
 Date: 2022-11-08 Depth to Water (ft, btoc) 31.71'
 Time Completed: 1040 Total Purge 13 Units liters

TD = 44.50'

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	MS/cm COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
0910	START PUMP							
0915	1000	7.26	6953	17.0	2.99	14.5	208.3	31.82
0920	2000	7.33	6946	10.7	3.35	14.5	207.6	31.85
0925	3000	7.35	6948	7.24	3.97	14.5	207.4	31.84
0930	4000	7.38	6942	4.32	4.88	14.6	207.4	31.87
0935	5000	7.39	6944	4.05	4.73	14.6	207.4	31.89
0940	6000	7.39	6940	3.37	4.68	14.6	207.4	31.90
0943			STOPPED YSI but continued pumping					
1005	11000	7.38	6936	0.61	4.00	14.7	203.0	31.92
1010	12000	7.38	6940	0.15	3.98	14.7	203.5	31.91
1015	13000	7.38	6943	0.02	3.97	14.7	204.1	31.92
1017	SAMPLE							
1040	STOP PUMP							

→ unusually high

Flow Rate 200 mL/min
 Pump controller setting 10/30

General Comments:

Water clear in color. Stopped YSI @ 0943 as DO was unusually high (last time this well was sampled, it was ~0.08) → recalibrated DO @ 0945

New DO calib: 640.4 mmHg, DO = 83.3% ⇒ DO still high afterwards

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID.: W-1
 Sample I.D.(match bottle and COC form exactly): W-1
 Date/Time Collected (match bottle and COC form exactly): 11/30/2022, 1325
 Personnel: MHB
 Sample Method: low flow bladder
 Water level meter, pump, and tubing decontaminated prior: Yes No
 Sample QC: Duplicate Yes No Duplicate Sample ID: —
 Sample QC: Equipment Blank Yes No Equip Blank Sample ID: —
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) 17'
 Date: 11/29/2022, 11/30/2022 Depth to Water (ft, btoc) 11.65'
 Time Completed: 1505, 1620 Total Purge 13.5 Units liters

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	µS/cm COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
1415	START PUMP							
1420	1500	7.44	29200	9.18	4.06	15.0	161.6	11.75
1425	3000	7.45	29188	5.72	3.46	15.2	157.2	12.78
1430	4500	7.43	29320	6.96	3.03	15.5	151.3	13.71
1435	6000	7.47	29343	3.91	3.27	15.8	146.7	14.76
1440	7500	7.48	29314	3.78	2.30	15.4	144.0	15.54
1445	9000	7.37	29188	2.37	2.78	15.3	141.3	16.49
1450	10500	7.34	28966	2.06	2.09	15.3	139.9	b top
1455	12000	7.33	29224	2.19	1.77	13.5	138.1	b top
1500	13500	7.29	29292	2.21	1.28	11.0	136.9	b top
1505	STOP PUMP							

Flow Rate 300 mL/min
 Pump controller setting 8/40

General Comments:

start collecting 1130 @ 1325, well runs dry @ 1340. Return later start sampling at 1610, well runs dry at 1620. Return again 12/1, started collecting @ 0730, finished collecting @ 0745.

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID.: W-17
 Sample I.D. (match bottle and COC form exactly): W-17
 Date/Time Collected (match bottle and COC form exactly): 12/20/22 1630
 Personnel: F. Ray
 Sample Method: Bladder
 Water level meter, pump, and tubing decontaminated prior: Yes No
 Sample QC: Duplicate Yes No Duplicate Sample ID: _____
 Sample QC: Equipment Blank Yes No Equip Blank Sample ID: _____
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) 435
 Date: 12/20/22 Depth to Water (ft, btoc) 25.35
 Time Completed: 1730 Total Purge 11 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	uS/cm COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
1400	START	PUMP						25.35
1410	1000	6.83	6295	7.69	3.46	12.3	228.6	26.52
1420	1500	6.95	6057	10.2	5.85	11.2	219.7	26.54
1420	1500	6.95	6057	10.2	5.85	11.2	219.7	26.54
1430	2000	7.02	5993	14.1	6.96	11.0	214.0	26.65
1440	3000	7.04	5966	22.8	7.18	11.2	210.6	26.83
1450	3750	7.04	5928	23.4	7.10	10.8	208.1	26.86
1500	4250	7.04	5878	23.5	6.97	10.7	206.6	26.93
1510	4750	7.05	5858	24.1	6.95	10.5	205.3	27.05
1520	5250	7.04	5809	22.3	6.91	10.2	204.6	27.13
1530	5750	7.04	5777	18.1	6.89	10.1	204.2	27.20
1540	6250	7.03	5762	19.0	6.86	10.1	203.9	27.26
1550	7000	7.02	5705	15.4	6.84	9.6	203.7	27.35
1600	8000	7.00	5921	13.2	6.83	11.1	203.6	27.68
1610	9000	7.00	5998	12.7	6.81	11.6	203.3	28.25
1620	10000	7.04	5937	25.5	7.20	11.2	202.4	28.51
1630	11000	7.08	5883	26.6	7.36	11.1	201.8	—

Flow Rate 100 mL/min
 Pump controller setting 100/50F

General Comments:

very
 Pumped/purged at a very low flow rate to prevent well from going dry (minimize drawdown). *Adjusted rate to help lower NTU prior to sampling. Did not get below 10 NTU - Diss. Metals (turbidity)

May need to sample at lower rate for future events. 750/100 mL/min

Sample @ 1630 ALK/TDS/TSS/CI/FI/SO4/pH Rod 226/228

Pale yellow samples
 (7 bottles)

Total Metals/Mercury + Mg/K/Na + DM
 + Dissolved Metals (250 mL unp)

Rate
 150 mL/min
 50 mL/min

100 mL/min
 75 mL/min
 50 mL/min

75 mL/min
 100 mL/min

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID.: MW-8
 Sample I.D. (match bottle and COC form exactly): MW-8
 Date/Time Collected (match bottle and COC form exactly): 12/8/22 1600
 Personnel: E. Ray
 Sample Method: LF Bladder
 Water level meter, pump, and tubing decontaminated prior: (Yes) No
 Sample QC: Duplicate Yes (No) Duplicate Sample ID: _____
 Sample QC: Equipment Blank Yes (No) Equip Blank Sample ID: _____
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) ~ 38
 Date: 12/8/22 Depth to Water (ft, btoc) 32.21'
 Time Completed: 1630 Total Purge 61 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	uS/cm COND (uS/cm)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
1145	START	PUMP						
1155	2000	7.19	29770	354	4.25	16.1	142.9	32.75
1205	5000	7.29	29146	483	4.46	16.1	141.6	32.71
1215	7000	7.32	29074	416	4.74	16.1	141.1	32.70
1225	10000	7.35	28948	>1100	4.51	16.2	140.6	32.78
1235	13000	7.37	29093	994	4.58	16.1	140.0	32.75
1245	16000	7.39	29047	959	4.64	16.1	139.6	32.73
1305	20000	7.42	29218	976	4.64	16.4	139.1	32.72
1315	22000	7.34	29155	611	3.86	16.4	139.2	32.71
1325	25000	7.34	29027	369	3.79	16.2	138.5	32.70
1335	28000	7.34	29006	229	3.84	16.2	138.4	32.71
1345	30000	7.34	28947	190	3.79	16.2	138.3	32.74
1355	33000	7.33	28958	160	3.78	16.2	138.5	32.73
1405	36000	7.32	28844	107	3.79	16.2	138.7	32.74
1415	39000	7.30	28741	91.2	3.82	16.1	138.3	32.76
1425	41000	7.32	28743	86.2	3.81	16.1	138.3	32.78

Flow Rate 300

Pump controller setting 15 D/25 F

General Comments:

Did not stabilize after 3+ hours (NTU > 10). Turbidity seemed to lower around 40-50 NTU for last 30 mins. A diss. metals sample was taken (250 mL unp.) to 1 hr
 Yellow orange samples (7 bottles)

Continue
on back →

Rate
(mL/min)

300
250
300
300



too close to bottom?

Pump cable disconnected * raise #1 ft

<u>Time</u> (24 hour)	<u>Amount</u> <u>Purged</u> (ml)	<u>pH</u>	<u>(μS/cm)</u> <u>COND</u>	<u>(NTU)</u> <u>TURB</u>	<u>(mg/L)</u> <u>DO</u>	<u>T (°C)</u>	<u>(mV)</u> <u>ORP</u>	<u>DTW</u>
1435	430000	7.32	28697	72.6	3.84	16.1	137.7	32.78
1445	46000	7.32	28669	58.4	3.88	16.1	137.7	32.85
1455	48000	7.31	28575	50.6	3.89	16.0	138.1	32.84
1505	50000	7.23	28521	48.4	3.88	16.0	139.3	32.89
1515	52000	7.27	28448	48.2	3.86	16.1	138.9	32.87
1525	55000	7.26	28366	49.3	3.83	16.0	139.1	32.81
1535	57000	7.27	28241	43.4	3.83	16.0	139.0	32.87
1545	59000	7.29	28199	39.0	3.97	15.9	138.3	32.85
1555	61000	7.28	28033	39.7	3.98	15.8	138.0	—

1600 → SAMPLE + DM (>10 NTU) (39.7 NTU before sampling)
 7 bottles (36.6 NTU after sampling)
 total

Water Sample Collection Field Data Sheet

Site Name: Xcel Comanche Well ID.: MW-9
 Sample I.D. (match bottle and COC form exactly): MW-9
 Date/Time Collected (match bottle and COC form exactly): 12/9/22 1400
 Personnel: F. Ray
 Sample Method: Bladder
 Water level meter, pump, and tubing decontaminated prior: Yes No
 Sample QC: Duplicate Yes No Duplicate Sample ID:
 Sample QC: Equipment Blank Yes No Equip Blank Sample ID:
 Well Purging Data (Fill In All Blanks)
 Depth of Sample Collection (pump depth) (ft, btoc) ~23
 Date: 12/9/22 Depth to Water (ft, btoc) 6.26'
 Time Completed: 1430 Total Purge 20 Units L

Field Measurements: Fill In All Blanks

Time (24 hour)	Amount purged (ml)	pH	MS/cm COND (mS/m)	TURB (NTU)	DO (mg/L)	TEMP (C°)	ORP (mV)	Water Depth (ft, btoc)
1200	START	pump						
1210	3000	6.91	22171	30.4	1.99	14.0	95.9	8.62
1220	STOP	pump						
1300	Restart	pump						
1310	9000	6.86	22335	15.0	1.36	14.0	113.5	9.28
1320	11000	6.90	22272	9.93	1.38	13.9	114.3	9.66
1330	12000	6.88	22331	12.0	1.28	13.9	114.1	10.01
1330	14000	6.92	22331	12.0	1.28	13.9	114.1	10.01
1340	15000	6.89	22270	10.5	1.30	13.8	114.6	10.19
1350	17000	6.87	22352	7.00	1.37	13.9	115.2	10.5
1355	18000	6.86	22401	6.91	1.36	14.0	115.5	10.69
1400	20000	6.85	22373	7.84	1.42	14.0	115.4	—
1400	SAMPLE		pale yellow samples		(6 bottles)			

Flow Rate 300
 Pump controller setting 10/40
 General Comments:

pale yellow color (6 bottles)

Rate
 300
 |
 275
 |
 300
 250?
 300